Housing Choice Voucher Marketing Opportunity Index: Analysis of Data at the Tract and Block Group Level

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CHAPTER ONE: RESEARCH DESIGN

Research Design

The proposed research design draws upon significant research on poverty deconcentration efforts with the HCV program to form the basis constructing an index or housing opportunity across all census tracts in the United States and Puerto Rico.

Significant Research on Poverty Deconcentration

♦ **Housing Mobility Programs and Poverty Deconcentration**

Among the goals of housing mobility programs is the deconcentration of poverty (Department of Housing and Urban Development, 2006). Deconcentration is valuable in that it can reduce the high concentrations of poverty that create distress within the affected neighborhoods. As households are moved from areas of high poverty concentration to areas of low concentration, it is hoped that additional benefits will accrue. These include providing the households with access to better employment, education, and shopping opportunities in addition to access to better quality housing in better neighborhoods.

♦ **Neighborhood Outcomes with the Housing Choice Voucher Program**

The Housing Choice Voucher (HCV) program is designed to provide very low-income households with spatial mobility (Winnick, 1995). Sadly, the HCV voucher program has been unable to generate the spatial mobility that its designers hoped it would achieve. In general, the recipients of vouchers are able to use the vouchers to reduce the burden of housing costs upon their limited income, but they have not used the vouchers to move to demonstrably better neighborhoods and are, in fact, confronting increasing difficulties in gaining access to good neighborhoods (Varady and Walker, 2003). This has brought about an experimental version of the voucher program, called Moving to Opportunity (MTO) (Goering, Feins, & Richardson, 2003).

♦ **The Moving to Opportunity Program**

Research on the MTO program finds that dispersing impoverished households through housing programs may reduce the social problems that result from the concentration of this population, but our understanding of the linkages between neighborhood and life outcomes is incomplete. Evidence is growing that neighborhood conditions influence the outcomes a household will experience. Research reviews on this topic are found in Brooks-Gunn, Duncan, & Aber (1997), Ellen & Turner (1997; 2003), Friedrichs (1998), Galster & Zoebel (1998), Leventhal, & Brooks-Gunn (2000), Sampson, Morenoff, & Gannon-Rowley (2002), and van Kempen (1997). Specifically addressing the MTO program with its movement to low-poverty neighborhoods, Goering & Feins (2003) collect studies from all five cities where the MTO program was implemented. Gains with the MTO program are found among children in terms of reduced criminal behavior, higher school performance, and improved mental health (Ludwig, Duncan, & Hirschfield,

2001; Ludwig, Ladd, & Duncan, 2001; and Leventhal, & Brooks-Gunn, 2003.). Adults experience modest but statistically significant reductions in welfare usage along with small improvements in employment (Ludwig, Duncan, & Pinkston, 2000; Rosenbaum, 1995).

Unfortunately, methodological challenges remain with this research. The influence of neighborhood location must be isolated from all of the other forces influencing the outcomes in the lives of the poor (Galster, 2003; Leventhal & Brooks-Gunn, 2000). Efforts to do this suggest that the influence of neighborhood conditions upon an impoverished household is generally less than the influence of family- level or individual-level characteristics (Brooks-Gunn, Duncan, & Aber, 1997; Ellen & Turner, 1997).

Implications: The development of an opportunity index should examine more than the level of poverty in the receiving neighborhood. It should examine the potential for education attainment, safety from crime, and gainful employment.

♦ **Trends in Poverty Concentration**

There is an important demographic trend being experienced across the nation. The count of neighborhoods with high concentrations of poverty is decreasing. The spatial concentration of poverty worsened during the 1980s with blacks faring worse than whites (Kasarda, 1993). During the 1990s, this spatial concentration of the poor lessened. By 2000, the number of census tracts with high poverty (greater than 40 percent) fell 24, affecting 2.5 million people (Jargowsky, 2003). This reduction in the number of tracts with high levels of poverty has not meant that the number of low-poverty tracts has decreased. Rather, the number of low-poverty tracts (less than 10 percent poverty) was about constant while the number of tracts with moderate poverty (between 10 and 40 percent) increased (Galster, 2002; Kingsley & Pettit, 2003).

Implications: The development of an opportunity index should examine more than the most recent level of poverty in a tract. It should examine the changes in the level of poverty over time.

♦ **The Net Social Gain from Poverty Deconcentration**

Galster (2002; 2003) examines whether or not the dispersal of the poor results in a net social gain. He investigates alternative models comparing the social costs and benefits of deconcentrating the poor. He suggests that the conditions necessary to justify programs designed to deconcentrate the poor may be more stringent than is commonly held. Arguments for spatial mobility are often framed only in terms of the benefits to the participating households, neglecting the costs imposed upon the receiving neighborhoods. For a net social gain to be realized, the gains from moving the low-income away from areas with high levels of poverty must be greater than the losses experienced by the receiving neighborhoods. Galster (2002) suggests that a net social gain can be generated only if the deconcentration results in fewer neighborhoods with high poverty, more

neighborhoods with low poverty, and no additional neighborhoods with moderate poverty.

Implications: The development of an opportunity index should examine not just the level of poverty in a neighborhood prior to an influx of assisted households, but it should monitor the impact that the in-moving assisted households will have upon the level of poverty there.

♦ **Categories of Poverty Concentration**

Galster goes on to suggest that there may be a non-linear relationship between the level of poverty in a neighborhood and measures of neighborhood condition, such as property values. Much is unknown about this relationship, but limited evidence suggests that a set of thresholds exists (Brooks-Gunn, Duncan, & Aber, 1997; Friedrichs, 1998; Galster, 2005). The first threshold may be found when about 15 percent of the population is living below poverty. Below this threshold, the problems resulting from the concentration of poverty may not significantly impact neighborhood condition. Above this threshold, the problems with increased poverty may rise significantly with each added increment of poverty imposing costs on the neighborhood. The second threshold may be found at about 40 percent. Above this threshold, the negative effects of concentrated poverty reach a maximum. Increased poverty above this second threshold may have no additional negative effects.

Implications: The development of an opportunity index should examine not just the level of poverty in a neighborhood. It should examine whether the tract is in the low, moderate or high category.

Proposed Technique to Develop a Housing Opportunity Index for Census Tracts

♦ **Prepare Data**

This research will make use of an existing tract level data set that contains records for the over 65,000 census tracts in the United States. This data set will be augmented by the addition of records describing the tracts for Puerto Rico. In addition, the data set will be augmented by the addition of variables describing additional housing counts such as the most recent count of HCV households in each tract.

♦ **Description of the Data Base**

The data set:

Unit of analysis: Census tracts, 2000 boundaries
Scope: United States plus Puerto Rico

The data set has fields for:
      Census 2000 descriptors of tract population
            Population count by race, ethnicity, income, poverty status, level of
            educational attainment, and employment status
      Census 2000 descriptors of tract housing stock
            Total housing count by tenure, age of the unit, rent level including the
            count of rental units offered with a gross rent below the Fair Market Rent
      Census 1990 descriptors of tract population and housing stock
            These fields are used to identify the pace and direction of change of key
            variables such as percent of population below poverty, percent minority,
            gross rents, etc.
      HCV households
            Counts for 2000, 2001, and 2002 by race, ethnicity, disability status,
            elderly status, income from welfare, income from wages
      Assisted housing projects
            Counts units subsidized through the Low-Income Housing Tax Credit,
            public housing, Section 8 New Construction / Substantial Rehabilitation,
            Section 236, and miscellaneous other programs
            Counts are also available for homebuyers using both conventional
            financing as well as Government Sponsored Enterprise and FHA/VA
            insured financing by race, ethnicity and income. These homeownership
            programs may or may not prove to have relevance for this study.

    ♦ **Tasks and Approach**

The proposed research will produce an index for every Census tract in the United States using multiple criteria measuring the housing, demographic, and economic conditions of each tract. The index will identify each tract's potential opportunity for Housing Choice Voucher (HCV) holders seeking housing to locate improved housing and neighborhood conditions. The index will be designed for use by Public Housing Authorities (PHAs) to help voucher-holders identify neighborhoods (defined as Census Tracts) that have relatively low poverty rates, an available stock of at-or-below Fair Market Rent housing, economic opportunities for HCV holders, and a relatively low density of subsidized households (with HCV, public housing, or other multifamily assisted housing projects).

The basic approach will be to examine a large array of tract level variables that measure the housing, demographic, and economic characteristics of each tract. These measures will be analyzed using factor analysis to identify the common factors that run through these measures. Factor analysis will identify these common elements by assessing neighborhood conditions and finding the variables that contribute most strongly to these common elements and suggesting the relative strength of each element in explaining the condition of each neighborhood.

The indexes constructed may be built either from the factor scores produced from the factor analysis or from a select set of key variables that contribute most strongly to these factor scores. Use of factor scores may explain more variance in the variables, but use of

a smaller number of key variables will make the index more understandable and easier to use by PHAs.

Where the scale of the housing market is very small or nonexistent, the tract will be flagged as providing a prohibitively small housing search potential.

Separate indexes will be constructed for housing conditions, economic conditions, and demographic conditions. These will also be combined into a single comprehensive index.

♦ **Mapping Indexes for Selected Metropolitan Areas**

The indexes will be displayed graphically on tract level thematic maps for a set selected of metropolitan areas. The areas will be selected based upon a set of criteria including:
- Market softness / tightness:
  - Market measures such as vacancy rates plus rent and rent growth levels,
  - Success rates for HCV households leasing units, and
  - Pace of population growth (or decline).
- Market location:
  - Region of the nation, and
  - Rural versus urban markets.

This index could become part of an internet-based mapping application that PHAs could use to make voucher-holders more aware of their choices and help them to find housing in neighborhoods most suitable to their needs. The final product should be considered a prototype for producing similar indices based on 2005-08 American Community Survey tract data, as soon as those data become available.

♦ **Criteria to be explored**

For each tract in the United States plus Puerto Rico, the following criteria will be explored:

- Household Income Distribution in the tract.
  - Percent of households below poverty in 2000.
  - Change in percent of households below poverty 1990 to 2000.
  - Median household income 2000.
  - Change in median household income from 1990 to 2000.

- Federal housing assistance in the tract.
  - Presence of other HCV households for most recent year available.
  - HCV households as a percent of rental households.
  - Change in the presence of other HCV households 2000 to current.
  - Change in the total count of HCV households 2000 to current.
  - Change in HCV households as a percent of renter households.

- o Presence of project-based units including public housing, Low-Income Housing Tax Credit housing, plus other programs.
- o Presence of very low-income homebuyers.
- o Change in the presence of very low-income homebuyers.

- Demographics in the tract.
    - o Total number of households.
    - o Change in total number of households.
    - o Percent racial and ethnic minority households.
    - o Percent of non-family and single-parent households.
    - o Change in percent minority households.

- Housing stock.
    - o Percent of total stock in rental tenure.
    - o Change in percent of total stock in rental tenure.
    - o Percent of rental units renting at or below FMR 2000.
    - o Median gross rent 2000.
    - o Change in median gross rent 1990 to 2000.
    - o Median value 2000.
    - o Change in median value 1990 to 2000.
    - o Percent of units vacant 2000.
    - o Turnover of rental units 2000.

- Economic health of the tract, assessing the shopping, employment, transportation, and educational opportunities.
    - o Percentage of the workforce unemployed in 2000.
    - o Percentage of the workforce using public transit in 2000.
    - o Percentage of the workforce with short commutes to work in 2000.
    - o Percentage of the workforce attaining various levels of education.

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CHAPTER TWO: CRITERIA FOR CALCULATING INDEXES

Introduction

This research project is designed to produce an index for every Census tract and block group in the United States plus Puerto Rico using multiple criteria measuring the housing, demographic, and economic conditions of each tract. The index identifies each tract's and each block group's potential opportunity for Housing Choice Voucher (HCV) holders seeking housing. This opportunity is to estimate each neighborhood's likelihood to provide high quality housing and neighborhood conditions. The index is intended to be used by Public Housing Authorities (PHAs) to help voucher holders identify neighborhoods (defined as Census Tracts) that have relatively low poverty rates, an available stock of rental units offered at rents at or below Fair Market Rent limits, a high level of employment and educational opportunities for HCV holders, and a relatively low density of households who receive housing assistance from the HCV as well as other programs.

Earlier analysis, submitted January 26, 2009, examined the data at the Census tract level. This research project was expanded to repeat the analysis at the block group level. The concern driving this modification is that analysis at the tract level may be inaccurate because Census tracts may be too large. A Census tract may contain several neighborhoods, each having highly varied levels of poverty. If this is the case, then the notion of helping HCV households relocate to tracts with low levels of poverty may be flawed. The household may simply relocate into a pocket of poverty that exists within the larger tract. The presence of this pocket of poverty can be easily missed if it is small relative to the larger tract. The hope is that analysis at the Census block group level will correct this problem.

The basic approach to development of one or more indexes involves the examination of a large array of variables that measure the housing, demographic, and economic characteristics of each tract and a separate set of variables that describe each block group. This examination used factor analysis on each data set, one for tracts and one for block groups, to identify the common elements that run through these measures. Factor analysis identifies those underlying common elements that assess neighborhood conditions. Those variables that contribute most strongly to these common elements become candidates for inclusion in the opportunity index. In addition, factor analysis suggests the relative strength of these common elements indicating the weights that may be applied to each element in the construction of the opportunity index.

This document comprises a revised version of the second deliverable product in this research project.

This document identifies those variables that may be used at the block group level or the tract level. (An earlier version of this document identified variables that may be used at the tract level only.) This document also summarizes the two different analyses and goes further to examine the extent to which there is variation in the levels of poverty within Census tracts that can be identified using Census block groups.

This document closes with an examination of the variation in the level of poverty among block groups within census tracts. This helps to quantify the extent to which guiding HCV households into selected census tracts could result in errors if the households located into pockets of poverty within otherwise low-poverty tracts.

Selection of Variables

While factor analysis is a useful technique for the distillation of a great many variables down to a more manageable set of elements, theory must drive the initial selection of variables. Fortunately, a large body of theory, based on solid empirical research, provides a foundation for the selections of variables to examine as possible candidates for inclusion in this opportunity index.

♦ **Poverty level alone is insufficient**

The driving force behind this research is the deconcentration of poverty. The hope is that the Housing Choice Voucher program can facilitate greater movement by participating households into areas with low levels of poverty so as to escape the compounding of problems associated with living in areas that suffer from high concentrations of poverty. However, simply moving to areas of low poverty may not be enough. Poverty is only correlated with other problems. It is not a measure of all problems. For this reason, the development of an opportunity index should examine more than just the level of poverty in the receiving neighborhood. It should examine the potential for improved educational attainment, greater safety from crime, a higher probability of obtaining gainful employment, as well as finding a good quality dwelling unit at an affordable rent.

♦ **Changes in poverty**

The concentration of poverty is changing across the nation. The number of neighborhoods suffering from high levels of concentrated poverty fell during the 1990s. However, the decrease in high-poverty neighborhoods did not mean the redistribution of large shares of the impoverished population into areas with low levels of poverty. The number of neighborhoods with low levels of poverty did not change significantly over the decade. Thus, the number of neighborhoods with moderate levels of poverty increased. While it is a good thing to see a reduction in the number of high-poverty neighborhoods, it appears that many of the problems associated with concentrated poverty have simply been transferred to neighborhoods already suffering from above-average levels of poverty.

This means that an opportunity index must not only include a measure of the absolute level of poverty within a neighborhood, it should also calibrate the trend in the level of poverty over time. Where poverty is increasing significantly, it would be unwise to contribute to that rise by the introduction of additional impoverished households through the HCV program.

♦ **Thresholds of poverty concentration**

The impact of poverty on neighborhood distress may not be linear. Evidence exists suggesting that the impact of poverty is defined by thresholds. The first threshold is low, somewhere between 10 and 20 percent. Below this threshold there may be little or no relationship between the level of poverty and the level of overall distress within the neighborhood. It appears that small additions to the level of poverty in these low-poverty neighborhoods will have no measurable impact upon the receiving neighborhood. The second threshold is much higher, somewhere between 30 and 50 percent. Above this threshold there may also be little relationship between incremental increases in poverty and added distress within the neighborhood. Once this upper threshold is achieved, little more distress can be realized. Between these thresholds is where the concerns over incremental increases in poverty are well placed. In this category of neighborhoods, each additional increment of poverty adds to the distress of the neighborhood.

This suggests that if the HCV program is to be effective at fostering the deconcentration of poverty, it should not simply move poor households from areas of high poverty to areas of moderate poverty. This relocation may harm the receiving neighborhoods. Rather, the program should assist households to move to areas with levels of poverty below the lower threshold so that there is no measurable harm done to the receiving neighborhoods. Thus, the development of an opportunity index should examine not just the level of poverty in a neighborhood. It should also examine whether the tract is in the low, moderate or high category.

♦ **Reconcentration of poverty**

If the HCV program simply moves a set of impoverished households from one neighborhood with high levels of poverty into another neighborhood, and through this relocation, creates a new concentration of poverty, little will be accomplished. This means that the use of any index of opportunity should also incorporate a mechanism to monitor the level of assisted housing already existing within the receiving neighborhood. It is desirable that the number of assisted households within a receiving neighborhood be kept small so that new concentrations of poverty will not be created through public action. The addition of impoverished households to a neighborhood should be watched to ensure that the additional households do not push the neighborhood above the lower thresholds beyond which neighborhood distress is increased.

♦ **Housing availability and condition**

Ultimately, the HCV program is a housing program. It can only work where rental housing units are available that can be leased within the regulatory constraints of the program. This means the rental units must exist in the market and must be vacant. This means that the units must be affordable. They must be offered at rents below the Fair Market Rent limitations within the program. Finally, this means that the units must be in acceptable physical condition. They must be able to pass inspection.

♦ **Description of the Data Base**

This research addresses these issues making use of a tract level data set that contains records for the over 65,000 Census tracts in the United States and 211,000 Census block groups. Each

record in this data set holds variables taken from the 2000 Census, the 1990 Census (both standardized by using the census tract boundaries defined for the 2000 Census through the use of GeoLytics data).

A separate data set is being prepared describing the tracts for Puerto Rico. This dataset contains data drawn from the 2000 Census. Unfortunately, GeoLytics does not provide 1990 long form data for Puerto Rico standardized to 2000 tract boundaries. A review of the tracts in Puerto Rico finds that only a relatively small number of tracts experience boundary changes between 1990 and 2000. This may make it possible to use 1990 Census data for Puerto Rico at the tract level with some adjustments for those tracts that did experience boundary changes. This work is ongoing.

The Unites States data set contains fields for:

> Census 2000 descriptors of the population in the tract or block group:

>> Population counts by race, ethnicity, income, poverty status, level of educational attainment, and employment status,

> Census 2000 descriptors of the housing stock in the tract or block group:

>> Total housing counts by tenure, age of the unit, length of residency, rent level including the counts of rental units offered with a gross rent below the Fair Market Rent,

> Census 1990 descriptors of population and housing stock in the tract or block group:

>> These fields are used to identify the pace and direction of change of key variables such as percent of population below poverty, percent minority, gross rents, etc.

The Puerto Rico data set contains similar fields, but it does not contain data from the 1990 census because these fields are not reconciled to the 2000 census tract boundaries.

Tasks and Approach

This research will produce an index for every Census tract and block group in the United States using multiple criteria measuring the housing, demographic, and economic conditions of each tract. The index will identify each tract's potential opportunity for Housing Choice Voucher (HCV) holders seeking housing to locate improved housing and neighborhood conditions. The index will be designed for use by PHAs to help voucher-holders identify neighborhoods (defined as Census tracts or block groups) that have relatively low poverty rates, an available stock of at-or-below Fair Market Rent housing, economic opportunities for HCV holders, and a relatively low density of subsidized households (with HCV, public housing, or other multifamily assisted housing projects).

This immediate task examined a large array of variables that measure the housing, demographic, and economic characteristics of each tract and each block group. These measures have been analyzed using factor analysis to identify the common elements that run through these measures.

In an ideal setting, if enough neighborhoods enjoyed desirable traits (low poverty, high educational attainment and employment) and provided sufficient rental units priced below the applicable Fair Market Rents, it would be simple to guide HCV households to these neighborhoods. As a practical matter, this will be very challenging.

In round numbers, there are about 38 million rental units in the nation, but only a little over 50 percent of these are rented below the Fair Market Rent levels that govern the HCV program. (See Table 2-1). Thus, about 18.6 million units are in the eligible universe of rental units that can participate in the program. However, not all of these units are located in desirable neighborhoods. Many of these units are located in neighborhoods that suffer from high poverty and unemployment.

If the HCV program were to be restricted such that participating households could rent units only in neighborhoods with poverty below 10 percent, only 5.2 million rental units would be available in the marketplace with rents below the applicable Fair Market Rents in about one-half of the one-half in the nation. While the 5.2 million units are greater in number than the approximately 2.0 million HCV households, this may no be enough. With an average vacancy rate within these units of just 5.8 percent, only about 300,000 units would be on the market at any one time. The households in the HCV program seeking eligible rental dwellings would have to compete with other unassisted renter households for these few units.

The HCV program could restrict program households to only those neighborhoods with:

- Low poverty (less than 10 percent of the population),
- Low incidence of female headed households (less than 20 percent),
- Low incidence of high school dropouts (less than 15 percent), and
- Low incidence of unemployment (less than 5 percent).

Were this to be the case, the number of affordable rental units would diminish considerably. Using 2000 Census counts, it is estimated that only 1.1 million rental units would be able to participate in only 3,300 tracts. This count of units is smaller than the number of households already in the HCV program. In addition, units meeting these conditions are located in only one in twenty Census tracts across the nation. This would probably be a prohibitively small number of neighborhoods.

**Table 2-1   Average Demographic Characteristics for
Census Tracts and Block Groups in the United States in 2000**

	Census Tracts		Census Block Groups	
Characteristics of the Area	Average Percent	Standard Deviation	Average Percent	Standard Deviation
Average percent of population below poverty	13.5%	11.7%	13.7%	13.3%
Percent of households headed by females	32.5%	10.8%	32.6%	12.6%
Average percent of adults who did not complete high school	21.1%	14.5%	21.2%	15.2%
Average percent of adult workers who are unemployed	6.5%	6.0%	6.6%	6.9%
Average percent of adult workers able to commute less than 30 minutes	65.5%	17.1%	65.9%	18.0%
Average percent of rental units with rents below the Fair Market Rent	51.6%	24.8%	50.8%	29.0%
Average percent of rental units vacant	6.8%	6.4%	6.4%	9.0%
Number of cases	64,790		202,381	

Source: Census 2000.

This means that the HCV voucher program could not impose such restrictions and function in any meaningful way.

The program could apply an opportunity index to each census tract or block group in an effort to incrementally guide households in the HCV program into more desirable neighborhoods. This effort would seek to maximize the gain to the households participating in the HCV program while minimizing the harm to the receiving neighborhoods.

♦   **Criteria determined through factor analysis**

Factor analysis is an exploratory statistical procedure used to reduce a large set of variable to only a few underlying factors. It is especially useful when there is a significant level of intercorrelation among the variables, as is the case with assessing the quality of neighborhoods. Variables describing the level of poverty, unemployment and educational attainment all are strongly related to each other. Thus, the use of all of these variables individually could generate misleading results.

Factor analysis develops a smaller set of new variables, called factors that contain the common information from individual subsets of variables. These factors have the capacity to capture the common variance found in several variables. In the case of the current project, 62 variables were entered into the analysis and 6 factors were derived. The analysis actually could develop more factors, but the process was stopped at 6 because these factors explained about 50 percent of the variance in the initial variables, and each addition factor after the sixth no longer contained more explanatory power than did an individual variable.

These 6 factors may be described in terms of which variables contribute most strongly to the factors. This contribution is determined by the factor loadings, or communality, of each variable with the factor. A positive factor loading means that an individual factor is directly correlated with a variable. A negative factor loading means that an individual factor is inversely correlated with a variable. Not all variables will have a strong factor loading, thus those variables with strong factor loadings (whether positive or negative) are seen as the defining characteristics of each factor.

The factor analysis was carried out initially for all tracts in the nation, and then again separately for those tracts in central cities, those in the suburbs, and those in non-metropolitan areas is determine if any significant differences are found between these locations. This process was then repeated for the block groups in the nation.

Table 2-2   Factors and the Variables with the Highest Loadings in Census Tracts and Block Groups in the United States in 2000

Factor	Census Tracts	Block Groups
1	Poverty, minorities and drop-outs	Poverty, minorities and dropouts
2	Educational attainment	Educational attainment
3	Race and ethnicity	Single-family housing markets
4	Predominantly low-cost rental housing	Race and ethnicity
5	Turnover of housing	Turnover of housing
6	Large scale housing markets with commuters	Population growth

Table 2-2 summarizes the factors extracted and the variables that contribute most to these factors. The composition of the factors is very similar whether the analysis is at the tract level or the block group level. The first two factors are the same. The first describes the general level of concentrated poverty and minorities. The second describes the general level of educational attainment. The third through sixth vary, but only in small ways. The third and fourth are very similar, but where the third factor at the tract level describes the issues of Hispanic presence, this is the fourth factor at the block group level. Where the fourth factor at the tract level describes the presence of low-cost rental housing, this is described by similar third factor at the block group level. The fifth factors are virtually that same with both tracts and block groups, and the sixth factor, while somewhat different, describe the growth dynamics of the housing market with each unit of analysis.

While the distinction between tract level and block group level analysis is important, the underlying theories of neighborhood opportunity appear to apply equally well. The level of analysis can help to bring different data sets into the analysis. For example, some housing data describing the presence of low-income housing units and low-income homebuyers are only available at the tract level. The level of analysis can help to more accurately identify the neighborhood conditions were a household chooses to locate, conditions that could be blurred if averaged across a larger area.

♦ **Factor loadings for all tracts:**

Factor 1   *Poverty, minorities and drop-outs*

All five variables describing the incidence of poverty and the level of income loaded very strongly (greater than 0.7) with this factor. This factor also loaded strongly with variables describing the incidence of minorities, female-headed households and low educational attainment in the tracts. Thus, this factor is primarily a description of the poverty in the neighborhood, but other variables are so strongly correlated with poverty, that they cannot be separated.

Factor 2   *High educational attainment*

Four of the eight variables describing educational attainment loaded relatively strongly (0.5 or greater) with this factor. Unlike the first factor that loaded inversely with the presence of high school degrees as the terminal degree, and this factor loads directly with variables assessing the incidence of adults who completed college.

Factor 3   *Race and ethnicity*

The third factor demonstrates the importance of race in the nation's housing markets. It loads strongly with variables describing the incidence of minorities identified by race, but not by ethnicity. It loads strongly with the presence of blacks and inversely with the presence of Hispanics.

Factor 4   *Predominantly low-cost rental housing*

Beginning with the fourth factor, the factor loadings tend to be less strong. None of the factor loadings are stronger that .0.5. However, there is a clear pattern of moderate loadings where the tracts have a high percentage of the housing being multi-family rental units offered at low rent levels.

Factor 5   *High turnover*

This factor has moderate loadings for the incidence of recent movers and inverse loadings for long-term residents.

Factor 6   *Large scale with commuters*

This factor has moderate loadings for the size of the population and the incidence of commuters with long travel times to work.

Factor loadings for all Block groups:

Factor 1   *Poverty, minorities and drop-outs*

All four variables describing the incidence of poverty and the level of income loaded very strongly with this factor.[1] Virtually identical to the tract analysis, this factor provides a description of the poverty in the neighborhood along with other strongly correlated variables.

Factor 2   *High educational attainment*
                  As with the tract analysis, four of the eight variables describing educational attainment load into this factor.

Factor 3   *Predominantly high-cost rental housing*

The third factor at the block group level corresponds to the fourth factor at the tract level, although the direction of the loadings is reversed. This factor correlates with single-family housing markets with relatively higher rents.

Factor 4   *Race and Ethnicity*

The fourth factor loads strongly with the presence of Hispanics and inversely with the presence of blacks.

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[1] Only four variables are used in the block group analysis of income and poverty, rather the five used in the tract level analysis. The variable tabulating the incidence of combined poverty and welfare usage is only available at the tract level.

Factor 5   *High turnover*

As with the tract analysis, this factor has moderate loadings for the incidence of recent movers and inverse loadings for long-term residents.

Factor 6   *Population growth*

This factor has moderate loadings for growth in the population and the housing stock.

The factors and the factor loadings for all variables are found in the appendix.

Differences by location in a central city, a suburb or a non-metropolitan area

The most important note to be made concerning the differences between factors as a function of tract or block group location is that there are not many important differences. Independent of metropolitan location, the first factor found describes the concentration of poverty. This demonstrates the importance of the issues of income, poverty and employment throughout the nation without regard to location in metropolitan or non-metropolitan settings.

The remaining factors do show some differences in the order of the factors. The order suggests something about the importance of the issues in the location, if a factor is first or second, then this issue is generally more important than a factor that is fourth or fifth.

In central city tracts and block groups, the second factor describes the tenure of the housing. It loads strongly positive with variables that show rental tenure dominating the housing stock and a high incidence of low-cost rents and inversely with educational attainment. For the suburban and non-metropolitan tracts and block groups, the second factor is educational attainment with similar composition to the factor found for all tracts. For central city tracts, the educational attainment factor is fifth. The fourth central city factor at both the tract level and the block group is another descriptor of the housing market but it isolates the volatility of it. These factors load positively with the percent of renters who moved recently and inversely with the percentage of renters who are long-term residents. This difference suggests that the composition of the housing stock and its turnover tells more about a neighborhood within central cities than is true for the suburban and non-metropolitan tracts. This may simply reflect the greater diversity in the makeup of and turnover in the housing stock found in central cities than is true in the more homogeneous and stable non-central city tracts.

There is one interesting factor that is peculiar to the suburban tracts. The third suburban factor can be seen as the "pink collar" factor. It loads positively with the presence of female-headed households and the incidence of rental units, especially low-cost rental units. This suggests that some suburban housing markets are well-suited to female-headed households who rent. However, this factor did not load significantly with measures of employment as might have been expected if this factor describes housing suited to a particular segment of the workforce.

Another interesting factor that is peculiar to a single location is found in the non-metropolitan tracts. The second factor among the non-urban tracts describes commuter tracts. These tracts have large mobile, well-educated populations who live in high-cost rental dwellings. This factor loads positively with the scale of the population, the percentage of recent movers, the percentage of the housing stock that is rental, and the level of rents. The third non-metropolitan factor is similar to the second in that it describes the growth and newness of the stock. It describes rapidly growing tracts with new rental units.

The fourth suburban factor at the tract level describes the stability of the residents. It loads positively with long-term residents and older rental stock and inversely with turnover. While the direction of the loading is opposite to the stability factor for all tracts, the issues are the same. Some tracts are stable and others have high turnover.

It is interesting to note the absence of several variables to enter in a strong way. Those variables that describe the changes in a tract's demographics from 1990 to 2000 did not seem to play a particularly important role in the construction of many of the factors. For all tracts, only two variables, growth in the number of high school drop-outs and the decline in short-distance commuters entered into any factors. In the central city tracts, no trend variables entered at the 0.4 level or higher. The suburban and non-metropolitan tracts saw only a few variables load into any of the factors, but these loadings did not change the meaning of the factors. For example the suburban second factor describes level of educational attainment and loads with the change in the percent of adults with no high school degree.

Figure 2-1   Distribution of Block Groups by the Incidence of Poverty United States
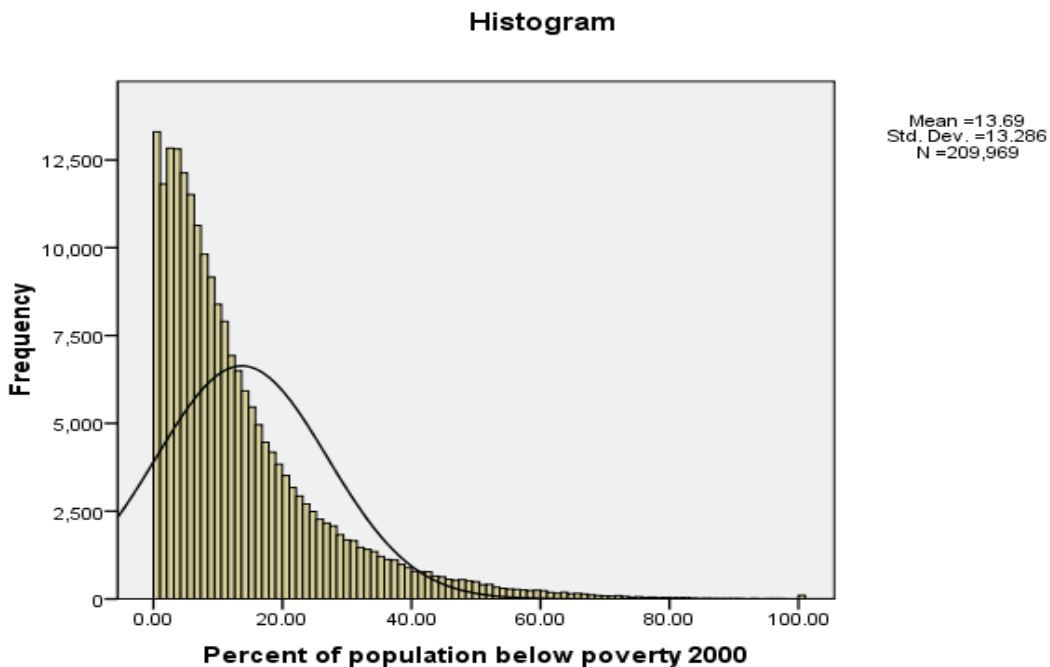
♦ **Dispersal of poverty with Census tracts**

Deconcentration of poverty is an objective of the Housing Choice Voucher program. Typically, about 14 percent of the population of a neighborhood, whether measured as a tract or a block group, lives below poverty. However, this is not distributed evenly. Rather, there is a tendency for many neighborhoods to have a very low level of poverty. Over one-half of all block groups have less than 10 percent poverty. At the other extreme, only about one in twenty have very high poverty, greater than 40 percent. (See Figure 1).

Table 2-3   Distribution of Poverty
Census Tracts and Block Groups in the United States in 2000

	Block Groups	Percent of Block Groups in Tract Category	Percent of Block Groups in Tract Category
Tract poverty low and block group low	126,597	90.3%	
Tract poverty low and block group moderate	13,544	9.7%	
Tract poverty low and block group high	122	0.1%	
All tracts with low levels of poverty	140,263	100.0%	67.6%
Tract poverty moderate and block group low	14,143	23.4%	
Tract poverty moderate and block group moderate	41,546	68.8%	
Tract poverty moderate and block group high	4,702	7.8%	
All tracts with moderate levels of poverty	60,391	100.0%	29.1%
Tract poverty high and block group low	151	2.2%	
Tract poverty high and block group moderate	1,809	26.3%	
Tract poverty high and block group high	4,923	71.5%	
All tracts with high levels of poverty	6,883	100.0%	3.3%
All block groups	207,537		100.0%

	Block Groups	Percent of Block Groups
Block group in lower poverty cateogry than tract	16,103	7.8%
Block group in the same category as tract	173,066	83.4%
Block group in higher poverty category than tract	18,368	8.9%
All block groups	207,537	100.0%

Note: Low-poverty is less than 10 percent and high-poverty is above 40 percent.
Table 2-3 provides information that helps to guide the decision over the use of Census tracts versus block groups. At issue is whether or not the variation within tracts is large enough to make use of census blocks the preferred units of analysis? Both tracts and the block groups across the nation were coded by the category of poverty corresponding to the research on this topic. The first category, low-poverty, contains neighborhoods with below 15 percent poverty.

The second category, moderate-poverty, contains neighborhoods with 15 to 40 percent poverty. The third category, high poverty, contains neighborhoods with more than 40 percent poverty.

In the simplest analysis 84 percent of block groups are in the same category as the tract in which they are located. This means the about 84 percent of the time, it makes no difference whether the poverty estimation is made at the tract or block group level. However, 16 percent of the time, there is a difference and thus, about one time in six, and the use of tracts rather than block groups would result in an error.

There is some interesting variation in this. There is less variation among low-poverty tracts than among high-poverty tracts. In low-poverty tracts, 90 percent of the block groups in these tracts are also in the low-poverty category. Nearly all of the remaining block groups were in the moderate-poverty category with only 0.1 percent in the high poverty.

However, as the comparison moves into higher levels of tract poverty, the percent of block groups in a different category rises. In both the moderate-poverty and high-poverty tracts, about 70 percent of the block groups in these tracts are also in the same category.

This suggests that if the HCV program targets low-poverty tracts as desirable neighborhoods for households, it will be correct 9 times out of ten. Unfortunately, this also means that the program will be incorrect 1 time out of ten. This error rate has the potential to damage the reputation of the program. If the HCV program helps to located small numbers of impoverished households into tracts that have less than 10 percent poverty, empirical research suggests that there will be no measurable harm done to the receiving neighborhoods. Unfortunately, if the target neighborhood is identified at the tract level, 1 in 10 households will likely locate in a block group that already suffers from above average poverty (greater than 15 percent). These neighborhoods will be harmed by the movement of additional impoverished households to these block groups that already have above average levels of poverty.

It would seem that it would be preferable to make use of block groups as the unit of analysis. This would prevent some level of guiding program households into what are perceived as low-poverty neighborhoods only to have the those households locate in areas that, in fact, have higher levels of poverty.

♦ **Recommended unit of analysis**

It is recommended that, if possible, block groups be used as the unit of analysis for development of a neighborhood opportunity index for the HCV households. Most of the data taken from the decennial census are available at the block group level. As the Census Bureau transitions away from the long-form decennial census questionnaire to the American Community Survey, very similar data should be available with the data being more current through the American Community Survey. The Census Bureau indicates that the particular data tables examined in this study, such as race, poverty, employment and educational attainment, will be available at both the tract and block group level. This permits either block groups or tracts to be used as the unit of analysis.

The one difficulty with the use of block groups is the capacity to identify the counts of assisted rental housing units or assisted households in the neighborhood. To date, the data identifying the presence of housing units assisted through the various rental assistance programs (such as the public housing, Section 8 New Construction/Substantial Rehabilitation, or Section 236) are all provided only at the level of the census tract, not the block group. This is also true for the data from the Home Mortgage Disclosure Act that identify where very low-income homebuyers purchase a home, which may also contribute to the identification of neighborhoods with strong opportunities for HCV households.

♦ **Recommended criteria for the opportunity index**

Examination of the 65,000 tracts and 211,000 block groups in the nation and the over 60 variables describing the population and housing characteristics suggest that the opportunity index be constructed using the following criteria:

- *Incidence and trend of poverty*

  The level of poverty in each tract or block group should be used to identify the housing opportunity for HCV households. The level of poverty can be both a linear variable as well as a constraint. It is a linear variable in that less poverty is better than higher poverty. It may be a constraint in that it may be desirable to eliminate tracts that suffer from high levels of poverty. Equally it may be desirable to eliminate tracts that are vulnerable to being pushed from moderate levels of poverty into a high level of poverty if significant numbers of HCV householders move into these tracts. In the development of this measure, it is important to remember that the average tract in the nation has 13 percent of its population living below poverty. Simply living in a tract with a below average level of poverty means living in a tract that is below the lower threshold for causing additional neighborhood distress if the level of poverty increased marginally.

- *Educational attainment*

  The level of educational attainment in each tract or block group should be used to identify housing opportunity. Educational attainment can be calibrated through low levels of high school dropouts or high levels of adults who completed college or a combination of the two.

- *Employment*

  The level of employment in each tract or block groups should be used to identify housing opportunity in each tract or block group. Employment can be readily measured by the percentage of the adult workforce that is employed. This measure excludes adults that are in the military or are not in the workforce due to enrollment in school or due to disability or other similar condition.

- *Ease of access to employment*

  The incidence of workers who are able to live in close proximity to their place of work should be used to identify housing opportunity in each tract or block group. About two-thirds of workers who do not work in their home are able to live within a 30-minute commute of their job. Thus, an index, which values both high employment and short commutes, should identify tracts with good employment prospects.

- *Race*

  As in all urban policy, race continues to be the ever-present force. It is clear from the factor loadings that race and, to a lesser extent, ethnicity (defined here as a population that is Hispanic versus non-Hispanic) continue to be extremely strong forces in the nation's housing markets, distinguishing one neighborhood from another. Race is the third factor overall and the second factor for metropolitan tracts. It is unclear whether race can, or even should, be a part of an index describing housing opportunity. The racial composition of the receiving neighborhood was part of the selection criteria for households in the Gautreaux relocation program. The households in the Moving to Opportunity program were restricted only in terms of the level of poverty within the receiving population. A housing opportunity index could be constructed with measures of both the racial and ethnic composition of the tract, seeking to avoid high concentration of minorities. The index can also be neutral to the incidence of minorities among the resident population of tract if that is desired.

- *Presence of other assisted households*

  To this point in the analysis, the factors were constructed without inclusion of variables describing the presence of other assisted households or housing units. This can be easily added. However, it is likely that the presence of other assisted households would work not as a linear variable adding to the index but as a constraint. If the number of other assisted households or housing units already exceeds a relatively low threshold, then HCV households should probably be guided to other neighborhoods.

- **What has not been examined**

Several issues have not been explored, and possibly should. The current analysis depends heavily upon data available from the Census. This may be sufficient as several variables available from the Census correlate with other factors that should be a part of the development of an opportunity index. For example, the Census does not provide measures of the quality of schools within tracts, but the educational attainment in the tract population may correlate well with school performance. The Census does not provide measures of the level of crime in a tract, but the poverty and other measures of neighborhood distress may correlate with the level of crime. The Census does not provide measures of the number of jobs located in a tract, but the presence of employed workers residing in a tract and the incidence of short commutes to work should correlate well with the number of jobs in a tract.

However, it is possible that other data sets should be explored to see if they can provide data which will improve the assessment of a tract's potential to provide opportunities for good housing, employment, schools, shopping and other services.

CHAPTER TWO ADDENDUM: CRITERIA TO USE FOR CALCULATING THE INDEXES FOR PUERTO RICO

Introduction

This research project is designed to produce an index for every Census tract and block group in the United States plus Puerto Rico. Because the concentration of poverty is dramatically different in Puerto Rico, it is handled separately.

The typical neighborhood in Puerto Rico contains a population with nearly one-half living below poverty. Both tracts and block groups average 48 percent poverty (compared to 14 percent in the United States). (See Table 2-4.)

Table 2-4   Average Demographic Characteristics for Census Tracts and Block Groups in Puerto Rico in 2000

Characteristics of the Area	Census Tracts		Census Block Groups	
	Average Percent	Standard Deviation	Average Percent	Standard Deviation
Average percent of population below poverty	48.4%	15.7%	48.1%	19.3%
Percent of households headed by females	38.5%	9.6%	38.7%	12.2%
Average percent of adults who did not complete high school	40.8%	13.3%	40.7%	15.9%
Average percent of adult workers who are unemployed	20.5%	9.0%	20.7%	11.6%
Average percent of adult workers able to commute less than 30 minutes	56.7%	15.2%	57.3%	17.2%
Average percent of rental units with rents below the Fair Market Rent	53.2%	22.9%	50.3%	28.8%
Average percent of rental units vacant	7.2%	5.0%	7.2%	7.9%
Number of cases	823		2,408	

Puerto Rico is noteworthy in other respects beyond the level of poverty. The percentage of the adult population without a high school diploma is 41 percent compared to 21 percent in the United States. The level of unemployment in 2000 was 20.5 percent compared to 6.5 percent in the United States. These demographic characteristics indicate that Puerto Rico not only suffers from a high level of poverty, but that this poverty is a product of a low level of educational attainment which then results in high unemployment. All of these factors compound the problems of finding neighborhoods with high quality housing opportunities for HCV households.

In several other areas, the housing and demographic characteristics of Puerto Rican neighborhoods appear to be very similar to those in the United States. The percent of households headed by females is 39 percent in Puerto Rico and 33 in the U.S. Among rental units, a little over one-half were rented at or below the FMR and vacancy rates were comparable in 2000 both in the U.S. and in Puerto Rico. These are listed in more detail in the tables found in the appendix.

The Distribution of neighborhoods in Puerto Rico by level of poverty

The distribution of neighborhoods in Puerto Rico by level of poverty is relatively normal. (See Figure 2.) The block groups in Puerto Rico are equally divided at the 50 percent poverty level. Only 10 percent of block groups have poverty below 20 percent, a level that would still be considered above average or moderate poverty in the United States. Only one-third of the block groups have poverty levels below 40 percent, the generally accepted threshold for high poverty in the U.S. At the other extreme, about 10 percent have poverty above 70 percent, indicating that while neighborhoods with very high concentrations of poverty are commonplace, they are a minority of neighborhoods. One-half of all block groups have between 34 and 62 percent poverty, which means that the typical neighborhood in Puerto Rico contains poverty at a level that would be considered high in the U.S.

**Figure 2-2   Distribution of Block Groups by the Incidence of Poverty
                 Puerto Rico**

Histogram

Mean =48.08
Std. Dev. =19.32
N =2,432

Percent of population below poverty 2000 (x-axis)
Frequency (y-axis)
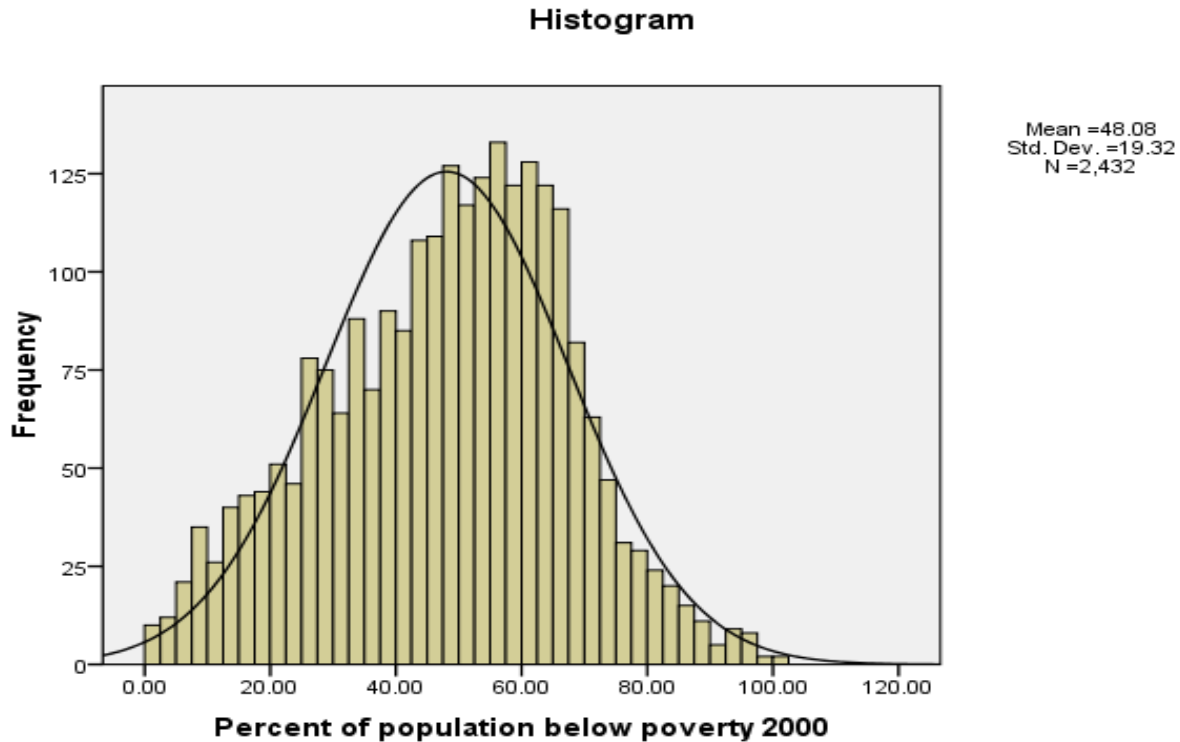
♦ **Dispersal of poverty with Census tracts**

Table 2-5 compares census tracts and block groups in terms the concentration of poverty. As with analysis in the United States, there is a concern that analysis of census tracts may not be an appropriate unit of analysis.   While a tract may have one level of poverty, that level may be the average of multiple block groups with poverty levels that differ significantly.

Table 2-5 indicates that 78 percent of the approximately 2,400 block groups in Puerto Rico have the same category of poverty as the census tracts where they are located. This is similar to but slightly lower than the 83 percent found in the U.S.

Table 2-5   Distribution of Poverty
Census Tracts and Block Groups in Puerto Rico in 2000

	Block Groups	Percent of Block Groups in Tract Category	Percent of Block Groups in Tract Category
Tract poverty low and block group low	273	70.5%	
Tract poverty low and block group moderate	106	27.4%	
Tract poverty low and block group high	8	2.1%	
All tracts with low levels of poverty	387	100.0%	15.9%
Tract poverty moderate and block group low	207	10.7%	
Tract poverty moderate and block group moderate	1,553	80.0%	
Tract poverty moderate and block group high	181	9.3%	
All tracts with moderate levels of poverty	1,941	100.0%	79.8%
Tract poverty high and block group low	1	1.0%	
Tract poverty high and block group moderate	26	25.0%	
Tract poverty high and block group high	77	74.0%	
All tracts with high levels of poverty	104	100.0%	4.3%
All block groups	2,432		100.0%

	Block Groups	Percent of Block Groups
Block group in lower poverty cateogry than tract	234	9.6%
Block group in the same category as tract	1,903	78.2%
Block group in higher poverty category than tract	295	12.1%
All block groups	2,432	100.0%

Note: Low-poverty is less than 30 percent and high-poverty is above 70 percent.

Among the difficulties found with the analysis of poverty concentration in Puerto Rico is determining the appropriate thresholds for categorizing the neighborhoods. Where 10 and 40 percent are useful in the U.S., these are too low in Puerto Rico. With little to guide the selections of thresholds other than the distribution of poverty among the neighborhoods of Puerto Rico, the analysis assumes that poverty below 30 percent is deemed to be low and above 70 percent is deemed to be high.

As with the analysis for the U.S., the majority of block groups and tracts are in the same poverty category, but about one in five are not. This level of error suggests that, if the data are readily available at the block group level, this smaller unit of analysis will be preferable as it more closely reflects the neighborhood's level of poverty.

♦ **Criteria determined through factor analysis**

The census tracts and block groups of Puerto Rico were analyzed using factor analysis to determine those common housing and demographic elements that best describe the variation among the neighborhoods. This analysis differed from that for the United States due to data availability and the ethnic composition of the population of Puerto Rico.

First, data from the 1990 census tracts are not available with tract and block groups boundaries reconciled to the boundaries used with the 2000 Census. As such, the analysis for Puerto Rico does not include trend variables measuring change from 1990 to 2000. It is unlikely that this is a significant problem as the trend variables in the analysis for the United States do not generally prove to contribute in any significant manner to any of the factors identified in the factor analysis.

Second, over 98 percent of the population of Puerto Rico is Hispanic. As a result the race and Hispanic origin variables used in the analysis for the United States will not work. Rather, the analysis uses standard racial categories of Hispanic white, Hispanic black, and Hispanic other as the major categories with a residual category for all non-Hispanics. The difficulty with this grouping is that many Hispanics who are Caucasian choose to report themselves as members of the "Other Race" category. This suggests that the analysis of racial differences across neighborhoods of Puerto Rico should focus on differences between those reporting themselves as black versus those who report themselves as either white or other.

With these differences, the analysis is otherwise very similar to that for the United States and produces very similar results.

Table 2-6   Factors and the Variables with the Highest Loadings in Census Tracts and Block Groups in Puerto Rico in 2000

Factor	Census Tracts	Block Groups
1	Poverty, unemployment and dropouts	Poverty, unemployment and dropouts
2	Female-headed households and multi-family rental units	Female-headed households and older rental units
3	Race	Race
4	Population	Turnover housing
5	Turnover housing	Large-scale rentals
6	---	Female-headed housines and rental turnover

Table 2-6 summarized the factors extracted and the variables that contribute most to these factors for Puerto Rico. Two conclusions can be made. First, the factors for Puerto Rico are very similar to those for the United States. Second, the factors for tracts in Puerto Rico are very similar to those for block groups.

♦ **Factor loadings:**

Factor 1   *Poverty, minorities and drop-outs*

With either unit of analysis, the most important factor is the combined effects of poverty, unemployment and low educational attainment.

Factor 2   *Female-headed households and rental units*

The second factor reflects a combination of household and housing composition. This factor, for both tracts and block groups, loads most strongly with variables that measure the presence of female-headed households and rental properties. With tracts, this rental component draws more from measures of the number of units in the structure. With block groups, the age of the rental units contributes most. With these subtle differences, the second factor identifies the concentrations of female-headed households who have few housing options other than to rent.

Factor 3   *Race*

Race remains a factor, even in virtually all-Hispanic Puerto Rico. This third factor is clearly a race factor whether the unit of analysis is a tract or a block group. This factor loads strongly positive with the variable that measures the percentage of Hispanic whites in the neighborhood and loads strongly negative with the variable that measures the percentage of Hispanic blacks in the neighborhood.

Other factors are found, but they are less strong. The variables do not contribute as strongly to the remaining factors, and therefore are less instructive.

Finally, the factor analysis examined metropolitan Puerto Rican tracts and block groups separately from the non-metropolitan. The differences in metropolitan versus non-metropolitan location proved to make little difference. In all cases, the first factor was a combination of poverty, unemployment and poor education. The second and third factors were similar as well with only minor changes. The presence of female-headed households varies somewhat in how it contributes to the various factors, but is always is associated with poverty and rental properties with no meaningful differences between metropolitan and non-metropolitan areas.

♦ **Recommended unit of analysis for Puerto Rico**

As with the United States analysis, use of block groups to identify high opportunity neighborhoods would be preferred. While the factors seem to be the same, the dominant issue is the concentration of poverty. While most tracts and block groups within each tract have approximately the same level of poverty, in about one case out of five, significant differences are found. These differences can be eliminated if the unit of analysis is the block group.

♦ **Recommended criteria of the opportunity index in Puerto Rico**

The greater problem with the identification of a housing opportunity index for Puerto Rico is the higher level of poverty that is found in virtually all neighborhoods. The average neighborhood in Puerto Rico houses a population with one-half living below poverty. Less than one in ten neighborhoods has a poverty rate below 20 percent. Thus, it will be very difficult to guide HCV households to neighborhoods with truly low levels of poverty as very few are available.

In all other respects, the criteria for development of a housing opportunity index for Puerto Rico would be very similar to that for the United States. The opportunity index should guide HCV households away from concentrated poverty and toward areas with greater educational and employment opportunities. The opportunity index may also want to guide HCV households away from areas with high concentrations of minorities and other assisted housing units.

CHAPTER THREE: CRITERIA FOR INCLUSION IN A HOUSING OPPORTUNITY INDEX

Executive Summary

Purpose: This section analyzes the criteria that were identified as possible candidates for inclusion in a housing opportunity index. These criteria were identified in an earlier task. They include the neighborhood's concentrations of poverty, minorities, high-school dropouts, unemployed workers, workers with short commutes, and assisted housing.

Scope and Unit of Analysis: This analysis was carried out twice, first using tract level data and second using block group level data. Each was completed separately for the United States and Puerto Rico.

Characteristics of a High Opportunity Neighborhood: The distributions of neighborhoods by various criteria were examined. For each individual criterion, a level was established to identify those neighborhoods offering high opportunity for HCV households. Using these thresholds, the ideal high opportunity neighborhood would be limited to:

- Poverty below 10 percent of the population,
- Poverty that is stable or falling over time,
- Assisted housing (vouchers and project-based housing) comprising less than 5 percent of the housing stock in tracts and 15 percent in block groups,
- HCV households consuming not more than 4 percent of the housing stock,
- Minority concentration that are not more than 20 percent of the population,
- Unemployment among adult workers below 5 percent;
- Commutes of under 30 minutes are experienced by at least 75 percent of adult workers, and
- Less than 15 percent of adults are high school dropouts.

Available High Opportunity Neighborhoods: The neighborhoods possessing all of the characteristics of a high opportunity neighborhood are few in number. The HCV program is now dispersed across 56,000 tracts, but only about 2,100 would be considered high opportunity under the criteria outlined. The number of HCV households is in excess of 2.2 million, but only 260,000 rental units are available at or below the FMR in these opportunity neighborhoods. If the counts of neighborhoods and rental units are too small given the restrictive criteria, it becomes advisable to examine the sensitivity of the number of neighborhoods and the number of rental units below FMR to relaxation of the constraints.

Proposed Index: An index is proposed that identifies neighborhoods as opportunity neighborhoods using relaxed constraints. If a neighborhood has a level of poverty below 10 percent and HCV households occupy less than 4 percent of the housing stock, then the neighborhood would be designated as an opportunity neighborhood. Otherwise the neighborhood would not be deemed an opportunity neighborhood independent of its other characteristics.

If a neighborhood meets the above conditions, it would gain a higher index if it has any of the following conditions:

        Unemployment below 5 percent;

        High school dropouts below 15 percent of all adults;

        Assisted project-based housing less than 5 percent of the housing stock for tracts or 15 percent for block groups;

        Minorities are less than 20 percent of the population;

        Poverty is declining; or

        Over 75 percent of workers have short commutes to work.

The tracts that meet the minimum conditions to be deemed an opportunity neighborhood are about 40 percent of all tracts. These tracts contain about 3.9 million units, which are about 21 percent of the nation's stock of units offered at rents at or below the FMR.

Puerto Rico: Poverty in Puerto Rico is pervasive. About one-half of all Puerto Ricans live below poverty. Unlike the United States where poverty is concentrated and most neighborhoods have very little or no poverty, in Puerto Rico, poverty is widespread and normally distributed. Designation of opportunity neighborhoods based primarily on the incidence of poverty is problematic in Puerto Rico and not recommended.

Criteria for Inclusion in a Housing Opportunity Index

Introduction

This section analyzes the criteria that were identified as possible candidates for inclusion in a housing opportunity index. These criteria were identified in an earlier chapter as tract or block group measures that calibrate the:

- o Percent of the population below poverty;
- o Percent change in the population below poverty;
- o Percent of the population who are racial or ethnic minorities;
- o Percent of the adult population that did not complete high school;
- o Percent of the adult workforce that is unemployed;
- o Percent of the adult workforce with short commutes (under 30 minutes);
- o Percent of the housing that is assisted (tenant-based or project-based); and
- o Percent of the housing that is available below the FMR.

For each of these criteria, the number of neighborhoods that will provide good opportunities for voucher holders drives the development of an opportunity index. The following analysis identifies the counts of neighborhoods (tracts and block groups) that have desirable traits and how many rental units are available in these neighborhood that are offered at rents below the Fair Market Rent (FMR) level.

♦ **Distribution of Housing Units and Units Renting Below FMR**

Table 3-1 lists some of the most basic information on the tracts and block groups of the nation. It shows that there are about 65,000 tracts and 210,000 block groups. Rental housing is widespread, found in nearly all tracts and block groups.

The 2000 Census found 38.3 million rental units in about 65,000 tracts nationwide. Typically, there are 448 rental units in each tract, but they are not evenly distributed. The median is 448 and the mean is 592, indicating that some tracts exist with very large counts of rental units. Block groups are proportionately smaller, but show the same skewed distribution, with the mean pushed high by a few large block groups. Note, however, that rental housing is available in nearly all tracts and block groups. Thus, the complete absence of rental units is not a significant problem for households seeking rental housing.

**Table 3-1   Distribution of Housing Units and Rental Units
                Across Census Tracts and Block Groups**

		Housing Units Owner or Rental 2000	Rental Units 2000
Sum of Units		109,579,684	38,339,689
Tracts	Count	64,963	64,808
	Mean	1,687	592
	Stnd. Dev	832	531
	Median	1,571	448
	Minimum	1	1
	Maximum	11,379	8,659
Block Groups	Count	209,902	206,581
	Mean	528	187
	Stnd. Dev	343	224
	Median	446	118
	Minimum	1	1
	Maximum	11,345	8,659

Source: U.S. Bureau of the Census, Census 2000.

♦   **Distribution of Housing Choice Vouchers Households, Assisted Housing and Units Renting
     Below the FMR**

Table 3-2 provides information on the current distribution of the Housing Choice Voucher
(HCV) program and the universe of rental housing within which it operates. The table shows
that HCVs are widespread.[2] They are found in nearly 56,000 tracts and 147,000 block groups,
about 86 percent of all neighborhoods in the nation. In the tracts, one-half have no more than 18
HCV households. This number falls to 6 for the block groups. However, the distribution is
skewed as some tracts have very large concentrations of vouchers pushing the average up to 39
units in tracts and 15 in block groups.

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[2] For purposes of this study, only regular tenant-based vouchers are included in the analysis. Vouchers were
excluded if used for homeownership, for the Welfare-to-Work program, for project-based vouchers, and enhanced
vouchers. Tenant-based vouchers make up over 99 percent of all Housing Choice Vouchers.

Table 3-2   Distribution of HCV Households and Rental Units Below the FMR Across Census Tracts and Block Groups

		HCV Households 2008	Rental Units Below FMR 2000
Sum of Units		2,160,163	18,575,689
Tracts	Count	55,981	63,263
	Mean	39	294
	Stnd. Dev	55	336
	Median	18	185
	Minimum	1	1
	Maximum	1,243	5,889
Block Groups	Count	147,228	185,163
	Mean	15	100
	Stnd. Dev	24	140
	Median	6	53
	Minimum	1	1
	Maximum	811	5,889

Source: U.S. Bureau of the Census, Census 2000.
            U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

The imposition of a Fair Market Rent reduces the number of available units that may participate in the program, but the rental units offered at or below the FMR are found in most tracts and block groups, in fact, more than are entered by HCV households. HCV households penetrate a large majority of the neighborhoods that offer rental units at or below the FMR as 88 percent of these neighborhoods (tracts or block groups) have at least one HCV household.

Table 3-3 examines the project-based assisted rental housing. These programs developed various forms of subsidized housing over a long period of time. The oldest is the public housing program with its 1.20 million reported units. This is followed by a range of programs including the Section 236, Section 8 New Construction / Substantial Rehabilitation, plus miscellaneous other below market interest and rent supplement programs. This HUD-assisted multifamily housing portfolio contains 1.48 million units.   Finally, the table lists the units in the current Low-Income Housing Tax Credit program. The LIHTC portfolio, though 2006, contains about 1.51 million units.

All of these program totals represent some level of undercounting. Some developments are not reported, and some could not be coded to an individual tract or block group. However, these reported portfolios represent the vast majority of the units developed under these programs making them good descriptors of the programs.

Table 3-3 shows that project-based units are widely distributed and generally represent only a small portion of the total units in their neighborhoods. The median number of units is about 78 in the 30,000 tracts where project based housing projects are found. Note that, among all tracts with rental housing, the median number of rental units is 448. Thus, in a tract with project-based housing, this assisted housing represents less than 20 percent of the rental housing in the tract and only about 5 percent of all the housing units the tract. Block groups are more sensitive to the presence of project-based housing given their smaller size. Where projects are located in block groups, they comprise about one-third of the rental stock and nearly 10 percent of the total stock.

**Table 3-3   Distribution of Project-Based Assisted Units
                Across Census Tracts and Block Groups**

		Public Housing Units 2008	HUD Multi-Family 2008	Low-Income Housing Tax Credit Units 2006	Total Project-based Units
Sum of Units		1,196,065	1,475,836	1,510,422	4,182,323
Tracts	Count of Tracts	14,613	15,151	15,334	30,408
	Mean	82	97	99	138
	Stnd. Dev	166	113	119	196
	Median	30	64	59	78
	Minimum	1	1	1	1
	Maximum	3,378	2,901	2,060	3,667
Block Groups	Count	22,623	17,459	17,327	50,768
	Mean	49	82	81	78
	Stnd. Dev	115	92	98	115
	Median	12	54	48	42
	Minimum	1	1	1	1
	Maximum	2,692	2,901	2,060	2,901

Note: Block Group Count does not include LIHTC units as data are not available at the block group level.

Source: U.S. Bureau of the Census, Census 2000.
              U.S. Department of Housing and Urban Development, Office of Policy Development and
              Research.

Public housing projects are found in about 15,000 tracts, and the multi-family programs are also found in about 15,000. The LIHTC units, the nation's current largest production program, are also found in about 15,000 tracts through 2006. Combining all of these programs, the total project-based assisted housing penetrates just under one-half of all census tracts.

This suggests that HCV program may want to locate households where there is little other assisted housing. The typical tract with assisted project-based housing has about 5 percent of the total housing stock that is subsidized; a similarly low threshold for the maximum amount of assisted housing may be desirable whether the assistance takes the form of project-based housing or tenant-based vouchers.

Table 3-4 combines the HCV households with all other project-based housing and compares it to all other housing in the neighborhood.

The Housing Choice Voucher program reported about 2.2 million vouchers in place in 2008. As with the project-based programs, this is an undercount. Some vouchers were not reported, and some vouchers were reported but could not be matched to a specific tract or block group. Also, at any given point in time, some vouchers are not in place. They are waiting to be awarded to a household or the household is in the midst of searching for a dwelling unit that will meet program requirements.

A typical tract contains only about 18 HCV households out of 448 rental units. This translates into only 4.0 percent of the rental housing and 1.1 percent of all housing. This is a lower level of market capture than is found with project-based housing, but HCV households are able to disperse and penetrate more neighborhoods keeping their presence small. Vouchers are found in about 56,000 tracts compared to the 30,000 tracts with project-based housing.

Assisted housing, both project-based and tenant-based, typically occupies about 41 assisted units and vouchers in a tract. However, this number belies the intense concentration that exists among the rental housing programs. The typical tract has no project-based housing at all. In the tracts where it exists, project-based housing can become a significant large component of the stock with a median presence of over 78 units. This is not the case with vouchers; few tracts with vouchers have more than a small portion of their housing assisted with vouchers, the median is only 1 percent.

Examination of the number of assisted units in a tract is simple; determining the proper measure of market penetration by assisted housing units or voucher households is difficult.

Looking at all 65,000 tracts nationwide, the incidence of assisted housing, either as project-based units or through vouchers, is very low. Over one-half of the tracts have only 1.9 percent or fewer of all housing assisted, but this includes 7,000 tracts that have no vouchers or project-based units. Including only those tracts that contain some form of assisted housing, one-half have less than 2.6 percent assisted housing. Similarly HCVs consume a median 1.1 percent of all units in all tracts, but they typically consume 4.0 percent of the rental units in the tracts with vouchers.

Many issues are involved in determining the level at which assisted housing in a neighborhood is viewed as a threat. The literature is large.[3] However, the bulk of this literature addresses the impact of project-based housing on the value of nearby properties. Little of this research

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[3] See L. Freeman and H. Botein, (2002). Subsidized housing and neighborhood impacts: A theoretical discussion and review of the evidence, *Journal of Planning Literature* 16(3); 359-78.

addresses the impact of vouchers upon receiving neighborhoods, but work by Galster ,Santiago, Tatian, Pettit and Smith address the issue directly. [4]

Galster et al find that a few HCVs in a strong neighborhood can be beneficial if they are small in number (5 or fewer within a 500 radius) and the neighborhood is strong (high market value and values that are appreciating).

A radius of 500 feet is not a big area, approximately 20 acres.   A typical residential development contains 4 to 5 households per acre, thus, a 500 foot radius area would hold about 80 to 100 housing units. The typical tract holds about 1,600 units, and typically there are 3.3 block groups per tract. Thus, the area defined in Galster's work would be only a fraction of a tract, with 17 to 20 such areas in a tract and 4 or 5 in each block group. This means that the maximum desirable number of vouchers could be 70 to100 in a tract with a strong market or 15 to 25 in block group with a similarly strong market. These vouchers would need to be dispersed throughout the area, not concentrated within a single 20 acre area. With 1,600 housing units per tract this would suggest that 4 to 6 percent HCV households is the maximum desirable. Note that the current national mean is only 1.1 percent.
This is very crude arithmetic, and it stretches the reach of Galster's work. Admitting the error inherent in such simple calculations, this figure can provide some guidance.   If the presence of HCV households is greater than 4 to 6 percent of all housing, it is likely to be detrimental to the neighborhood. For purposes of this research, the criterion will be that HCV households should be less than the more restrictive 4 percent of the total housing stock.

**Table 3-4   Distribution of Assisted Units and Households
                 Across Census Tracts and Block Groups**

		HCV Households 2008	Total Project-based Units	Total Assisted Units and Households
Sum of Units		2,160,163	4,182,323	6,342,486
Tracts	Count	55,981	30,408	58,254
	Mean	39	138	109
	Stnd. Dev	55	196	182
	Median	18	78	41
	Minimum	1	1	1
	Maximum	1,243	3,667	3,839
Block Groups	Count	147,228	50,768	156,406
	Mean	15	78	39
	Stnd. Dev	24	115	83
	Median	6	42	10
	Minimum	1	1	1
	Maximum	811	2,901	2,909

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[4] G. Galster, A. Santiago, P. Tatian, K .Pettit, and R. Smith, (2003). *Why not in My Back Yard?*, New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University.

Note: Block Group Count does not include LIHTC units as data are not available at the block group level.

Source: U.S. Bureau of the Census, Census 2000.
          U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦   **Distribution of Housing Units by Category of Poverty**

A primary objective of any poverty deconcentration initiative is the movement of households away from neighborhoods with above-average or high poverty and into neighborhoods with low levels of poverty. About one-half of the census tracts and block groups in the nation enjoy low levels of poverty, below 10 percent, among their resident population. Another 29 percent of tracts and 26 percent of block groups have moderate poverty, ranging from 10 percent to 19 percent. (See Table 3-5.) About two-thirds of all tracts and block groups have below average poverty, at 13.5 percent. This indicates that poverty is highly concentrated. About 900 tracts (4,100 block groups) have poverty in excess of 50 percent, and another 1,500 tracts (5,500 block groups) have poverty above 40 percent. These 2,400 tracts (9,700 block groups) comprise the nation's high-poverty neighborhoods.

Table 3-5   **Distribution of Neighborhoods and Rental Units with Rents Below the FMR by Level of Poverty in 2000**

		Count	Percentage of Total	Units with Rents Below FMR 2000	Percentage of Total
Tracts	Up to 10%	30,966	49%	5,403,770	29%
	10% to 19%	18,635	29%	6,194,371	33%
	20% to 29%	7,601	12%	3,592,963	19%
	30% to 39%	3,618	6%	1,971,597	11%
	40% to 49%	1,545	2%	902,496	5%
	50+%	898	1%	510,492	3%
	Total	63,263	100%	18,575,689	100%
Block Groups	Up to 10%	108,175	52%	5,214,971	28%
	10% to 19%	54,153	26%	5,675,053	31%
	20% to 29%	23,728	11%	3,550,024	19%
	30% to 39%	11,708	6%	2,135,858	11%
	40% to 49%	5,542	3%	1,101,222	6%
	50+%	4,136	2%	898,561	5%
	Total	207,442	100%	18,575,689	100%

Source: U.S. Bureau of the Census, Census 2000.
          U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

The 31,000 tracts (108,000 block groups) with poverty below 10 percent are the low-poverty neighborhoods that can receive HCV households, probably without measurable harm.

The remaining 30,000 tracts (90,000 block groups) are the moderate-poverty neighborhoods. Some level of deconcentration of these neighborhoods would be desirable as they already suffer from above average poverty. It is important that the identification of opportunity neighborhoods not look upon these moderate-poverty neighborhoods as destination neighborhoods expected to absorb any additional impoverished households. Any efforts to deconcentrate poverty should:
1.) reduce poverty in the high-poverty tracts;
2.) not increase it in the moderate-poverty tracts;
3.) move households to the low-poverty tracts, and
4.) not boost poverty in the receiving neighborhood such that the tract moves out of the low-poverty category.[5]

A quick calculation illustrates some of the issues of combining constraints. Note that with 31,000 tracts enjoying low levels of poverty and with a desirable limit of not more than 70 to 100 HCV households per tract, deconcentration is mathematically possible across the entire program. With a conservative ceiling of 70 vouchers per tract dispersed among the 31,000 tracts, it would be possible to absorb over 2.2 million households, a figure large enough to contain the entire portfolio of the HCV program. Unfortunately, this would mean that HCV households would need to successfully compete for all of the available units, a highly unlikely scenario.

♦ **Distribution of Housing Units by Category of Change in Poverty**

A secondary objective to poverty deconcentration is to do no harm to the receiving neighborhoods. The notion of poverty thresholds finds that if a neighborhood has a low level of poverty, such as less than 10 percent, there is no measurable harm to the receiving neighborhood with incremental increases in the level of poverty until the neighborhood reaches this threshold.[6] This suggests that the identification of high opportunity neighborhoods should monitor the initial condition of the receiving neighborhood as well as its condition after an influx of HCV households. The receiving neighborhood should be a low-poverty tract both before and after absorbing the HCV households.

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[5] G. Galster, (2005). Consequences from the redistribution of urban poverty during the 1990s: A cautionary tale. *Economic Development Quarterly* 19(2), 119-25.

[6] G. Galster, (2002). An economic efficiency analysis of deconcentrating poverty populations, *Journal of Housing Economics* 11(4): 303-29.

Table 3-6   **Distribution of Neighborhoods and Rental Units with Rents Below the FMR by Level of Change in Poverty from 1990 to 2000**

		Count	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Decline 9+%	3,767	6%	1,118,453	6%
	Decline 3-8%	11,961	19%	3,156,232	17%
	Decline 0-2%	16,580	26%	4,066,388	22%
	Increase 0-2%	17,589	28%	4,637,217	25%
	Increase 3-8%	10,780	17%	4,355,099	23%
	Increase 9+%	2,493	4%	1,236,513	7%
	Total	63,170	100%	18,569,902	100%
Block Groups	Decline 9+%	23,376	11%	2,220,599	12%
	Decline 3-8%	39,945	19%	3,224,056	17%
	Decline 0-2%	41,256	20%	2,856,867	15%
	Increase 0-2%	43,361	21%	3,203,796	17%
	Increase 3-8%	38,839	19%	4,209,253	23%
	Increase 9+%	19,609	10%	2,830,517	15%
	Total	206,386	100%	18,545,087	100%

Source: U.S. Bureau of the Census, Census 2000.
         U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Table 3-6 shows that typical neighborhood in 2000 had lower poverty in that year than it did a decade earlier. Average poverty dropped by 0.4 of a percentage point across all tracts and block groups. About 15,000 tracts (63,000 block groups) actually experienced a significant decline in poverty, 3 percent or more over the course of the 1990s. Another 13,000 tracts (58,000 block groups) experienced significant increases of 3 percent or more, indicating that the threat of poverty increasing remained very real. About one-half of all tracts were relatively stable, but this was true for only 41 percent of block groups. Given their smaller size, block groups are more vulnerable to shifts in poverty with the movement of only small numbers of households.

Table 3-7 goes further, illustrating the issues that arise when combining constraints in the development of a housing opportunity index. It is desirable that HCV households be directed to only low-poverty neighborhoods. It is also desirable that HCV households be directed to neighborhoods that are not already suffering a significant increase in poverty.

While about one-half of all neighborhoods enjoy low levels of poverty and a large majority experienced stable or decreasing poverty, only 16,000 tracts (25 percent) or 62,000 block groups (30 percent) are both low-poverty and experience stable or decreasing levels of poverty. These neighborhoods contain about 2.7 million rental units or only about 15 percent of the rental stock available at rents below the FMR.

While this count of units is larger than the number households in the HCV program, it becomes doubtful that the HCV could compete for such as large share of the units. For the nation as a whole, the HCV program consumes about 1 in 9 of the rental units on the market with a rent below the FMR. It is unclear how well HCV households would be able to compete for available units in these high opportunity neighborhoods if targeted by the program. Perhaps the HCV households could capture more than the 1 in 9 found in the market as a whole. However, it is hard to conceive of the HCV program competing for a much greater share, such as one-half, of the units in the high opportunity neighborhoods with stable or declining low levels of poverty. This suggests that the available stock of rental units in the opportunity neighborhoods needs to be much larger than the targeted population of HCV households seeking to reside there.

Table 3-7   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Low-Poverty by Change in Poverty from 1990 to 2000

		Count of Low-Poverty Neighborhoods	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Decline 9+%	586	2%	70,755	1%
	Decline 3-8%	5,088	16%	820,178	15%
	Decline 0-2%	10,806	35%	1,831,989	34%
	Increase 0-2%	11,442	37%	2,053,965	38%
	Increase 3-8%	2,964	10%	622,920	12%
	Increase 9+%	5	0%	164	0%
	Total	30,891	100%	5,399,970	100%
Block Groups	Decline 9+%	8,489	8%	418,492	8%
	Decline 3-8%	23,745	22%	1,182,726	23%
	Decline 0-2%	29,741	28%	1,365,833	26%
	Increase 0-2%	30,320	28%	1,430,844	28%
	Increase 3-8%	14,826	14%	793,412	15%
	Increase 9+%	166	0%	6,037	0%
	Total	107,287	100%	5,197,345	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Minority Concentration**

Table 3-8 describes the nation's neighborhoods by the presence of racial or ethnic minorities using the commonly accepted definition of minorities as all persons except non-Hispanic whites. With this definition among all neighborhoods, the median percent minority presence is 19 percent for tracts and a comparable 17 percent for block groups. Given the high level of concentration of minorities in neighborhoods across the nation, the mean is much higher at 31 percent for both block groups and tracts.

Developing categories is problematic. With poverty concentration there is some guiding theory that suggests that if the distribution of the poor can be kept below a low threshold, about 10 percent, then negligible impact will be felt by the neighborhood. There is no comparable guiding theory for racial mixing. There is evidence that whites have a lower tolerance for non-whites than non-whites do for whites. This leads to an ideal level of integration for whites that contains a lower percentage of minorities than the ideal level of integration among minorities.[7]

Table 3-8   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Population Minority in 2000

		Count of Neighborhoods	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Less than 10%	21,583	34%	3,375,283	18%
	10 to 19%	10,948	17%	2,647,925	14%
	20 to 29%	6,750	11%	1,979,366	11%
	30 to 39%	4,724	7%	1,622,227	9%
	40 to 49%	3,603	6%	1,378,242	7%
	50 to 59%	2,773	4%	1,134,864	6%
	60 to 69%	2,562	4%	1,158,202	6%
	60 to 79%	2,312	4%	1,115,181	6%
	80+%	8,008	13%	4,164,398	22%
	Total	63,263	100%	18,575,689	100%
Block Groups	Less than 10%	79,393	38%	3,481,485	19%
	10 to 19%	34,136	16%	2,463,097	13%
	20 to 29%	20,072	10%	1,862,161	10%
	30 to 39%	13,581	7%	1,486,285	8%
	40 to 49%	10,489	5%	1,309,009	7%
	50 to 59%	8,421	4%	1,154,752	6%
	60 to 69%	7,407	4%	1,102,159	6%
	60 to 79%	7,199	3%	1,125,311	6%
	80+%	26,757	13%	4,591,431	25%
	Total	207,455	100%	18,575,689	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

In addition, the concept of minority concentration is subject to local conditions. In Minneapolis-St. Paul area, all minorities make up 18 percent of the population, a figure close to the national average, but blacks make up only 6 percent of the total, while blacks are 13 percent of the nation's population. Hispanics in the Twin Cities comprise only 4 percent of the total, compared

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[7] R. Farley, (1979). Barriers to the racial integration of neighborhoods: The Detroit case, *Annals of the American Academy of Political and Social Science* 441(1): 97-113.

to 15 percent of the national population. In San Antonio, blacks similarly comprise only 6 percent of the population, but Hispanics make up 53 percent. In St. Louis blacks comprise 18 percent of the population and Hispanics only 2 percent. This suggests that analysis of the concentration of minorities at the national scale must be viewed with some caution. The issues of race and ethnicity are very different from one city to the next.

♦ **Distribution of Housing Units by Category of Unemployment**

It is also desirable that HCV household be guided to tracts where there are good prospects for gainful employment. Census data do not provide counts for the number of jobs in tracts, only the level of employment among the resident workforce. Thus, low unemployment is used here as a proxy for employment opportunities.

Neighborhoods with low unemployment are plentiful. Over one-half of all tracts and block groups experienced unemployment below 5 percent in 2000. (The unemployment rate was 6.5 percent in that year.) Unfortunately, these low-unemployment neighborhoods appear to have smaller shares of rental units with rents below the FMR than are found for tracts as whole. Those neighborhoods with unemployment below 5 percent contain only about one-third of the rental units with rents below the FMR. This further suggests that a poverty deconcentration effort mounted through the HCV program may have to be willing to permit households to enter rental units with rents above the FMR to succeed.

Table 3-9   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Workforce Unemployed in 2000

		Count of Neighborhoods	*Percentage of Total*	*Units with Rents Below FMR*	*Percentage of Total*
Tracts	Less than 3%	13,885	22%	2,223,832	12%
	3 to 4.9%	17,893	28%	4,178,484	22%
	5.0 to 7.9%	15,694	25%	5,039,692	27%
	8.0 to 9.9%	5,351	8%	2,119,194	11%
	10+%	10,427	16%	5,014,252	27%
	Total	63,250	100%	18,575,454	100%
Block Groups	Less than 3%	64,433	31%	3,322,276	18%
	3 to 4.9%	45,341	22%	3,469,411	19%
	5.0 to 7.9%	43,969	21%	4,310,468	23%
	8.0 to 9.9%	16,692	8%	1,982,759	11%
	10+%	36,927	18%	5,489,895	30%
	Total	207,362	100%	18,574,809	100%

Source: U.S. Bureau of the Census, Census 2000.
          U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Commuting Time to Work**

In an ideal setting, a high opportunity neighborhood would provide both good employment prospects and ready access to that employment through a short commute. While unemployment has a non-normal distribution with low-unemployment tracts comprising more than one-half of the total, commuting seems to be rather normally distributed. About two-thirds of all workers who work outside the home had commuting times of less than 30 minutes in 2000 and about two-thirds of neighborhoods have similar levels of short commute times. Short commutes are enjoyed by 75 percent or more workers in about one-third of all tracts and block groups. Proportionately, these neighborhoods contain about one-third of all rental units offered at or below the FMR.

Table 3-10   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Workers with a Short Commute in 2000

		Count	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	50% or less	10,293	16%	3,732,073	20%
	50 to 60%	11,310	18%	3,138,557	17%
	60 to 75%	20,655	33%	5,819,191	31%
	75 to 85%	13,653	22%	3,826,272	21%
	85+%	7,352	12%	2,059,596	11%
	Total	63,263	100%	18,575,689	100%
Block Groups	50% or less	36,596	18%	3,983,673	21%
	50 to 60%	33,787	16%	2,951,611	16%
	60 to 75%	64,112	31%	5,563,583	30%
	75 to 85%	42,818	21%	3,622,056	19%
	85+%	30,208	15%	2,454,766	13%
	Total	207,521	100%	18,575,689	100%

Source: U.S. Bureau of the Census, Census 2000.
      U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Educational Attainment**

Another objective of poverty deconcentration is the movement of households, especially households with children, to areas with good schools. The Census does not have a mechanism to tabulate school quality, but it does measure the educational attainment of the resident population of each neighborhood. It is assumed that this stands as a proxy for school quality. The measure used here is the percent of the adults who have not completed high school.

Housing units in areas with high educational attainment are distributed in a manner similar to housing in areas with low unemployment. About 39 percent all tracts (42 percent of block groups) have below average high school drop-out rates, under 15 percent. (Drop-outs were 21 percent of all adults in 2000.) However, these tracts and block groups contain only 28 percent of the rental units available below the FMR.

Table 3-11   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of Adults without a High School Diploma

		Count of Neighborhoods	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Less than 10%	14,123	22%	2,566,660	14%
	10 to 14%	10,868	17%	2,570,373	14%
	15 to 24%	17,665	28%	5,026,184	27%
	25 to 29%	5,870	9%	1,972,890	11%
	30+%	14,737	23%	6,439,582	35%
	Total	63,263	100%	18,575,689	100%
Block Groups	Less than 10%	54,194	26%	2,841,763	15%
	10 to 14%	32,632	16%	2,327,589	13%
	15 to 24%	53,126	26%	4,671,399	25%
	25 to 29%	18,778	9%	1,915,673	10%
	30+%	48,704	23%	6,818,982	37%
	Total	207,434	100%	18,575,405	100%

Source: U.S. Bureau of the Census, Census 2000.
          U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units in High Opportunity Neighborhoods by Metropolitan Location**

The next step is to combine the many characteristics of a high opportunity neighborhood and to examine the distribution of these neighborhoods across metropolitan and non-metropolitan areas.

The ideal high opportunity neighborhood would be limited to:
- Assisted housing (vouchers and project-based housing) is less than 5 percent of the stock in tracts (15 percent of the stock in block groups)
- HCV households make up not more than 4 percent of the housing stock
- Persons below poverty make up less than 10 percent of the population
- Poverty is stable or falling
- Minorities make up less than 20 percent of the population
- Unemployment is below 5 percent
- Workers with short commutes are at least 75 percent of all workers
- High school drop-outs are less than 15 percent of all adults

Table 3-12   Distribution of High Opportunity Neighborhoods by Metropolitan Location

		Count of High Opportunity Neighborhoods	Percent of Total	Units with Rents Below FMR	Percent of Total	All Rental Units	Percent of Total
Tracts	Central Cities	682	33%	106,077	41%	325,803	39%
	Suburban Cities	938	45%	104,097	41%	353,381	42%
	Non-Metropolitan	474	23%	45,955	18%	153,757	18%
	Total	2,094	100%	256,129	100%	832,941	100%
Block Groups	Central Cities	2,909	32%	120,009	40%	378,048	39%
	Suburban Cities	3,799	42%	113,557	38%	382,670	39%
	Non-Metropolitan	2,252	25%	63,109	21%	212,500	22%
	Total	8,960	100%	296,674	100%	973,218	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

As a practical matter, too few neighborhoods and units remain in this set of opportunity locations.

The HCV program is now dispersed across 56,000 tracts, but only about 2,100 would be considered high opportunity under the criteria outlined. The number of HCV households is in excess of 2.2 million, but under 300,000 rental units are available at or below the FMR in these opportunity neighborhoods.

The suburbs provide a large share of the high opportunity neighborhoods. About 45 percent of the high opportunity tracts are found in the suburbs. This would be expected as 45 percent of all tracts are in the suburbs. However, 41 percent of the below FMR rental units are in these suburban neighborhoods while a smaller 39 percent of the rental stock is located in the suburbs.

The FMR is a very significant constraint. While fewer than 300,000 rental units offered below the FMR are located in high opportunity neighborhoods, more than 800,000 rental units are located in these areas. Thus, the number of units rented at or below the FMR is 28 percent of all the rental units in the high opportunity neighborhoods. For comparison, in all tracts, the units at or below the FMR comprise a much higher 48 percent of all rental units. This suggests that guiding households to high opportunity neighborhoods will be hindered by the requirement that units rented be at or below the FMR. The goal of poverty deconcentration may be best accomplished though the use of exception rents and other possible modifications to the HCV program.

Note also that in 2008 the HCV program had 2.2 million households reported with known tract locations, with the true count somewhat higher. This suggests that it could not be more than a small portion of the HCV households involved in a poverty deconcentration program because they must compete with unassisted households for these units in high opportunity neighborhoods as they become vacant and are offered in the marketplace.

At any given time, the vacancy rate in rental housing is about 9 percent. Thus, only about 9 percent of 300,000 units found in high opportunity neighborhoods would be available for rent nationwide at any one point in time. This amounts to only about 25,000 rental units. The HCV program probably has one-third of its vouchers become available each year because the median number of years that participating households are in the program is about 3 for the 50 Largest Public Housing Authorities.[8] If each turnover takes 2 months to resolve, then it is reasonable to assume that one-sixth of the annual turnovers in the HCV program are searching for units at any one time. This translates into about 100,000 vouchers searching for acceptable housing units at any given moment. If the HCV program would seek to guide many of these households into high opportunity neighborhoods, it would mean that many of these 100,000 voucher holders would have to compete for these 25,000 units against other unassisted households. These unbalanced numbers suggests that, if the HCV program is to implement a poverty deconcentration initiative directing any significant portion of the program's households to only high opportunity neighborhoods, there may too few neighborhoods and too few available rental units that meet the program's rules.

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[8] D. DeVine, R. Gray, L. Rubin, L. Taghavi, (2003). *Housing Choice Voucher Location Patterns*, Washington, D.C.: U.S. Department of Housing and Urban Development, p 116.

♦ **Sensitivity of the counts to relaxing the constraints**

If the counts of neighborhoods and rental units are too small given the restrictive criteria, it becomes advisable to examine the sensitivity of the number of tracts and the number of rental units below FMR to relaxation of the constraints on the level of poverty, change in poverty, minority concentration, unemployment, commuting times, high school dropouts and percent of assisted units and HCV households in the tract.

Table 3-13 provides one way to analyze the availability of neighborhoods and rental units with alternative definitions of opportunity. This table begins with the counts of all tracts and rental units and narrows them down by incrementally adding constraints. The order in which constraints are added is important. Some constraints are more restrictive than others. The order shown in table 3-13 is arbitrary. It reflects an assumed importance given to various factors that influence the quality of a neighborhood.

Table 3-13   Distribution of Opportunity Neighborhoods under Alternative Definitions

								Count	Units with Rents Below FMR	All Rental Units
All tracts								64,963	18,575,689	38,339,689
Poverty	Unemploy-ment	Dropouts	Assisted Housing	HCV	Minorities	Poverty Growth	Short Commute			
< 10%								30,966	5,403,770	14,804,594
< 10%	< 5%							24,244	4,033,402	11,463,705
< 10%	< 5%	< 15%						17,682	2,746,411	8,619,812
< 10%	< 5%	< 15%	<5%					15,444	2,112,389	7,041,965
< 10%	< 5%	< 15%	<5%	<4%				15,334	2,085,905	6,977,244
< 10%	< 5%	< 15%	<5%	<4%	< 20%			11,916	1,417,722	4,644,076
< 10%	< 5%	< 15%	<5%	<4%	< 20%	< 0%		6,298	731,233	2,319,102
< 10%	< 5%	< 15%	<5%	<4%	< 20%	< 0%	>75%	2,091	256,108	822,905
All block groups								209,902	18,575,689	38,339,689
Poverty	Unemploy-ment	Dropouts	Assisted Housing	HCV	Minorities	Poverty Growth	Short Commute			
< 10%								108,175	5,214,971	14,655,207
< 10%	< 5%							79,220	3,581,743	10,543,439
< 10%	< 5%	< 15%						56,307	2,304,029	7,691,798
< 10%	< 5%	< 15%	<15%					54,244	2,200,704	7,372,138
< 10%	< 5%	< 15%	<15%	<4%				52,863	2,056,832	7,028,689
< 10%	< 5%	< 15%	<15%	<4%	< 20%			42,042	1,380,284	4,619,159
< 10%	< 5%	< 15%	<15%	<4%	< 20%	< 0%		23,050	757,155	2,425,581
< 10%	< 5%	< 15%	<15%	<4%	< 20%	< 0%	>75%	8,685	295,044	965,117

Source: U.S. Bureau of the Census, Census 2000.
        U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Of primary importance is the reduction of poverty concentration. To accomplish this means helping the poor move to areas with low levels of poverty. Thus, the first constraint is the assumption that only those neighborhoods with low-poverty should be eligible. About 31,000 tracts and 5.4 million below-FMR units are available in these low-poverty areas. This constraint reduces the number of tracts roughly in half and the rental units below the FMR to less than 30 percent of total nationwide. Similar proportions are found when using block groups as the unit of analysis.

Among the goals of poverty deconcentration is to help the poor break the cycle of poverty by helping them gain access to gainful employment. Not all low-poverty areas also provide low unemployment. If the available tracts are further limited to just those with unemployment below 5 percent in 2000 (a time when national unemployment was 6.5 percent), the count of available tracts falls to about 24,000 with 4.0 million units rented below the FMR. The unit count is only 3.6 million when using block groups. This continues to be a very large body of available neighborhoods and units.

Adding low levels of high school dropouts further reduces the number of neighborhoods and units. If the neighborhoods are also limited to just those where the incidence of dropouts is less than 15 percent, then 18,000 tracts or 56,000 block groups and 2.3 to 2.7 million units remain.

Given the high level of correlation between poverty, assisted housing, and low educational attainment, adding constraints based upon the presence of assisted housing narrows the counts in only small increments beyond the impact of the poverty, unemployment and educational attainment criteria already imposed. Adding the constraints that assisted housing should be no more than 5 percent of the housing stock and vouchers should be no more than 4 percent reduces the number of tracts to about 15,000 and units to 2.1 million. However, here tracts and block groups work differently. Because block groups are smaller, a single assisted housing development can have a significant effect upon the percentage of the housing stock that is assisted. At the block group level, adding a constraint on the percentage of project-based assisted housing may need to be modified to 15 percent given the impact of even a single assisted development upon the incidence of assisted housing in the neighborhood.

Adding a constraint based upon the presence of minorities does have a significant effect. If the constraint calls for the presence of minorities to be less than 20 percent, then the available neighborhoods drops to only about 12,000 tracts (19 percent of the total) or 42,000 block groups (about 18 percent of the total) and the number of units to only about 1.4 million (8 percent of the total).

Further constraints are illustrated dealing with the change in poverty and the presence of short commutes among workers. These both further reduce the available housing.

♦ Recommended Index

Taking guidance from these tables, it is possible to build an index that identifies both the most desirable neighborhoods in which HCV households may locate as well as less desirable but acceptable neighborhoods. The recommended index is based on a scale of 0 to 100. The most

desirable neighborhood would obtain 100 points because it meets all of the criteria outlined above. To the extent that a neighborhood fails to meet some of the criteria, the index score would be lower. If the neighborhood fails to meet certain key criteria, the index score would be set to zero making it ineligible for participation in a poverty deconcentration program.

Key constraints:
- o Poverty: The level of poverty must be less than 10 percent:
  - ▪ If yes, add 20 to the score.
  - ▪ If no, the score is set to zero.
- o Added HCV households will not push the total vouchers to more than 4 percent:
  - ▪ If yes, add 10 to the score.
  - ▪ If no, the score is set to zero.
- o Added HCV households will not push poverty above 10 percent:
  - ▪ If yes, add 10 to the score.
  - ▪ If no, the score is set to zero.

If the key constraints are met, the score is increased if:
- o Unemployment is less than 5 percent
  - ▪ If yes, add 10 to the score.
- o High school dropouts are less than 15 percent:
  - ▪ If yes, add 10 to the score.
- o Assisted project-based housing less than 5 percent in tracts or less than 15 percent in block groups:
  - ▪ If yes, add 10 to the score.
- o Minorities are less than 20 percent:
  - ▪ If yes, add 10 to the score.
- o Poverty is declining:
  - ▪ If yes, add 10 to the score:
- o Workers with short commutes are greater than 75 percent:
  - ▪ If yes, add 10 to the score:

Under this index, the tracts eligible for participation would have a minimum score of 40. These neighborhoods would meet constraints for both poverty and presence of other vouchers. Meeting any of the additional criteria would add to this score suggesting that a score of 40 is minimally acceptable but scores higher than 40 are desirable.

Table 14 outlines the number of available neighborhoods and rental units that minimally meet the constraints of low-poverty (less than 10 percent poverty), low assisted housing in total (less than 5 percent of the stock in project-based assisted housing in tracts or less than 15 percent in block groups) and low presence of vouchers in particular (less than 4 percent of the occupied rental stock leased through vouchers).

In round numbers, the tracts that meet the minimum conditions to be deemed an opportunity neighborhood are about 40 percent of all tracts. These tracts contain about 3.9 million units, which contain only 21 percent of the nation's stock of units offered at rents at or below the FMR. There is little guidance on how well HCV households will be able to penetrate these markets, but

it is hoped that there will be sufficient units such that HCV households will be able to compete successfully. These tracts contain about 11.5 million rental units which is 30 percent of the total stock of rental housing. Given the disproportionately low shares of rental units at any rent level and especially rental units offered at or below the FMR, HCV households will have some difficulty competing for units in these opportunity neighborhoods. Successful implementation of a poverty deconcentration effort may have to make focused use of exception rents in order to help households gain entry into these neighborhoods.

Table 3-14   Distribution of Opportunity Neighborhoods by Metropolitan Location

		Count of Low-Poverty and Low-Assisted Housing Nghbrhds	Percent of Total	Units with Rents Below FMR	Percent of Total	All Rental Units	Percent of Total
Tracts	Central Cities	5,547	21%	1,175,541	30%	3,408,459	30%
	Suburban Cities	16,698	64%	2,343,425	60%	6,842,273	60%
	Non-Metropolitan	3,713	14%	369,317	9%	1,201,934	10%
	Total	25,958	100%	3,888,282	100%	11,452,666	100%
Block Groups	Central Cities	21,631	22%	1,383,791	31%	3,912,256	30%
	Suburban Cities	59,984	61%	2,524,546	57%	7,314,340	57%
	Non-Metropolitan	16,706	17%	494,292	11%	1,613,926	13%
	Total	98,321	100%	4,402,629	100%	12,840,522	100%

Note: Opportunity neighborhoods are defined as neighborhoods with:
                    Poverty below 10 percent,
                    Project-based assisted housing below 5 percent, and
                    Tenant-based assisted housing below 4 percent.

Source: U.S. Bureau of the Census, Census 2000.
               U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

 ♦ **Analysis for Puerto Rico**

Separate analysis is performed for Puerto Rico. The analysis is kept separate, first, because the incidence of poverty is very different in Puerto Rico. Nearly one-half of the island's population lives below poverty, which means that poverty deconcentration must be defined very differently if the process is to be pursued at all. Second, there are differences in the data available. Data from the 1990 census, adjusted to the tract and block group boundaries employed in 2000, are not available. Thus, the analysis cannot include examination of trend variables such as change in poverty from 1990 to 2000. Finally, the population is predominantly Hispanic. This requires that the analysis of the presence of minorities be based solely upon racial differences and not upon Hispanic origin.

The analysis of Puerto Rico's tracts is made questionable given the high incidence of poverty and its wide spatial distribution. At its most elemental level, about one-half of the population of Puerto Rico lives below poverty and this impoverished population is not spatially concentrated.

Rather, the poor are dispersed into nearly all neighborhoods. This raises the question as to the value of a deconcentration effort under these circumstances.

Problems arise in the analysis of Puerto Rico with some of the available data.

First, the Geolytics system to reconcile differences between the 1990 and the 2000 tract and block group boundaries is not available for Puerto Rico. For this reason, the analysis omits the variables that measure change in various variables from 1990 to 2000, such as change in poverty.

Second, some data sets did not provide accurate block group codes. Only about 4,000 of 31,000 HCV household records have valid block group indicators. The valid data are too small a proportion of the total to use. For this reason, the HCV data are not employed at the block group level.

♦ **Distribution of Housing Units and Units Renting Below FMR in Puerto Rico**

Census 2000 reported a housing stock in Puerto Rico with about 1.3 million units located in a little over 800 tracts. The rental stock contains about 370,000 units, or about 28 percent of all housing units. The typical tract contains about 390 rental units with at least some rental housing in virtually all tracts. In this regard the scale and presence of rental units is comparable to that found in the United States.

**Table 3-15   Distribution of Housing Units and Rental Units
                Across Census Tracts and Block Groups in Puerto Rico**

		Housing Units Owner or Rental	Rental Units 2000
Tracts	Count	822	821
	Mean	1,591	448
	Stnd. Dev	618	258
	Median	1,528	393
	Minimum	3	34
	Maximum	4,536	2,933
	Sum of Units	1,308,006	368,204
Block Groups	Count	2,432	2,427
	Mean	538	152
	Stnd. Dev	249	110
	Median	498	126
	Minimum	3	5
	Maximum	3,097	1,256

Source: U.S. Bureau of the Census, Census 2000.

♦ **Distribution of Housing Choice Vouchers Households, Assisted Housing and Units Renting Below the FMR in Puerto Rico**

Puerto Rico has a very active HCV program with about 31,000 vouchers reported. These vouchers are found in about 500 of the island's 820 tracts, a market penetration rate of 61 percent, which falls well below the 86 percent found in the United States. Vouchers tend to be only a small percentage of units in the tracts where they are found with typically only 10 vouchers among 1,500 total housing units. Project-based housing is found in fewer tracts and, predictably, has a greater presence with median of 110 units, but given the existence of a few very large projects, a mean of 245 units.

Table 3-16   Distribution of HCV Households and Project-Based Units Across Census Tracts and Block Groups in Puerto Rico

		HCV Households 2008	Total Project-based Units	Total Assisted Units and Households
Tracts	Count	499	95	504
	Mean	62	245	108
	Stnd. Dev	137	293	212
	Median	10	110	16
	Minimum	1	5	1
	Maximum	1,094	1,750	1,757
	Sum of Units	30,938	23,305	54,243

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Poverty**

Poverty is distributed very differently in Puerto Rico than in the United States. In the U.S. only about 13 percent of the population lives below poverty. In Puerto Rico, the figure is 48 percent. In the U.S., poverty is highly concentrated with about one-half of all tracts containing populations with less than 10 percent poverty. In Puerto Rico, poverty is widespread and normally distributed. Tracts are evenly distributed with one-half containing below average poverty and one-half containing above average poverty.

This distribution suggests that a program directed at poverty deconcentration in Puerto Rico will confront a very difficult problem. There are relative few neighborhoods with very high poverty, and very few with very low poverty. Only 14 percent of all tracts (19 percent of block groups) have poverty less than 30 percent creating a very small pool of neighborhoods to serve as receiving neighborhoods of the HCV households.

Table 3-17   Distribution of Neighborhoods and Rental Units with Rents Below the FMR by Level of Poverty in 2000 in Puerto Rico

		Count	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Up to 10%	8	1%	110	0%
	10% to 19%	45	5%	5,177	4%
	20% to 29%	59	7%	5,406	4%
	30% to 39%	121	15%	17,878	12%
	40% to 49%	160	19%	27,865	19%
	50+%	429	52%	87,191	61%
	Total	822	100%	143,627	100%
Block Groups	Up to 10%	78	3%	1,091	1%
	10% to 19%	153	6%	3,634	3%
	20% to 29%	250	10%	7,480	5%
	30% to 39%	312	13%	14,161	10%
	40% to 49%	429	18%	22,492	16%
	50+%	1,210	50%	94,828	66%
	Total	2,432	100%	143,687	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

These receiving neighborhoods contain only 8 to 9 percent of the rental housing available for rent below the FMR, making the low-poverty neighborhoods less accessible as well as few in number.

This suggests that a poverty deconcentration effort in Puerto Rico will confront great difficulty in placing households and will have to accept relatively high thresholds of poverty for the identification of opportunity neighborhoods. Even with the threshold as high as 30 percent, only a small share of all units become eligible.

♦ **Distribution of Housing Units by Category of Minority Concentration in Puerto Rico**

The population of Puerto Rico is overwhelmingly Hispanic. However, the earlier factor analysis found that race remains an issue defining the character of a neighborhood in Puerto Rico. For the analysis of minorities, race alone is used to identify minorities; Hispanic whites are included in the majority. Using this definition, racial minorities comprise about 20 percent of the population of Puerto Rico. Some racial concentration exists as 62 percent of the tracts on the island have less than 20 percent minority presence. A comparable 61 percent of the rental units with rents below the FMR are found in these tracts.

Table 3-18   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Population Minority in 2000 in Puerto Rico

		Count	*Percentage of Total*	*Units with Rents Below FMR*	*Percentage of Total*
Tracts	Less than 10%	148	18%	20,525	14%
	10 to 19%	362	44%	52,762	37%
	20 to 29%	164	20%	33,997	24%
	30 to 39%	103	13%	24,109	17%
	40 to 49%	28	3%	8,046	6%
	50 to 59%	9	1%	3,578	2%
	60 to 69%	1	0%	206	0%
	60 to 79%	4	0%	274	0%
	80+%	4	0%	130	0%
	Total	823	100%	143,627	100%
Block Groups	Less than 10%	470	19%	19,844	14%
	10 to 19%	938	39%	47,441	33%
	20 to 29%	535	22%	33,980	24%
	30 to 39%	280	12%	21,758	15%
	40 to 49%	111	5%	12,291	9%
	50 to 59%	62	3%	6,780	5%
	60 to 69%	14	1%	1,174	1%
	60 to 79%	5	0%	75	0%
	80+%	16	1%	343	0%
	Total	2,431	100%	143,687	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Unemployment in Puerto Rico**

The 2000 Census reported unemployment at about 20 percent. Areas with unemployment that is even one-half of that average level of unemployment are relatively rare. Only 11 percent of all tracts and 18 percent of all block groups have unemployment below 10 percent with comparable shares of the rental housing offered below the FMR.

Table 3-19   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Population Unemployed in 2000 in Puerto Rico

		Count	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Less than 3%	3	0%	104	0%
	3 to 4.9%	12	1%	1,311	1%
	5.0 to 7.9%	45	5%	6,332	4%
	8.0 to 9.9%	41	5%	6,943	5%
	10+%	721	88%	128,938	90%
	Total	822	100%	143,627	100%
Block Groups	Less than 3%	65	3%	975	1%
	3 to 4.9%	78	3%	3,146	2%
	5.0 to 7.9%	160	7%	6,975	5%
	8.0 to 9.9%	127	5%	5,648	4%
	10+%	2,002	82%	126,942	88%
	Total	2,432	100%	143,687	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units by Category of Commuting Time to Work in Puerto Rico**

Among workers who are able to find jobs, travel time to work is not a great problem. About 45 percent of tracts and block groups contain workers for whom over 60 percent or more are able to commute to work in less than 30 minutes.

Table 3-20:   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of the Workers with a Short Commute in 2000 in Puerto Rico

		Count	*Percentage of Total*	*Units with Rents Below FMR*	*Percentage of Total*
Tracts	50% or less	280	34%	36,834	26%
	50 to 60%	175	21%	30,009	21%
	60 to 75%	274	33%	51,685	36%
	75 to 85%	79	10%	22,124	15%
	85+%	15	2%	2,974	2%
	Total	823	100%	143,627	100%
Block Groups	50% or less	818	34%	37,989	26%
	50 to 60%	506	21%	31,456	22%
	60 to 75%	726	30%	44,169	31%
	75 to 85%	276	11%	20,898	15%
	85+%	107	4%	9,175	6%
	Total	2,433	100%	143,687	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦   **Distribution of Housing Units by Category of Educational Attainment**

The high school dropout rate in Puerto Rico is about 40 percent, roughly twice the rate found in the United States. Low educational attainment is widespread with only 12 percent of tracts (18 percent of block groups) having dropout rates of under 25 percent.

Table 3-21   Distribution of Neighborhoods and Rental Units with Rents Below the FMR with Percent of Adults without a High School Diploma in 2000 in Puerto Rico

		Count	Percentage of Total	Units with Rents Below FMR	Percentage of Total
Tracts	Less than 10%	16	2%	2,057	1%
	10 to 14%	18	2%	1,923	1%
	15 to 24%	68	8%	13,343	9%
	25 to 29%	77	9%	9,250	6%
	30+%	644	78%	117,056	81%
	Total	823	100%	143,627	100%
Block Groups	Less than 10%	90	4%	2,760	2%
	10 to 14%	108	4%	3,737	3%
	15 to 24%	243	10%	10,865	8%
	25 to 29%	172	7%	8,303	6%
	30+%	1820	75%	118,022	82%
	Total	2433	100%	143,687	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Distribution of Housing Units in Opportunity Neighborhoods of Puerto Rico by Metropolitan Location Under Different Definitions**

Given the widespread problems of poverty, unemployment and low educational attainment, the identification of opportunity neighborhoods for HCV households in Puerto Rico is problematic. In order to identify more than a scant few neighborhoods as opportunity neighborhoods, the thresholds must be relatively high.

Table 3-22   Distribution of Opportunity Neighborhoods under Alternative Definitions in Puerto Rico

							Count	*Units with Rents Below FMR*	*All Rental Units*
All tracts									
Poverty	Unemploy-ment	Dropouts	Assisted Housing	HCV	Minorities	Short Commute			
<50%							393	56,436	171,524
<50%	<20%						316	44,748	139,850
<50%	<20%	<40%					254	36,168	114,261
<50%	<20%	<40%	<15%				227	31,073	100,735
<50%	<20%	<40%	<15%	<4%			216	28,268	93,629
<50%	<20%	<40%	<15%	<4%	<20%		132	14,174	52,244
<50%	<20%	<40%	<15%	<4%	<20%	>60%	44	6,381	20,753

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

If the maximum poverty rate is set to 50 percent (the island average), about one-half of the tracts remain as do about 40 percent of the island's rental units rented below the FMR. Imposition of additional criteria, such as below average rates of unemployment and high school dropouts, quickly reduces the available neighborhoods.

Table 3-23 lists the tracts and rental units that meet only the minimum criteria of:
Poverty below 50 percent,
Project-based housing less than 15 percent of the stock of housing, and
Tenant-based vouchers less than 4 percent of the stock of housing.

These criteria leave about 40 percent of all tracts and about 30 percent of all rental units in these neighborhoods. Metropolitan areas of Puerto Rico provide somewhat greater opportunity with 47 percent of metropolitan tracts and 38 percent of their rental units below the FMR with non-metropolitan areas proportionately less.

**Table 3-23   Distribution of Opportunity Neighborhoods
by Metropolitan Location in Puerto Rico**

		Count of Tracts	Percent of Total	Units with Rents Below FMR	Percent of Total	All Rental Units	Percent of Total
Tracts	Metropolitan	118	35%	25,040	56%	56,490	40%
	Non-Metropolitan	217	65%	19,698	44%	85,818	60%
	Total	335	100%	44,738	100%	142,308	100%

Note: Opportunity neighborhoods are defined as neighborhoods with:
                    Poverty below 50 percent.
                    Project-based assisted housing below 15 percent, and
                    Tenant-based assisted housing below 4 percent.

Source: U.S. Bureau of the Census, Census 2000.
              U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

♦ **Recommended Index**

An opportunity index can be created for Puerto Rico, but its practicality is questionable. Given that the poverty is so pervasive (48 percent) and spatially dispersed, the value of this index may be too little to make it a valuable addition to the HCV program.

However, if such an index is desired, it is recommended that it parallel the index for the United States.

Key constraints:
- o   Poverty: The level of poverty must be less than 50 percent:
  - ▪ If yes, add 20 to the score.
  - ▪ If no, the score is set to zero.
- o   Added HCV households will not push the total vouchers to more than 4 percent:
  - ▪ If yes, add 10 to the score.
  - ▪ If no, the score is set to zero.
- o   Added HCV households will not push poverty above 50 percent:
  - ▪ If yes, add 10 to the score.
  - ▪ If no, the score is set to zero.

If the key constraints are met, the score is increased if:
- o   Unemployment is less than 20 percent
  - ▪ If yes, add 10 to the score.
- o   High school dropouts are less than 40 percent:

- If yes, add 10 to the score.
  o Assisted housing less than 15 percent::
    - If yes, add 10 to the score.
  o Minorities are less than 20 percent:
    - If yes, add 10 to the score.
  o Workers with short commutes are greater than 60 percent:
    - If yes, add 10 to the score.

CHAPTER FOUR: NATIONAL INDEXES

Tract Indexes

Three different indexes were prepared for all tracts in the United States and Puerto Rico. These indexes were also prepared for the block groups in the Untied States, but due to data limitations, no block group indexes were calculated for Puerto Rico.

Poverty and HCV Index: The first is simply an index based upon the incidence of poverty and the presence of HCV households. It assigns a value to the neighborhoods based upon the level of poverty in the tract or block group in 2000 and the level of assisted households. This index is, effectively, a binary code. If the tract meets specific poverty and assisted housing requirements, then it obtains a positive score. Otherwise the score is set to zero.

The neighborhood is given a score of 40 if the neighborhood's percentage of the population with income below poverty from the 2000 Census was less than 10 and if the percentage of the total housing stock occupied by HCV households in 2008 is less than 4.

If the neighborhood's incidence of poverty is 10 percent or more, the tract or block group is assigned a value of zero and, as such, is not identified as an opportunity neighborhood of HCV households. If the tract has no rental housing, the tract is assigned a value of -1 and is treated as missing.

Economic Index: The second index assesses the extent to which the neighborhood's economic and educational opportunities, along with other measures of the housing stock. The score of the index is based upon the level of unemployment, the incidence of project-based housing projects, the incidence of high school dropouts, the concentration of minorities, the growth of poverty from 1990 to 2000, and the ability of workers to find jobs in close proximity.

For the economic index, If a neighborhood has housing, it begins with a score of zero. If it does not contain rental housing, the score is set to -1 and treated as missing.

If a neighborhood had an unemployment rate of less than 5 percent, 10 points is added to the score.

If a neighborhood had a high school dropout rate of less than 15 percent among adults, 10 points is added to the score.

If a neighborhood had project-based housing that is less than 5 percent for tracts (15 percent in Puerto Rico) or 15 percent for block groups in the United States of the total stock of housing in the tract, 10 points is added to the score.

If a neighborhood had a population that was less than 20 percent minority, 10 points is added to the score.

If a neighborhood's incidence of poverty fell from 1990 to 2000, 10 points is added to the score.

If a neighborhood had an adult workforce where more than 75 percent of workers who worked outside the home were able to commute to work in less than 30 minutes, 10 points is added to the score.

Combined Index: The third index combines the housing and economic indexes. They third index is not strictly additive. If a neighborhood does had poverty greater than 10 percent or HCV households consumed more than 4 percent of the housing, the combined index is set to zero. Otherwise, the score is set to 40 and additional points are added to this score based upon the value of the economic index. This means that each tract or block group with housing will have a score of zero or 40 through 100 with a higher score indicating greater opportunity for the HCV household.

Distribution of the Index Scores Across All Tracts and Block Groups in the United States

Tables 4-1 and 4-2 examine the tracts and block groups of the United States against the indexes describing the opportunities that these neighborhoods provide for HCV households.

Table 4-1   Distribution of Tracts and Rental Units, Rented Below the FMR by Housing and Economic Indexes in the United States

Index Score	Tracts	Percent of the Total	Rental Units Below FMR	Percent of the Total
Assisted Housing and Poverty				
0	38,911	62%	14,145,996	76%
40	24,352	38%	4,429,693	24%
Total	63,263	100%	18,575,689	100%
Economic and Demographic				
0	5,830	9%	3,251,793	18%
10	11,402	18%	4,789,486	26%
20	14,186	22%	4,092,937	22%
30	14,928	24%	3,213,973	17%
40	11,422	18%	2,150,784	12%
50	4,684	7%	899,596	5%
60	811	1%	177,119	1%
Total	63,263	100%	18,575,689	100%
Combined Assisted Housing, Poverty and Economic				
0	38,911	62%	14,145,996	76%
40	494	1%	121,833	1%
50	1,665	3%	406,573	2%
60	4,172	7%	850,848	5%
70	7,295	12%	1,247,173	7%
80	6,880	11%	1,131,227	6%
90	3,219	5%	547,637	3%
100	627	1%	124,402	1%
Total	63,263	100%	18,575,689	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Table 4-2   Distribution of Block Groups and Rental Units, Rented Below the FMR by Housing and Economic Indexes in the United States

Index Score	Block Groups	Percent of the Total	Rental Units Below FMR	Percent of the Total
Housing and Poverty				
0	144,291	71%	15,074,068	81%
40	59,841	29%	3,501,621	19%
Total	204,132	100%	18,575,689	100%
Economic and Demographic				
0	15,456	8%	2,861,377	15%
10	36,167	18%	4,824,735	26%
20	49,479	24%	4,596,053	25%
30	52,028	25%	3,512,837	19%
40	36,769	18%	1,982,587	11%
50	12,910	6%	700,220	4%
60	1,323	1%	97,879	1%
Total	204,132	100%	18,575,689	100%
Combined Housing, Poverty and Economic				
0	144,291	71%	15,074,068	81%
40	1,239	1%	110,970	1%
50	5,163	3%	387,123	2%
60	12,219	6%	794,869	4%
70	18,583	9%	1,060,091	6%
80	15,674	8%	788,495	4%
90	6,211	3%	313,424	2%
100	752	0%	46,649	0%
Total	204,132	100%	18,575,689	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Distribution of the Index Scores Across All Tracts and Block Groups in Puerto Rico

Table 4-3 examines the tracts of Puerto Rico against the indexes describing the opportunities that these neighborhoods provide for HCV households. Note that a few of the constraints are more lax for the analysis of Puerto Rico than is true for the United States. Primary among these is the threshold for poverty. It is 50 percent, which is the effective average level of poverty for the province. Any tract with below 50 percent poverty is deemed to be a low-poverty area in Puerto Rico given the high level of poverty and its wide dispersal resulting in very few tracts with poverty that is very low.

As with the United States, designation of neighborhoods of Puerto Rico as opportunity neighborhoods for HCV households reduces the rental units rented below the FMR faster than it reduces the number of neighborhoods. Among tracts with below average poverty and the HCV household consuming less than 4 percent of the housing stock, only 30 percent of tracts qualify, but these tracts include only 26 percent of the rental units available below the FMR.

Table 4-3   **Distribution of Tracts and Rental Units Rented Below the FMR
by Housing and Economic Indexes
In Puerto Rico**

Index Score	Tracts	Percent of the Total	Rental Units Below FMR	Percent of the Total
Housing and Poverty				
0	573	70%	106,574	74%
40	248	30%	37,053	26%
Total	821	100%	143,627	100%
Economic and Demographic				
0	58	7%	13,332	9%
10	194	24%	37,048	26%
20	281	34%	45,736	32%
30	202	25%	29,245	20%
40	78	10%	16,543	12%
50	8	1%	1,723	1%
60	-	0%	-	0%
Total	821	100%	143,627	100%
Combined Housing, Poverty and Economic				
0	573	70%	106,574	74%
40	2	0%	206	0%
50	21	3%	4,309	3%
60	69	8%	9,291	6%
70	104	13%	13,235	9%
80	47	6%	8,842	6%
90	5	1%	1,169	1%
100	-	0%	-	0%
Total	821	100%	143,627	100%

Source: U.S. Bureau of the Census, Census 2000.
U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Files Delivered

SPSS and SAS data files

1.   United States Tract Data and Index Scores

   File Name: Tract Data for the US (SAV extension for SPSS and SAS7BDAT for
                  SAS)
   ID Field: AREAKEYN (Contains State number as the first two digits, County
                  number as digits 3 through 5, and tract number as digits 6 through 11)
   Contents: Index1 Combined poverty and economic conditions index
                  Index2 Poverty and HCV index
                  Index3 Economic index

2.   United States Block Group Data and Index Scores)

   File Name: Block Group Data of the US (SAV extension for SPSS and SAS7BDAT
                  for SAS)
   ID Field: AREAKEYN (Contains State number as the first two digits, County
                  number as digits 3 through 5, and tract number as digits 6 through 11)
   Contents: Index1 Combined poverty and economic conditions index
                  Index2 Poverty and HCV index
                  Index3 Economic index

3.   Puerto Rico Tract Data and Index Scores

   File Name: Tract Data for Puerto Rico (SAV extension for SPSS and SAS7BDAT for
                  SAS)
   ID Field: AREAKEYN (Contains State number as the first two digits, County
                  number as digits 3 through 5, and tract number as digits 6 through 11)
   Contents: Index1 Combined poverty and economic conditions index
                  Index2 Poverty and HCV index
                  Index3 Economic index

CHAPTER FIVE: GIS MAPS TO DEMONSTRATE APPLICATION OF NATIONAL INDEX

The maps below illustrate the distribution of opportunity neighborhoods and HCV households for a set of metropolitan areas across the nation.

The maps demonstrate at least two important issues with regard to the development of neighborhood opportunity indexes for the HCV program:

- HCV households tend to be clustered in neighborhoods that are not designated as high opportunity neighborhoods.

- Because high opportunity neighborhoods are defined as areas with below average levels of poverty and as areas where HCV household consume only a small portion of the available housing, these neighborhoods tend to be located away from the inner city.

The clustering of HCV households is found in all metropolitan areas, whether in tight markets (Boston and San Francisco) or soft markets (San Antonio and Kansas City). It is found in large markets and in small (Chapel Hill, North Carolina). This does not mean that HCV households are entirely unable to locate in opportunity neighborhoods. They are found in high opportunity neighborhoods in all the metropolitan areas mapped. For example, in Alameda County, California, the southeast quadrant of the Bay Area, many HCV households are found in high opportunity tracts outside of Oakland. A similar pattern in found in Johnson County, Kansas in the southwest quadrant of the Kansas City area. However, despite this movement to high opportunity neighborhoods, there is a very strong tendency for HCV households to locate in areas where poverty levels are high and other HCV households consume a large share of the housing.

Not all high opportunity neighborhoods are in the suburbs, and not all non-opportunity neighborhoods are in the inner city areas of these cities. However, there is a very clear tendency for the opportunity neighborhoods to be located in the more suburban areas. This is true whether the metropolitan area is large or small. Even in the relatively small Chapel Hill, North Carolina, area those tracts further from the central part of the city have higher opportunity index scores. In some cases, the inner city areas are not the same as the central city. For example, in the East Bay of the San Francisco area, Oakland has the attributes of an inner city and does not provide opportunity neighborhoods.

The map of San Antonio demonstrates the need to tailor the opportunity index to the needs of each metropolitan area. Because the population of San Antonio is predominantly Hispanic, very few Census tracts qualify as high opportunity neighborhoods. Nationwide, the opportunity neighborhoods make up nearly 40 percent of all tracts. In San Antonio, the opportunity tracts make up a much smaller share. This suggests that the index for housing opportunity will need to be adjusted to meet the demographic conditions of each metropolitan area.

Map 1 **Metropolitan Boston MA/NH Census Tracts**
by Housing Opportunity Index and HCV Distribution
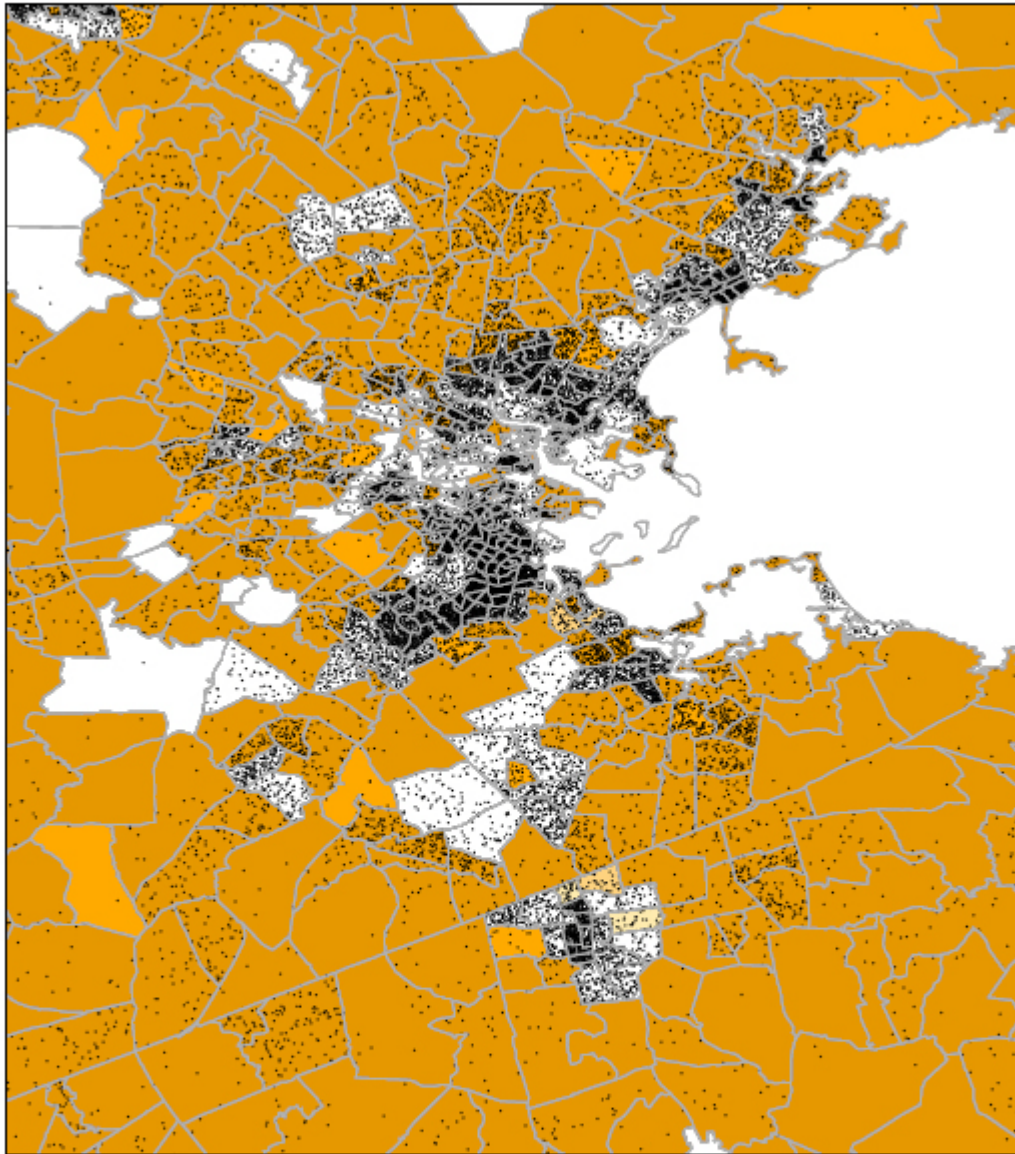
Census Tracts Opportunity Index Score and Density of HCV Households

Opportunity Index Score of Tract

- ☐ Not an Opportunity Tract
- ☐ 40 Pov< 10% and HCV < 4%
- ☐ 50 Pov < 10%, HCV < 4% plus more
- ☐ 60 Pov < 10%, HCV < 4% plus more
- ☐ 70+ Pov < 10%, HCV < 4% plus more

HVC Households in Tract

- ☐ 1 Dot = 1 housing choice voucher

Map 2   **Metropolitan Chapel Hill, NC Census Tracts**
                 by Housing Opportunity Index and HCV Distribution
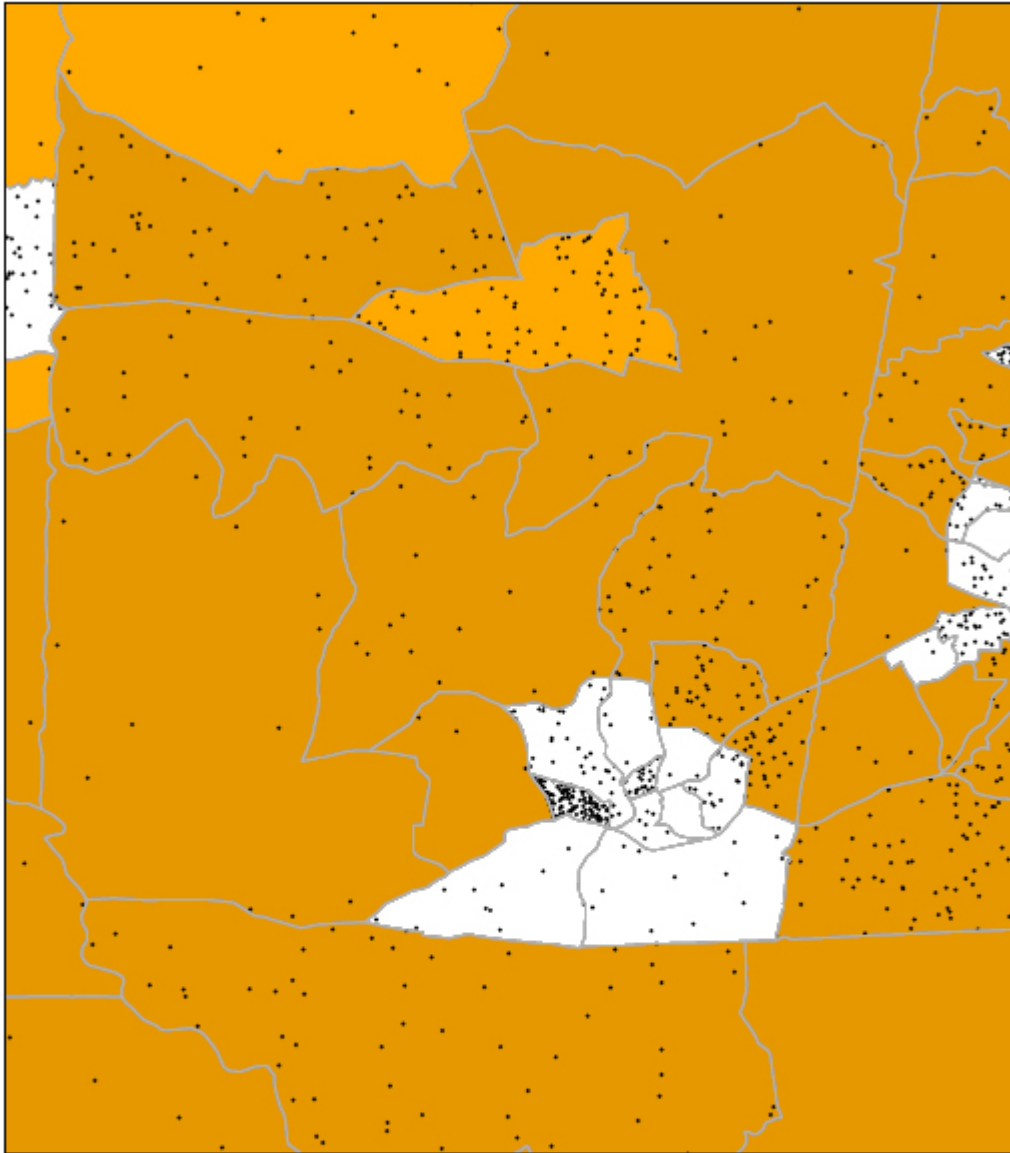
Census Tracts Opportunity Index Score and Density of HCV Households

     Opportunity Index Score of Tract

     ☐ Not an Opportunity Tract
     ☐ 40 Pov< 10% and HCV < 4%
     ☐ 50 Pov < 10%, HCV < 4% plus more
     ☐ 60 Pov < 10%, HCV < 4% plus more
     ☐ 70+ Pov < 10%, HCV < 4% plus more

     HVC Households in Tract

     ☐ 1 Dot = 1 housing choice voucher

Map 3   **Metropolitan Kansas City Missouri/Kansas Census Tracts
by Housing Opportunity Index and HCV Distribution**
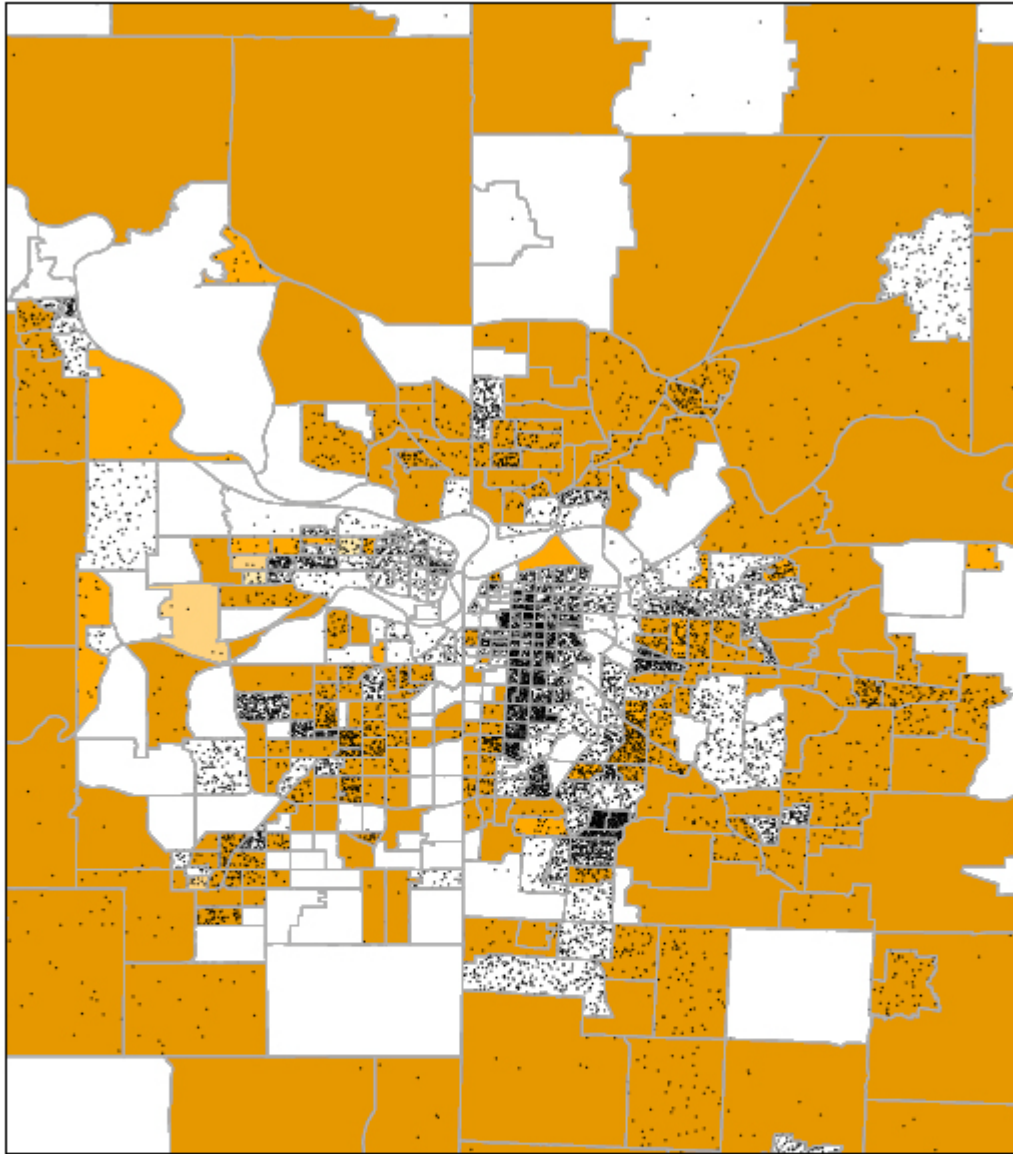
Census Tracts Opportunity Index Score and Density of HCV Households

Opportunity Index Score of Tract

☐ Not an Opportunity Tract
☐ 40 Pov< 10% and HCV < 4%
☐ 50 Pov < 10%, HCV < 4% plus more
☐ 60 Pov < 10%, HCV < 4% plus more
☐ 70+ Pov < 10%, HCV < 4% plus more

HVC Households in Tract

☐ 1 Dot = 1 housing choice voucher

Map 4   **Metropolitan San Antonio, Texas Census Tracts
by Housing Opportunity Index and HCV Distribution**
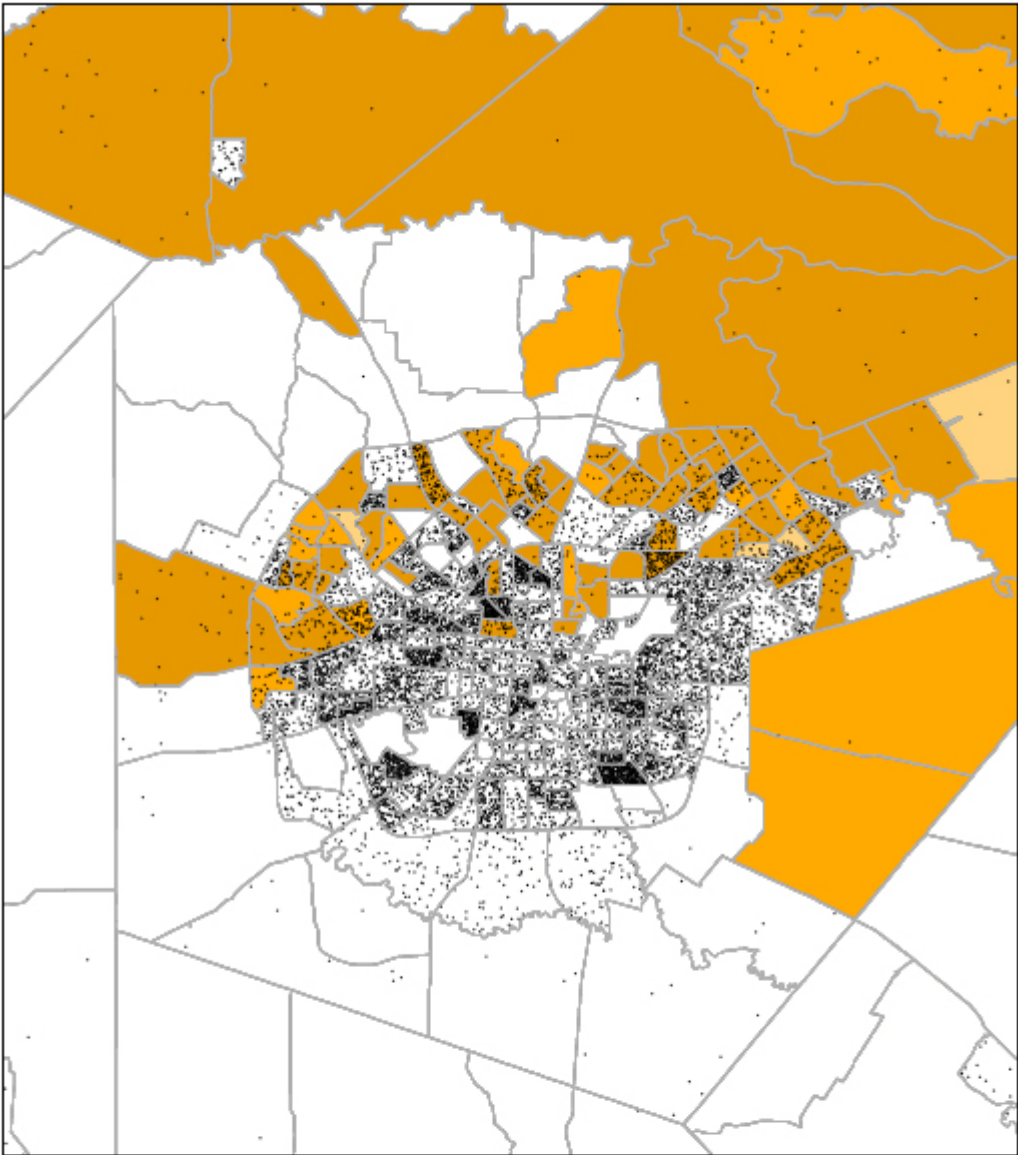
Census Tracts Opportunity Index Score and Density of HCV Households

Opportunity Index Score of Tract

- Not an Opportunity Tract
- 40 Pov< 10% and HCV < 4%
- 50 Pov < 10%, HCV < 4% plus more
- 60 Pov < 10%, HCV < 4% plus more
- 70+ Pov < 10%, HCV < 4% plus more

HVC Households in Tract

- 1 Dot = 1 housing choice voucher

Map 5   **Metropolitan San Francisco-Oakland-San Jose Census Tracts
by Housing Opportunity Index and HCV Distribution**
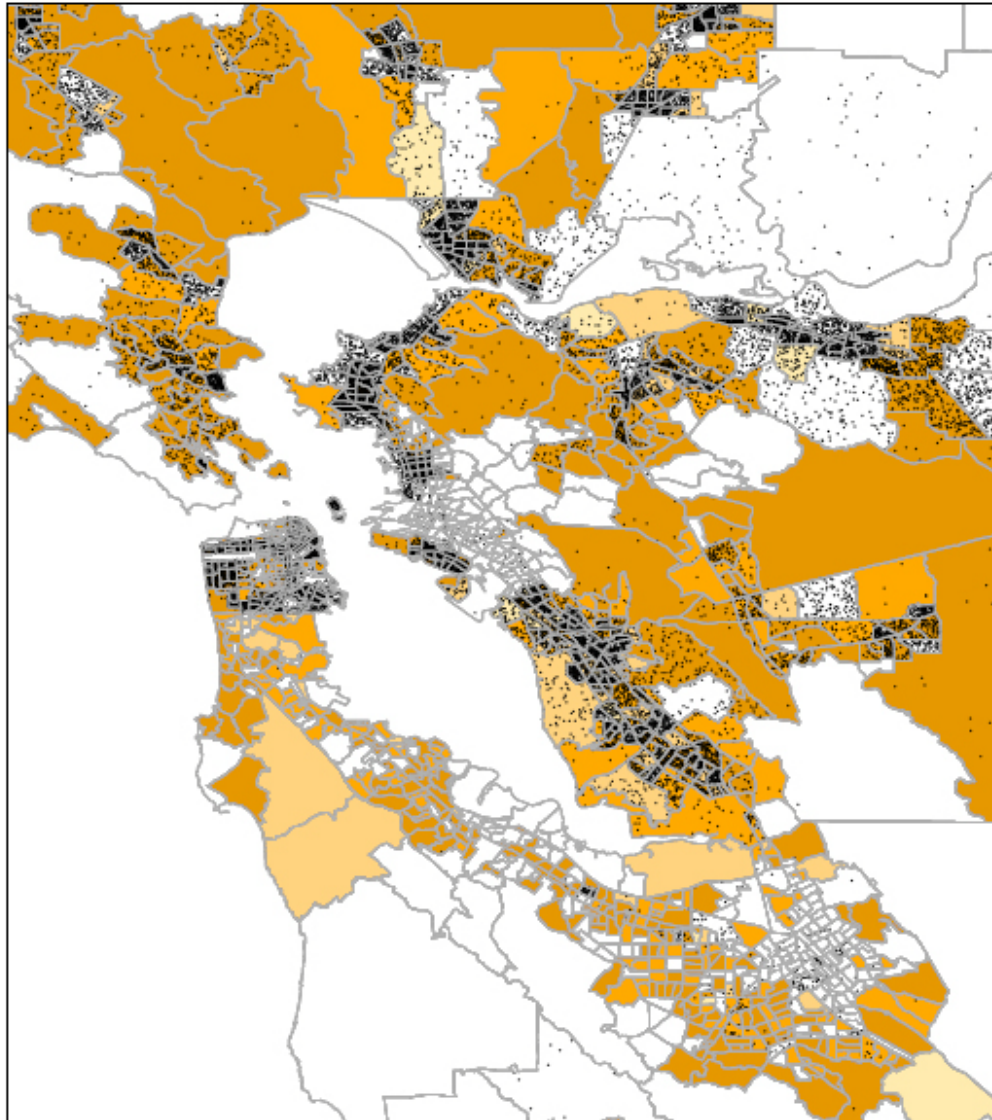
Census Tracts Opportunity Index Score and Density of HCV Households

Opportunity Index Score of Tract

- Not an Opportunity Tract
- 40 Pov< 10% and HCV < 4%
- 50 Pov < 10%, HCV < 4% plus more
- 60 Pov < 10%, HCV < 4% plus more
- 70+ Pov < 10%, HCV < 4% plus more

HVC Households in Tract

- 1 Dot = 1 housing choice voucher

APPENDIXES

Tables follow that describe the variables examined for all tracts and all block groups in the United States as a whole, plus individually for those tracts in central cities, those in the suburbs, and those in non-metropolitan areas.

Tables listing the factor loadings of the variables into the top six component factors for all tracts in the United States as a whole, plus individually for those tracts and block groups in central cities, those in the suburbs, and those in non-metropolitan areas.

Table 2-A1:   Tracts:

Descriptive statistics: All Tracts in the United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	65,081	1	36,146	4,324.18	2,124.14
Percent of renters households elderly 2000	64,800	0	100	14.81	12.01
Race and Ethnicity					
Percent tract population Hispanic 2000	65,081	0	100	11.49	18.98
Percent tract population non-Hispanic black 2000	65,081	0	100	13.42	23.51
Percent tract population non-Hispanic Asian 2000	65,081	0	100	3.32	7.23
Percent tract population minority 2000	65,081	0	100	31.18	30.41
Percent of renter household white alone 2000	64,800	0	100	72.98	27.45
Percent of renter household black alone 2000	64,800	0	100	15.31	24.80
Percent of renter households Hispanic any race 2000	64,800	0	100	11.02	18.21
Female-Headed Households					
Percent of family householders who are female 2000	64,882	0	100	27.15	14.11
Percent of non-family householders who are female 2000	64,810	0	100	44.73	11.20
Percent of households with female head 2000	64,957	0	100	32.49	10.82
Educational Attainment					
Percent total population 25+ years with no high school diploma	65,075	0	113	21.11	14.54
Percent total population 25+ years high school diploma as terminal degree	65,075	0	100	29.08	10.29
Percent total population 25+ years with college 4-year diploma plus 2000	65,075	0	100	23.17	16.97
Percent white population 25+ years with college 4-year diploma plus 2000	64,737	0	100	19.30	14.79
Percent white population 25+ years with high school diploma as terminal degree 2000	64,737	0	100	29.30	11.87
Percent white population 25+ years with college 4-year diploma plus 2000	64,737	0	100	24.41	18.00
Percent minority population 25+ years with no high school diploma 2000	64,725	0	200	27.46	19.64
Percent minority population 25+ years with high school diploma only 2000	64,725	0	100	16.62	13.04
Percent minority population 25+ years with college 4-year diploma plus 2000	64,725	0	100	21.72	19.77
Income, Poverty and Public Assistance					
Tract median household income 2000	64,956	2,499	200,001	44,249.33	20,760.14
Percent of households on public assistance 2000	64,956	0	100	3.90	4.71
Percent of population below poverty 2000	65,004	0	100	13.48	11.66
Percent of non-elderly population below poverty 2000	64,987	0	100	13.79	12.12
Percent of renter households below poverty and on public assistance 2000	64,800	0	100	21.53	14.24
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	64,992	0	100	6.54	6.00
Percent of male workers 16+ any race or ethnicity unemployed 2000	64,964	0	100	6.61	6.61
Percent of female workers 16+ any race or ethnicity unemployed 2000	64,923	0	100	6.45	6.22
Percent of white non-hispanic workers 16+ unemployed 2000	65,443	0	100	5.36	7.89
Percent of black workers 16+ unemployed 2000	65,443	0	100	8.65	15.07
Percent of Hispanic workers 16+ unemployed 2000	65,443	0	100	7.25	13.28
Percent of minority workers 16+ unemployed 2000	65,443	0	100	6.04	13.68
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	64,967	1	11,379	1,686.70	832.33
Total stock of rental housing in tract 2000	64,811	1	8,659	591.56	530.57
Percent of housing stock that is rental 2000	64,967	0	100	35.23	23.13
Percent of regular rental stock vacant 2000	64,811	0	100	6.83	6.44
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	64,800	0	100	42.96	26.76
Percent of occupied rental stock 10 + multi-family 2000	64,800	0	100	20.95	23.83
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	64,800	0	100	38.08	25.98
Percent of occupied rental stock built years <= 5 years old 2000	64,800	0	100	6.57	11.61
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	65,081	0	100	45.14	13.33
Percent of occupied rental stock moved in <= 5 years 2000	64,800	0	100	74.01	13.33
Percent of occupied rental stock moved in 20+ years 2000	64,800	0	100	13.53	10.07
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	64,713	99	2,001	631.82	269.42
Percent of renter households paying 35%+ housing cost hardship 2000	64,706	0	100	30.11	12.16
Fair Market Rents					
FMR as a percent of median gross rent 2000	64,713	23	860	107.05	34.94
Count of rental units in tract at rents below the FMR in 2000	65,443	0	5,889	283.85	334.60
Percent of rental units below FMR in 2000	65,443	0	100	51.61	24.79
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	65,034	-100	483,700	87.86	3,511.64
Change in percent minority population 1990 to 2000	64,935	-100	100	6.95	9.37
Change in percent adults with no high school 1990 to 2000	64,916	-100	92	-4.63	7.18
Change in percent population below poverty 1990 to 2000	64,830	-100	100	-0.43	6.35
Percent growth median household income 1990 to 2000	64,793	-96	109,275	43.79	537.70
Percent growth in housing stock 1990 to 2000	64,941	-100	333,900	76.33	2,641.13
Percent growth renter occupied housing units 1990 to 2000	64,776	-100	90,700	42.39	887.28
Percent growth median gross rent 1990 to 2000	64,696	-100	38,267	41.72	337.75
Change in percent renters with housing cost hardship 1990 to 2000	64,337	-100	100	-1.00	13.88
LIHTC units in tract through 2002	65,443	0	1,433	15.25	54.70
LIHTC units through 2002 as a percent of all rental units 2000	65,439	0	1,523	2.62	15.26
VLI HMDA homebuyers 2002	65,443	0	224	3.88	7.67
VLI HMDA homebuyers 2002 as a percent of all owner households 2000	65,443	0	33	0.20	0.59
Percent of workers who live in a city who commute out of the city to work	65,443	0	100	51.20	31.63
Percent of workers not working at home travel to work less than 30 minutes	65,443	0	100	65.48	17.02
Percent of workers not working at home with travel less than 30 minutes who use public transit	65,443	0	100	2.51	6.69
Valid N (listwise)	63,673				

Table 2-A2:   Block Groups:

Descriptive statistics: All Block Groups in the United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	210,182	1	36,146	1,357.06	892.46
Percent of renters households elderly 2000	206,345	0	100	14.21	15.97
Race and Ethnicity					
Percent Block Group population Hispanic 2000	210,182	0	100	12.27	21.67
Percent Block Group population non-Hispanic black 2000	210,182	0	100	12.83	24.22
Percent Block Group population non-Hispanic Asian 2000	210,182	0	100	3.02	7.25
Percent Block Group population minority 2000	210,182	0	100	30.89	31.99
Percent of renter household white alone 2000	206,345	0	100	74.28	29.37
Percent of renter household black alone 2000	206,345	0	100	14.56	26.02
Percent of renter households Hispanic any race 2000	206,345	0	100	11.79	21.79
Female-Headed Households					
Percent of family householders who are female 2000	209,574	0	100	27.23	15.76
Percent of non-family householders who are female 2000	209,030	0	100	45.59	16.63
Percent of households with female head 2000	209,865	0	100	32.55	12.58
Educational Attainment					
Percent total population 25+ years with no high school diploma	210,124	0	100	21.23	15.21
Percent total population 25+ years high school diploma as terminal degree	210,124	0	100	29.47	11.51
Percent total population 25+ years with college 4-year diploma plus 2000	210,124	0	100	22.58	17.88
Percent white population 25+ years with college 4-year diploma plus 2000	206,619	0	100	19.73	16.45
Percent white population 25+ years with high school diploma as terminal degree 2000	206,619	0	100	29.73	13.58
Percent white population 25+ years with college 4-year diploma plus 2000	206,619	0	100	23.70	19.13
Percent minority population 25+ years with no high school diploma 2000	197,616	0	100	27.11	23.89
Percent minority population 25+ years with high school diploma only 2000	197,616	0	100	16.30	18.18
Percent minority population 25+ years with college 4-year diploma plus 2000	197,616	0	100	21.40	24.79
Income, Poverty and Public Assistance					
Block Group median household income 2000	209,863	2,499	200,001	44,350.78	22,793.54
Percent of households on public assistance 2000	209,864	0	100	4.07	5.78
Percent of population below poverty 2000	209,969	0	100	13.69	13.29
Percent of non-elderly population below poverty 2000	209,920	0	100	13.98	13.84
Percent of renter households below poverty and on public assistance 2000					
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	209,944	0	100	6.58	6.87
Percent of male workers 16+ any race or ethnicty unemployed 2000	209,784	0	100	6.63	7.84
Percent of female workers 16+ any race or ethnicity unemployed 2000	209,705	0	100	6.50	7.80
Percent of white non-hispanic workers 16+ unemployed 2000	211,267	0	100	5.02	8.54
Percent of black workers 16+ unemployed 2000	211,267	0	100	6.53	15.30
Percent of Hispanic workers 16+ unemployed 2000	211,267	0	100	5.73	14.29
Percent of minority workers 16+ unemployed 2000	211,267	0	100	4.49	13.88
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	209,902	1	11,345	528.28	342.71
Total stock of rental housing in Block Group 2000	206,581	1	8,659	187.37	223.96
Percent of housing stock that is rental 2000	209,902	0	100	33.55	24.87
Percent of regular rental stock vacant 2000	206,581	0	100	6.45	9.03
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	206,345	0	100	49.15	32.18
Percent of occupied rental stock 10 + multi-family 2000	206,345	0	100	15.93	24.51
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	206,345	0	100	41.11	30.31
Percent of occupied rental stock built years <= 5 years old 2000	206,345	0	100	5.60	12.61
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	210,180	0	100	43.74	15.26
Percent of occupied rental stock moved in <= 5 years 2000	206,345	0	100	72.99	19.07
Percent of occupied rental stock moved in 20+ years 2000	206,345	0	100	14.27	14.99
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	204,857	99	2,001	638.19	302.80
Percent of renter households paying 35%+ housing cost hardship 2000	204,772	0	100	29.93	18.94
Fair Market Rents					
FMR as a percent of median gross rent 2000	202,438	22	1,151	107.85	42.49
Count of rental units in Block Group at rents below the FMR in 2000	208,790	0	5,889	88.97	135.19
Percent of rental units below FMR in 2000	202,438	0	100	50.83	28.96
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	207,068	-100	483,700	73.35	2,598.56
Change in percent minority population 1990 to 2000	206,730	-100	100	6.83	11.34
Change in percent adults with no high school 1990 to 2000	206,626	-100	100	-4.96	9.23
Change in percent population below poverty 1990 to 2000	206,449	-100	100	-0.39	8.83
Percent growth median household income 1990 to 2000	206,371	-98	13,774	44.27	65.24
Percent growth in housing stock 1990 to 2000	206,831	-100	333,900	59.24	1,724.46
Percent growth renter occupied housing units 1990 to 2000	204,015	-100	77,700	38.73	546.30
Percent growth median gross rent 1990 to 2000	202,643	-100	187,400	51.68	865.99
Change in percent renters with housing cost hardship 1990 to 2000	198,085	-100	100	-1.23	23.91
Percent of workers who live in a city who commute out of the city to work	211,267	0	100	46.89	33.44
Percent of workers not working at home travel to work less than 30 minutes	211,267	0	100	65.89	18.03
Percent of workers not working at home with travel less than 30 minutes who use public transit	211,267	0	100	2.35	7.17
Valid N (listwise)	183,260				

Table 2-A3:   Tracts:

Descriptive Statistics: Central City Tracts in the United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	21,847	1	24,523	3,921.92	2,041.69
Percent of renters households elderly 2000	21,737	0	100	13.24	11.21
Race and Ethnicity					
Percent tract population Hispanic 2000	21,847	0	100	17.17	22.84
Percent tract population non-Hispanic black 2000	21,847	0	100	24.05	31.10
Percent tract population non-Hispanic Asian 2000	21,847	0	96	4.77	9.00
Percent tract population minority 2000	21,847	0	100	49.17	32.90
Percent of renter household white alone 2000	21,737	0	100	57.53	30.85
Percent of renter household black alone 2000	21,737	0	100	26.60	31.84
Percent of renter households Hispanic any race 2000	21,737	0	100	15.87	21.66
Female-Headed Households					
Percent of family householders who are female 2000	21,730	0	100	36.32	16.77
Percent of non-family householders who are female 2000	21,711	0	100	43.69	11.95
Percent of households with female head 2000	21,779	0	100	38.76	11.97
Educational Attainment					
Percent total population 25+ years with no high school diploma	21,844	0	113	25.12	17.29
Percent total population 25+ years high school diploma as terminal degree	21,844	0	100	25.58	9.73
Percent total population 25+ years with college 4-year diploma plus 2000	21,844	0	100	24.09	19.06
Percent white population 25+ years with college 4-year diploma plus 2000	21,546	0	100	22.62	19.05
Percent white population 25+ years with high school diploma as terminal degree 2000	21,546	0	100	25.24	13.23
Percent white population 25+ years with college 4-year diploma plus 2000	21,546	0	100	26.85	21.24
Percent minority population 25+ years with no high school diploma 2000	21,771	0	143	30.46	19.06
Percent minority population 25+ years with high school diploma only 2000	21,771	0	100	17.35	11.79
Percent minority population 25+ years with college 4-year diploma plus 2000	21,771	0	100	20.61	18.45
Income, Poverty and Public Assistance					
Tract median household income 2000	21,778	2,499	200,001	38,415.87	19,286.64
Percent of households on public assistance 2000	21,778	0	100	5.89	6.47
Percent of population below poverty 2000	21,809	0	100	19.14	14.27
Percent of non-elderly population below poverty 2000	21,803	0	100	19.68	14.78
Percent of renter households below poverty and on public assistance 2000	21,737	0	100	25.67	15.52
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	21,805	0	100	8.84	7.90
Percent of male workers 16+ any race or ethnicty unemployed 2000	21,788	0	100	9.00	8.82
Percent of female workers 16+ any race or ethnicty unemployed 2000	21,764	0	100	8.67	8.07
Percent of white non-hispanic workers 16+ unemployed 2000	21,958	0	100	6.96	11.85
Percent of black workers 16+ unemployed 2000	21,958	0	100	11.47	14.41
Percent of Hispanic workers 16+ unemployed 2000	21,958	0	100	8.63	13.67
Percent of minority workers 16+ unemployed 2000	21,958	0	100	7.17	14.09
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	21,783	1	11,379	1,579.19	864.30
Total stock of rental housing in tract 2000	21,741	1	8,659	797.61	643.40
Percent of housing stock that is rental 2000	21,783	0	100	50.73	24.30
Percent of regular rental stock vacant 2000	21,741	0	100	6.83	6.10
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	21,737	0	100	33.30	26.94
Percent of occupied rental stock 10 + multi-family 2000	21,737	0	100	29.58	26.65
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	21,737	0	100	45.10	29.19
Percent of occupied rental stock built years <= 5 years old 2000	21,737	0	100	5.02	10.93
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	21,847	0	100	49.77	14.21
Percent of occupied rental stock moved in <= 5 years 2000	21,737	0	100	73.92	14.37
Percent of occupied rental stock moved in 20+ years 2000	21,737	0	100	13.60	10.83
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	21,719	99	2,001	628.87	243.34
Percent of renter households paying 35%+ housing cost hardship 2000	21,717	0	100	33.98	11.63
Fair Market Rents					
FMR as a percent of median gross rent 2000	21,719	27	848	116.88	45.36
Count of rental units in tract at rents below the FMR in 2000	21,958	0	5,889	437.05	433.98
Percent of rental units below FMR in 2000	21,958	0	100	57.89	25.90
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	21,829	-100	483,700	96.69	4,683.45
Change in percent minority population 1990 to 2000	21,792	-96	100	9.10	11.11
Change in percent adults with no high school 1990 to 2000	21,782	-100	92	-3.19	8.32
Change in percent population below poverty 1990 to 2000	21,737	-100	100	0.13	8.17
Percent growth median household income 1990 to 2000	21,712	-96	109,275	47.16	921.05
Percent growth in housing stock 1990 to 2000	21,774	-100	285,900	55.01	2,388.43
Percent growth renter occupied housing units 1990 to 2000	21,709	-100	90,700	33.44	784.33
Percent growth median gross rent 1990 to 2000	21,686	-100	9,400	35.91	105.51
Change in percent renters with housing cost hardship 1990 to 2000	21,594	-100	100	-0.78	12.70
LIHTC units in tract through 2002	21,958	0	1,433	21.22	70.37
LIHTC units through 2002 as a percent of all rental units 2000	21,954	0	1,523	3.10	18.28
VLI HMDA homebuyers 2002	21,958	0	144	4.33	7.67
VLI HMDA homebuyers 2002 as a percent of all owner households 2000	21,958	0	14	0.17	0.49
Percent of workers who live in a city who commute out of the city to work	21,958	0	100	32.41	18.97
Percent of workers not working at home travel to work less than 30 minutes	21,958	0	100	66.39	19.72
Percent of workers not working at home with travel less than 30 minutes who use public transit	21,958	0	100	5.92	10.39
Valid N (listwise)	21,225				

Table 2-A4: Block Groups:

Descriptive Statistics: Central City Block Groups in the United States

Category / Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	67,287	1	24,473	1273.39	865.44
Percent of renters households elderly 2000	66,413	0	100	12.61	14.71
Race and Ethnicity					
Percent Block Group population Hispanic 2000	67,287	0	100	17.17	23.95
Percent Block Group population non-Hispanic black 2000	67,287	0	100	23.56	32.18
Percent Block Group population non-Hispanic Asian 2000	67,287	0	100	4.40	9.12
Percent Block Group population minority 2000	67,287	0	100	48.21	34.36
Percent of renter household white alone 2000	66,413	0	100	58.78	33.28
Percent of renter household black alone 2000	66,413	0	100	25.92	33.42
Percent of renter households Hispanic any race 2000	66,413	0	100	15.86	23.48
Female-Headed Households					
Percent of family householders who are female 2000	66,907	0	100	36.08	18.59
Percent of non-family householders who are female 2000	66,798	0	100	44.47	16.90
Percent of households with female head 2000	67,107	0	100	38.67	13.72
Educational Attainment					
Percent total population 25+ years with no high school diploma	67,250	0	100	24.52	17.69
Percent total population 25+ years high school diploma as terminal degree	67,250	0	100	25.90	11.11
Percent total population 25+ years with college 4-year diploma plus 2000	67,250	0	100	23.72	20.07
Percent white population 25+ years with college 4-year diploma plus 2000	64,241	0	100	22.48	21.00
Percent white population 25+ years with high school diploma as terminal degree 2000	64,241	0	100	25.55	15.51
Percent white population 25+ years with college 4-year diploma plus 2000	64,241	0	100	26.43	22.72
Percent minority population 25+ years with no high school diploma 2000	65,796	0	100	28.95	21.51
Percent minority population 25+ years with high school diploma only 2000	65,796	0	100	17.07	15.68
Percent minority population 25+ years with college 4-year diploma plus 2000	65,796	0	100	20.53	22.39
Income, Poverty and Public Assistance					
Block Group median household income 2000	67,106	2,499	200,001	39437.24	21165.75
Percent of households on public assistance 2000	67,106	0	100	5.83	7.29
Percent of population below poverty 2000	67,179	0	100	18.53	15.51
Percent of non-elderly population below poverty 2000	67,159	0	100	19.02	16.14
Percent of renter households below poverty and on public assistance 2000					
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	67,172	0	100	8.54	8.58
Percent of male workers 16+ any race or ethnicty unemployed 2000	67,069	0	100	8.71	10.05
Percent of female workers 16+ any race or ethnicty unemployed 2000	67,034	0	100	8.32	9.46
Percent of white non-hispanic workers 16+ unemployed 2000	67,733	0	100	5.92	11.79
Percent of black workers 16+ unemployed 2000	67,733	0	100	9.45	16.29
Percent of Hispanic workers 16+ unemployed 2000	67,733	0	100	6.99	14.71
Percent of minority workers 16+ unemployed 2000	67,733	0	100	5.50	14.83
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	67,130	1	11,345	512.43	359.12
Total stock of rental housing in Block Group 2000	66,490	1	8,659	260.80	279.72
Percent of housing stock that is rental 2000	67,130	0	100	47.67	27.21
Percent of regular rental stock vacant 2000	66,490	0	100	6.41	8.42
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	66,413	0	100	40.41	33.49
Percent of occupied rental stock 10 + multi-family 2000	66,413	0	100	23.61	28.59
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	66,413	0	100	48.35	32.03
Percent of occupied rental stock built years <= 5 years old 2000	66,413	0	100	4.06	11.23
Housing Stock by Turnover	67,287	0	100	48.38	16.40
Percent of population moved 1995 - 2000					
Percent of occupied rental stock moved in <= 5 years 2000	66,413	0	100	73.32	18.55
Percent of occupied rental stock moved in 20+ years 2000	66,413	0	100	13.94	14.32
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	66,198	99	2,001	647.74	275.08
Percent of renter households paying 35%+ housing cost hardship 2000	66,184	0	100	33.89	17.46
Fair Market Rents					
FMR as a percent of median gross rent 2000	66,198	22	951	115.99	50.46
Count of rental units in Block Group at rents below the FMR in 2000	67,733	0	5,889	141.68	181.52
Percent of rental units below FMR in 2000	66,198	0	100	56.56	29.23
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	67,074	-100	483,700	52.32	2400.28
Change in percent minority population 1990 to 2000	66,917	-100	100	9.20	13.38
Change in percent adults with no high school 1990 to 2000	66,868	-100	100	-3.61	10.49
Change in percent population below poverty 1990 to 2000	66,771	-100	100	0.25	11.01
Percent growth median household income 1990 to 2000	66,703	-98	6,049	43.10	69.18
Percent growth in housing stock 1990 to 2000	66,926	-100	141,700	39.73	1176.69
Percent growth renter occupied housing units 1990 to 2000	66,255	-100	58,200	32.96	514.26
Percent growth median gross rent 1990 to 2000	66,102	-100	187,400	43.26	860.16
Change in percent renters with housing cost hardship 1990 to 2000	65,203	-100	100	-1.09	21.49
Percent of workers who live in a city who commute out of the city to work	67,733	0	100	32.82	20.16
Percent of workers not working at home travel to work less than 30 minutes	67,733	0	100	66.80	20.65
Percent of workers not working at home with travel less than 30 minutes who use public transit	67,733	0	100	5.57	11.35
Valid N (listwise)	60,885				

Table 2-A5:   Tracts:

Descriptive Statistics: Suburban Tracts in the United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	29,371	1	36,146	4,777.21	2,229.98
Percent of renters households elderly 2000	29,231	0	100	14.76	13.49
Race and Ethnicity					
Percent tract population Hispanic 2000	29,371	0	100	10.25	17.28
Percent tract population non-Hispanic black 2000	29,371	0	100	8.06	15.85
Percent tract population non-Hispanic Asian 2000	29,371	0	100	3.50	6.86
Percent tract population minority 2000	29,371	0	100	24.30	25.36
Percent of renter household white alone 2000	29,231	0	100	79.45	21.93
Percent of renter household black alone 2000	29,231	0	100	9.82	17.53
Percent of renter households Hispanic any race 2000	29,231	0	100	10.09	16.99
Female-Headed Households					
Percent of family householders who are female 2000	29,307	0	100	22.92	9.67
Percent of non-family householders who are female 2000	29,273	0	100	44.81	11.13
Percent of households with female head 2000	29,326	0	100	29.28	8.68
Educational Attainment					
Percent total population 25+ years with no high school diploma	29,370	0	100	17.06	12.67
Percent total population 25+ years high school diploma as terminal degree	29,370	0	100	28.52	10.15
Percent total population 25+ years with college 4-year diploma plus 2000	29,370	0	100	26.22	16.96
Percent white population 25+ years with college 4-year diploma plus 2000	29,345	0	100	15.87	12.16
Percent white population 25+ years with high school diploma as terminal degree 2000	29,345	0	100	29.13	10.70
Percent white population 25+ years with college 4-year diploma plus 2000	29,345	0	100	26.43	17.21
Percent minority population 25+ years with no high school diploma 2000	29,219	0	200	23.06	18.66
Percent minority population 25+ years with high school diploma only 2000	29,219	0	100	15.00	12.54
Percent minority population 25+ years with college 4-year diploma plus 2000	29,219	0	100	26.66	21.07
Income, Poverty and Public Assistance					
Tract median household income 2000	29,326	2,499	200,001	53,458.83	21,894.40
Percent of households on public assistance 2000	29,326	0	65	2.52	2.94
Percent of population below poverty 2000	29,342	0	100	8.60	7.95
Percent of non-elderly population below poverty 2000	29,333	0	100	8.72	8.30
Percent of renter households below poverty and on public assistance 2000	29,231	0	100	15.87	11.61
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	29,336	0	100	4.92	4.25
Percent of male workers 16+ any race or ethnicty unemployed 2000	29,325	0	100	4.89	4.50
Percent of female workers 16+ any race or ethnicity unemployed 2000	29,314	0	100	4.95	4.67
Percent of white non-hispanic workers 16+ unemployed 2000	29,457	0	100	4.26	4.91
Percent of black workers 16+ unemployed 2000	29,457	0	100	6.78	13.90
Percent of Hispanic workers 16+ unemployed 2000	29,457	0	100	6.09	11.57
Percent of minority workers 16+ unemployed 2000	29,457	0	100	5.26	12.20
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	29,332	1	10,648	1,808.97	846.43
Total stock of rental housing in tract 2000	29,237	1	5,653	510.37	468.91
Percent of housing stock that is rental 2000	29,332	0	100	27.57	19.69
Percent of regular rental stock vacant 2000	29,237	0	100	5.96	6.70
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	29,231	0	100	45.42	27.64
Percent of occupied rental stock 10 + multi-family 2000	29,231	0	100	20.53	23.20
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	29,231	0	100	32.08	24.93
Percent of occupied rental stock built years <= 5 years old 2000	29,231	0	100	7.67	13.58
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	29,371	0	100	43.94	12.76
Percent of occupied rental stock moved in <= 5 years 2000	29,231	0	100	74.94	13.46
Percent of occupied rental stock moved in 20+ years 2000	29,231	0	100	12.61	10.00
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	29,181	99	2,001	727.78	287.52
Percent of renter households paying 35%+ housing cost hardship 2000	29,177	0	100	28.64	12.52
Fair Market Rents					
Percent population growth 1990 to 2000	29,328	-100	318,950	117.19	3,317.78
Change in percent minority population 1990 to 2000	29,285	-100	100	7.14	8.87
Change in percent adults with no high school 1990 to 2000	29,279	-97	88	-4.16	6.40
Trend variables 1990 to 2000					
Change in percent population below poverty 1990 to 2000	29,247	-100	100	0.11	4.76
Percent growth median household income 1990 to 2000	29,235	-93	13,774	39.89	102.21
Percent growth in housing stock 1990 to 2000	29,297	-100	333,900	122.08	3,349.24
Percent growth renter occupied housing units 1990 to 2000	29,215	-100	85,700	64.34	1,133.90
Percent growth median gross rent 1990 to 2000	29,177	-100	33,650	42.58	340.27
Change in percent renters with housing cost hardship 1990 to 2000	28,955	-100	100	-0.56	15.20
LIHTC units in tract through 2002	29,457	0	1,352	12.58	50.26
LIHTC units through 2002 as a percent of all rental units 2000	29,457	0	1,200	2.43	15.86
VLI HMDA homebuyers 2002	29,457	0	224	4.48	8.88
VLI HMDA homebuyers 2002 as a percent of all owner households 2000	29,457	0	33	0.23	0.71
FMR as a percent of median gross rent 2000	29,181	23	860	100.77	28.72
Count of rental units in tract at rents below the FMR in 2000	29,457	0	3,732	224.47	263.17
Percent of rental units below FMR in 2000	29,457	0	100	47.19	25.46
Percent of workers who live in a city who commute out of the city to work	29,457	0	100	66.18	32.05
Percent of workers not working at home travel to work less than 30 minutes	29,457	0	100	62.32	14.41
Percent of workers not working at home with travel less than 30 minutes who use public transit	29,457	0	59	0.97	2.31
Valid N (listwise)	28,784				

Table 2-A6: Block Groups:

Descriptive Statistics: Suburban Block Groups in the United States

Category / Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	92,730	1	36,146	1,513.12	1,012.39
Percent of renters households elderly 2000	89,929	0	100	14.11	17.80
Race and Ethnicity					
Percent Block Group population Hispanic 2000	92,730	0	100	10.11	17.98
Percent Block Group population non-Hispanic black 2000	92,730	0	100	7.76	16.78
Percent Block Group population non-Hispanic Asian 2000	92,730	0	100	3.31	7.07
Percent Block Group population minority 2000	92,730	0	100	23.56	26.35
Percent of renter household white alone 2000	89,929	0	100	80.48	24.74
Percent of renter household black alone 2000	89,929	0	100	9.17	19.23
Percent of renter households Hispanic any race 2000	89,929	0	100	9.90	18.90
Female-Headed Households					
Percent of family householders who are female 2000	92,561	0	100	23.17	11.93
Percent of non-family householders who are female 2000	92,185	0	100	45.66	17.21
Percent of households with female head 2000	92,630	0	100	29.37	10.80
Educational Attainment					
Percent total population 25+ years with no high school diploma	92,717	0	100	17.19	13.31
Percent total population 25+ years high school diploma as terminal degree	92,717	0	100	28.99	11.46
Percent total population 25+ years with college 4-year diploma plus 2000	92,717	0	100	25.70	18.14
Percent white population 25+ years with college 4-year diploma plus 2000	92,423	0	100	16.27	13.65
Percent white population 25+ years with high school diploma as terminal degree 2000	92,423	0	100	29.59	12.39
Percent white population 25+ years with college 4-year diploma plus 2000	92,423	0	100	25.85	18.57
Percent minority population 25+ years with no high school diploma 2000	86,399	0	100	22.74	23.20
Percent minority population 25+ years with high school diploma only 2000	86,399	0	100	14.64	18.05
Percent minority population 25+ years with college 4-year diploma plus 2000	86,399	0	100	26.37	26.95
Income, Poverty and Public Assistance					
Block Group median household income 2000	92,630	2,499	200,001	53,903.46	24,626.07
Percent of households on public assistance 2000	92,630	0	100	2.56	3.70
Percent of population below poverty 2000	92,659	0	100	8.62	9.05
Percent of non-elderly population below poverty 2000	92,633	0	100	8.73	9.50
Percent of renter households below poverty and on public assistance 2000					
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	92,636	0	100	4.91	4.89
Percent of male workers 16+ any race or ethnicty unemployed 2000	92,591	0	100	4.89	5.56
Percent of female workers 16+ any race or ethnicty unemployed 2000	92,555	0	100	4.91	5.93
Percent of white non-hispanic workers 16+ unemployed 2000	93,102	0	100	4.22	6.05
Percent of black workers 16+ unemployed 2000	93,102	0	100	4.72	13.75
Percent of Hispanic workers 16+ unemployed 2000	93,102	0	100	4.75	12.83
Percent of minority workers 16+ unemployed 2000	93,102	0	100	3.84	12.69
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	92,641	1	8,895	572.76	379.96
Total stock of rental housing in Block Group 2000	90,065	1	5,653	165.68	211.15
Percent of housing stock that is rental 2000	92,641	0	100	26.59	22.40
Percent of regular rental stock vacant 2000	90,065	0	100	5.45	9.35
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	89,929	0	100	51.85	33.41
Percent of occupied rental stock 10 + multi-family 2000	89,929	0	100	15.12	24.00
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	89,929	0	100	36.60	30.83
Percent of occupied rental stock built years <= 5 years old 2000	89,929	0	100	6.24	14.54
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	92,729	0	100	42.52	14.81
Percent of occupied rental stock moved in <= 5 years 2000	89,929	0	100	73.44	20.70
Percent of occupied rental stock moved in 20+ years 2000	89,929	0	100	13.70	16.25
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	88,919	99	2,001	742.66	331.07
Percent of renter households paying 35%+ housing cost hardship 2000	88,866	0	100	28.30	20.29
Fair Market Rents					
FMR as a percent of median gross rent 2000	88,919	22	1,151	102.97	40.17
Count of rental units in Block Group at rents below the FMR in 2000	93,102	0	2,789	71.02	110.57
Percent of rental units below FMR in 2000	88,919	0	100	47.13	30.49
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	92,240	-100	363,600	119.92	3,306.09
Change in percent minority population 1990 to 2000	92,101	-100	100	6.93	10.82
Change in percent adults with no high school 1990 to 2000	92,056	-100	100	-4.42	8.41
Change in percent population below poverty 1990 to 2000	92,000	-100	100	0.10	6.92
Percent growth median household income 1990 to 2000	91,992	-95	13,774	42.24	73.75
Percent growth in housing stock 1990 to 2000	92,170	-100	333,900	96.89	2,379.77
Percent growth renter occupied housing units 1990 to 2000	90,146	-100	77,700	52.88	687.43
Percent growth median gross rent 1990 to 2000	89,364	-100	122,400	53.35	880.40
Change in percent renters with housing cost hardship 1990 to 2000	86,126	-100	100	-0.84	25.90
Percent of workers who live in a city who commute out of the city to work	93,102	0	100	61.18	35.65
Percent of workers not working at home travel to work less than 30 minutes	93,102	0	100	62.55	15.84
Percent of workers not working at home with travel less than 30 minutes who use public transit	93,102	0	100	0.99	3.02
Valid N (listwise)	80,328				

Table 2-A7: Tracts:

Descriptive Statistics: Non-Metropolitan Tracts in the United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	13,863	2	19,138	3,998.28	1,811.48
Percent of renters households elderly 2000	13,832	0	100	17.39	9.11
Race and Ethnicity					
Percent tract population Hispanic 2000	13,863	0	100	5.19	11.91
Percent tract population non-Hispanic black 2000	13,863	0	100	8.00	16.40
Percent tract population non-Hispanic Asian 2000	13,863	0	100	0.67	2.75
Percent tract population minority 2000	13,863	0	100	17.39	21.75
Percent of renter household white alone 2000	13,832	0	100	83.58	21.00
Percent of renter household black alone 2000	13,832	0	100	9.19	18.37
Percent of renter households Hispanic any race 2000	13,832	0	100	5.38	11.63
Female-Headed Households					
Percent of family householders who are female 2000	13,845	0	100	21.71	9.68
Percent of non-family householders who are female 2000	13,826	0	100	46.21	9.84
Percent of households with female head 2000	13,852	0	100	29.42	8.42
Educational Attainment					
Percent total population 25+ years with no high school diploma	13,861	0	100	23.39	10.74
Percent total population 25+ years high school diploma as terminal degree	13,861	0	100	35.79	8.06
Percent total population 25+ years with college 4-year diploma plus 2000	13,861	0	100	15.23	9.29
Percent white population 25+ years with college 4-year diploma plus 2000	13,846	0	96	21.39	9.95
Percent white population 25+ years with high school diploma as terminal degree 2000	13,846	0	100	35.99	8.54
Percent white population 25+ years with college 4-year diploma plus 2000	13,846	0	100	16.32	10.04
Percent minority population 25+ years with no high school diploma 2000	13,735	0	200	32.05	20.61
Percent minority population 25+ years with high school diploma only 2000	13,735	0	100	18.91	15.31
Percent minority population 25+ years with college 4-year diploma plus 2000	13,735	0	100	12.98	15.09
Income, Poverty and Public Assistance					
Tract median household income 2000	13,852	2,499	127,308	33,923.23	9,037.44
Percent of households on public assistance 2000	13,852	0	100	3.68	3.12
Percent of population below poverty 2000	13,853	0	100	14.90	8.97
Percent of non-elderly population below poverty 2000	13,851	0	100	15.25	9.39
Percent of renter households below poverty and on public assistance 2000	13,832	0	100	26.98	12.71
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	13,851	0	61	6.34	4.27
Percent of male workers 16+ any race or ethnicty unemployed 2000	13,851	0	75	6.47	4.95
Percent of female workers 16+ any race or ethnicty unemployed 2000	13,845	0	100	6.17	4.53
Percent of white non-hispanic workers 16+ unemployed 2000	13,906	0	61	5.22	3.62
Percent of black workers 16+ unemployed 2000	13,906	0	100	8.21	17.65
Percent of Hispanic workers 16+ unemployed 2000	13,906	0	100	7.59	15.63
Percent of minority workers 16+ unemployed 2000	13,906	0	100	5.97	15.75
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	13,852	1	8,296	1,596.84	706.79
Total stock of rental housing in tract 2000	13,833	1	5,654	439.34	315.86
Percent of housing stock that is rental 2000	13,852	0	100	27.06	13.82
Percent of regular rental stock vacant 2000	13,833	0	100	8.67	6.01
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	13,832	0	100	52.93	18.50
Percent of occupied rental stock 10 + multi-family 2000	13,832	0	100	8.31	11.40
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	13,832	0	100	39.72	18.85
Percent of occupied rental stock built years <= 5 years old 2000	13,832	0	83	6.68	6.92
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	13,863	0	100	40.41	10.60
Percent of occupied rental stock moved in <= 5 years 2000	13,832	0	100	72.19	10.97
Percent of occupied rental stock moved in 20+ years 2000	13,832	0	100	15.35	8.59
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	13,813	99	1,891	433.74	116.77
Percent of renter households paying 35%+ housing cost hardship 2000	13,812	0	100	27.16	10.57
Fair Market Rents					
FMR as a percent of median gross rent 2000	13,813	34	481	104.90	22.40
Count of rental units in tract at rents below the FMR in 2000	13,906	0	1,908	170.19	156.98
Percent of rental units below FMR in 2000	13,906	0	100	51.48	18.25
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	13,876	-100	14,650	11.99	132.11
Change in percent minority population 1990 to 2000	13,858	-56	74	3.17	5.42
Change in percent adults with no high school 1990 to 2000	13,855	-86	69	-7.89	5.64
Change in percent population below poverty 1990 to 2000	13,846	-79	91	-2.43	5.57
Percent growth median household income 1990 to 2000	13,846	-92	953	46.75	24.34
Percent growth in housing stock 1990 to 2000	13,869	-100	5,238	13.19	49.34
Percent growth renter occupied housing units 1990 to 2000	13,851	-100	6,000	10.14	59.93
Percent growth median gross rent 1990 to 2000	13,832	-100	38,267	49.02	521.33
Change in percent renters with housing cost hardship 1990 to 2000	13,788	-100	100	-2.28	12.63
LIHTC units in tract through 2002	13,906	0	381	11.61	28.76
LIHTC units through 2002 as a percent of all rental units 2000	13,906	0	141	2.29	5.88
VLI HMDA homebuyers 2002	13,906	0	113	1.96	3.42
VLI HMDA homebuyers 2002 as a percent of all owner households 2000	13,906	0	16	0.17	0.45
Percent of workers who live in a city who commute out of the city to work	13,906	0	100	49.57	30.10
Percent of workers not working at home travel to work less than 30 minutes	13,906	0	100	71.31	14.65
Percent of workers not working at home with travel less than 30 minutes who use public transit	13,906	0	37	0.38	0.99
Valid N (listwise)	13,664				

Table 2-A8:   Block Groups:

Descriptive Statistics: Non-Metropolitan Block Groups, United States

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	47,731	2	14,377	1,161.26	575.62
Percent of renters households elderly 2000	47,577	0	100	16.78	13.75
Race and Ethnicity					
Percent Block Group population Hispanic 2000	47,731	0	100	5.15	12.57
Percent Block Group population non-Hispanic black 2000	47,731	0	100	8.22	18.29
Percent Block Group population non-Hispanic Asian 2000	47,731	0	100	0.65	2.89
Percent Block Group population minority 2000	47,731	0	100	17.25	23.28
Percent of renter household white alone 2000	47,577	0	100	84.06	22.83
Percent of renter household black alone 2000	47,577	0	100	9.18	20.16
Percent of renter households Hispanic any race 2000	47,577	0	100	5.29	12.74
Female-Headed Households					
Percent of family householders who are female 2000	47,675	0	100	22.24	12.23
Percent of non-family householders who are female 2000	47,623	0	100	46.73	14.81
Percent of households with female head 2000	47,696	0	100	29.82	10.74
Educational Attainment					
Percent total population 25+ years with no high school diploma	47,723	0	100	23.47	12.20
Percent total population 25+ years high school diploma as terminal degree	47,723	0	100	35.80	9.54
Percent total population 25+ years with college 4-year diploma plus 2000	47,723	0	100	15.17	10.71
Percent white population 25+ years with college 4-year diploma plus 2000	47,523	0	100	21.70	12.06
Percent white population 25+ years with high school diploma as terminal degree 2000	47,523	0	100	36.02	10.49
Percent white population 25+ years with college 4-year diploma plus 2000	47,523	0	100	16.10	11.57
Percent minority population 25+ years with no high school diploma 2000	42,996	0	100	32.17	26.98
Percent minority population 25+ years with high school diploma only 2000	42,996	0	100	18.81	21.63
Percent minority population 25+ years with college 4-year diploma plus 2000	42,996	0	100	13.05	21.45
Income, Poverty and Public Assistance					
Block Group median household income 2000	47,695	2,499	192,318	34,143.54	10,825.10
Percent of households on public assistance 2000	47,696	0	100	3.70	3.91
Percent of population below poverty 2000	47,699	0	100	14.98	10.73
Percent of non-elderly population below poverty 2000	47,696	0	100	15.31	11.37
Percent of renter households below poverty and on public assistance 2000					
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	47,704	0	100	6.35	5.43
Percent of male workers 16+ any race or ethnicity unemployed 2000	47,694	0	100	6.45	6.44
Percent of female workers 16+ any race or ethnicty unemployed 2000	47,684	0	100	6.18	6.20
Percent of white non-hispanic workers 16+ unemployed 2000	47,833	0	100	5.27	5.28
Percent of black workers 16+ unemployed 2000	47,833	0	100	5.28	15.00
Percent of Hispanic workers 16+ unemployed 2000	47,833	0	100	5.10	15.89
Percent of minority workers 16+ unemployed 2000	47,833	0	100	3.54	14.24
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	47,699	1	4,604	463.73	208.36
Total stock of rental housing in Block Group 2000	47,599	1	2,370	127.68	106.69
Percent of housing stock that is rental 2000	47,699	0	100	27.39	16.53
Percent of regular rental stock vacant 2000	47,599	0	100	8.34	8.98
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	47,577	0	100	54.94	24.28
Percent of occupied rental stock 10 + multi-family 2000	47,577	0	100	7.09	13.85
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	47,577	0	100	40.66	24.43
Percent of occupied rental stock built years <= 5 years old 2000	47,577	0	100	6.42	10.19
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	47,730	0	100	40.41	12.52
Percent of occupied rental stock moved in <= 5 years 2000	47,577	0	100	72.03	16.40
Percent of occupied rental stock moved in 20+ years 2000	47,577	0	100	15.53	13.23
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	47,321	99	2,001	443.82	143.43
Percent of renter households paying 35%+ housing cost hardship 2000	47,308	0	100	27.00	17.17
Fair Market Rents					
FMR as a percent of median gross rent 2000	47,321	23	758	105.66	31.43
Count of rental units in Block Group at rents below the FMR in 2000	47,833	0	981	49.48	56.47
Percent of rental units below FMR in 2000	47,321	0	100	49.78	23.98
Trend variables 1990 to 2000					
Percent population growth 1990 to 2000	47,753	-100	52,600	12.93	258.46
Change in percent minority population 1990 to 2000	47,712	-96	77	3.29	7.71
Change in percent adults with no high school 1990 to 2000	47,702	-100	80	-7.87	8.20
Change in percent population below poverty 1990 to 2000	47,678	-87	100	-2.23	8.42
Percent growth median household income 1990 to 2000	47,676	-92	890	49.84	34.54
Percent growth in housing stock 1990 to 2000	47,734	-100	5,950	13.93	58.18
Percent growth renter occupied housing units 1990 to 2000	47,613	-100	17,300	19.95	123.74
Percent growth median gross rent 1990 to 2000	47,176	-100	94,900	60.33	846.31
Change in percent renters with housing cost hardship 1990 to 2000	46,756	-100	100	-2.16	23.26
Percent of workers who live in a city who commute out of the city to work	47,833	0	100	39.66	33.05
Percent of workers not working at home travel to work less than 30 minutes	47,833	0	100	71.77	15.87
Percent of workers not working at home with travel less than 30 minutes who use public transit	47,833	0	77	0.39	1.52
Valid N (listwise)	42,047				

Table 2-A9   Tracts:

Factor Analysis

Principal Component Matrix: Tracts in the United States

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.154	0.319	-0.321	0.285	-0.141	0.452
Percent of renters households elderly 2000	-0.020	-0.219	0.263	0.130	-0.405	-0.078
Race and Ethnicity						
Percent tract population Hispanic 2000	0.428	0.306	-0.589	-0.414	-0.199	0.016
Percent tract population non-Hispanic black 2000	0.608	0.058	0.481	0.013	0.368	0.386
Percent tract population non-Hispanic Asian 2000	-0.045	0.420	0.024	-0.248	-0.110	0.112
Percent tract population minority 2000	0.745	0.351	-0.002	-0.318	0.141	0.324
Percent of renter household white alone 2000	-0.714	-0.284	-0.210	0.202	-0.247	-0.381
Percent of renter household black alone 2000	0.607	0.075	0.463	0.019	0.364	0.408
Percent of renter households Hispanic any race 2000	0.399	0.284	-0.583	-0.428	-0.201	0.008
Female-Headed Households						
Percent of family householders who are female 2000	0.785	0.224	0.335	0.064	0.132	0.119
Percent of non-family householders who are female 2000	-0.056	-0.207	0.358	0.091	-0.182	0.113
Percent of households with female head 2000	0.695	0.156	0.440	0.175	-0.005	0.123
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.813	-0.149	-0.351	-0.201	-0.085	0.070
Percent total population 25+ years high school diploma as terminal degree	0.174	-0.785	-0.106	0.326	-0.059	0.185
Percent total population 25+ years with college 4-year diploma plus 2000	-0.606	0.585	0.369	-0.126	0.003	-0.224
Percent white population 25+ years with college 4-year diploma plus 2000	0.731	-0.179	-0.308	-0.174	-0.093	0.097
Percent white population 25+ years with high school diploma as terminal degree 2000	0.114	-0.711	-0.167	0.290	-0.075	0.197
Percent white population 25+ years with college 4-year diploma plus 2000	-0.495	0.585	0.432	-0.120	0.040	-0.227
Percent minority population 25+ years with no high school diploma 2000	0.566	-0.124	-0.421	-0.175	-0.104	-0.014
Percent minority population 25+ years with high school diploma only 2000	0.266	-0.277	0.315	0.280	0.252	0.273
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.554	0.444	0.316	-0.128	-0.043	-0.143
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.741	0.263	0.166	-0.391	0.029	0.100
Percent of households on public assistance 2000	0.790	0.036	0.006	-0.103	0.052	-0.039
Percent of population below poverty 2000	0.881	0.069	-0.012	0.039	0.121	-0.200
Percent of non-elderly population below poverty 2000	0.874	0.070	-0.016	0.043	0.131	-0.207
Percent of renter households below poverty and on public assistance 2000	0.759	-0.148	-0.016	0.081	0.144	-0.147
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.785	0.058	0.056	-0.097	0.216	-0.233
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.713	0.028	0.115	-0.076	0.212	-0.222
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.735	0.085	-0.026	-0.112	0.175	-0.190
Percent of white non-hispanic workers 16+ unemployed 2000	0.420	0.024	-0.012	-0.054	0.123	-0.229
Percent of black workers 16+ unemployed 2000	0.317	0.050	0.029	0.012	0.095	-0.159
Percent of Hispanic workers 16+ unemployed 2000	0.247	0.038	-0.081	-0.049	0.029	-0.238
Percent of minority workers 16+ unemployed 2000	0.193	0.062	-0.134	-0.053	-0.004	-0.219
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.201	0.348	-0.182	0.497	-0.213	0.387
Total stock of rental housing in tract 2000	0.300	0.611	-0.066	0.492	-0.317	0.123
Percent of housing stock that is rental 2000	0.643	0.517	0.051	0.246	-0.167	-0.183
Percent of regular rental stock vacant 2000	0.138	-0.149	-0.042	0.306	0.250	-0.113
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.239	-0.470	-0.105	-0.445	0.354	0.113
Percent of occupied rental stock 10 + multi-family 2000	0.121	0.612	0.134	0.296	-0.322	-0.071
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.268	-0.262	0.313	-0.241	-0.278	-0.197
Percent of occupied rental stock built years <= 5 years old 2000	-0.211	0.154	-0.199	0.212	0.339	0.024
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.118	0.623	-0.236	0.365	0.221	-0.214
Percent of occupied rental stock moved in <= 5 years 2000	-0.241	0.370	-0.383	0.354	0.491	-0.115
Percent of occupied rental stock moved in 20+ years 2000	0.222	-0.361	0.392	-0.304	-0.458	0.078
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.507	0.501	0.103	-0.417	0.095	0.162
Percent of renter households paying 35%+ housing cost hardship 2000	0.380	0.233	0.056	-0.039	0.103	-0.039
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.654	-0.131	0.143	0.062	-0.305	-0.097
Count of rental units in tract at rents below the FMR in 2000	0.507	0.467	-0.018	0.327	-0.443	0.099
Percent of rental units below FMR in 2000	0.660	-0.188	0.050	0.072	-0.380	-0.058
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.080	0.091	-0.092	0.016	0.263	0.080
Change in percent minority population 1990 to 2000	0.136	0.354	-0.263	-0.032	0.033	0.342
Change in percent adults with no high school 1990 to 2000	0.040	0.479	-0.321	-0.242	-0.077	0.104
Change in percent population below poverty 1990 to 2000	0.005	0.265	-0.069	-0.003	-0.076	0.115
Percent growth median household income 1990 to 2000	0.000	0.002	-0.018	-0.029	0.044	-0.051
Percent growth in housing stock 1990 to 2000	-0.072	0.074	-0.072	0.031	0.253	0.063
Percent growth renter occupied housing units 1990 to 2000	-0.072	0.101	-0.071	0.065	0.223	0.036
Percent growth median gross rent 1990 to 2000	-0.045	0.008	0.010	-0.052	0.087	-0.060
Change in percent renters with housing cost hardship 1990 to 2000	-0.057	0.148	0.023	0.042	0.023	-0.001
Percent of workers who live in a city who commute out of the city to work	-0.193	-0.085	-0.151	-0.016	-0.028	0.249
Percent of workers not working at home travel to work less than 30 minutes	-0.088	-0.093	-0.080	0.406	0.168	-0.405
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.401	0.314	0.314	-0.146	-0.264	-0.023

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49
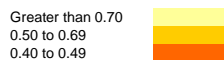
Table 2-A10   Block Groups:

Factor Analysis

Principal Component Matrix: Block Groups in the United States

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.085	0.444	-0.294	0.241	0.140	0.248
Percent of renters households elderly 2000	0.015	-0.126	-0.236	-0.197	-0.350	0.192
Race and Ethnicity						
Percent tract population Hispanic 2000	0.457	0.198	0.306	0.624	-0.228	0.095
Percent tract population non-Hispanic black 2000	0.566	0.028	0.198	-0.536	0.376	0.092
Percent tract population non-Hispanic Asian 2000	-0.029	0.388	0.209	0.027	-0.131	0.085
Percent tract population minority 2000	0.739	0.260	0.407	0.023	0.103	0.147
Percent of renter household white alone 2000	-0.673	-0.204	-0.353	0.220	-0.228	-0.121
Percent of renter household black alone 2000	0.559	0.041	0.203	-0.522	0.379	0.090
Percent of renter households Hispanic any race 2000	0.415	0.175	0.307	0.610	-0.230	0.098
Female-Headed Households						
Percent of family householders who are female 2000	0.718	0.184	0.057	-0.365	0.133	-0.047
Percent of non-family householders who are female 2000	-0.038	-0.126	-0.048	-0.288	-0.098	0.073
Percent of households with female head 2000	0.625	0.129	-0.061	-0.469	0.028	-0.027
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.784	-0.212	0.123	0.344	-0.080	0.102
Percent total population 25+ years high school diploma as terminal degree	0.137	-0.716	-0.414	-0.005	0.132	0.026
Percent total population 25+ years with college 4-year diploma plus 2000	-0.589	0.603	0.206	-0.285	-0.120	-0.055
Percent white population 25+ years with college 4-year diploma plus 2000	0.690	-0.205	0.110	0.306	-0.077	0.107
Percent white population 25+ years with high school diploma as terminal degree 2000	0.090	-0.633	-0.382	0.058	0.109	0.018
Percent white population 25+ years with college 4-year diploma plus 2000	-0.493	0.592	0.224	-0.340	-0.097	-0.051
Percent minority population 25+ years with no high school diploma 2000	0.460	-0.180	0.072	0.358	-0.096	0.049
Percent minority population 25+ years with high school diploma only 2000	0.174	-0.199	-0.129	-0.342	0.287	0.007
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.451	0.414	0.130	-0.208	-0.122	-0.007
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.720	0.264	0.393	-0.060	-0.039	0.128
Percent of households on public assistance 2000	0.705	0.002	0.111	0.005	0.027	-0.003
Percent of population below poverty 2000	0.836	0.044	0.001	0.001	0.067	-0.129
Percent of non-elderly population below poverty 2000	0.824	0.043	0.003	0.004	0.078	-0.143
Percent of renter households below poverty and on public assistance 2000						
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.719	-0.002	0.172	-0.006	0.141	-0.087
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.607	-0.023	0.149	-0.062	0.133	-0.082
Percent of female workers 16+ any race or ethnicity unemployed 2000	0.631	0.024	0.149	0.064	0.105	-0.062
Percent of white non-hispanic workers 16+ unemployed 2000	0.342	-0.017	0.048	0.050	0.079	-0.107
Percent of black workers 16+ unemployed 2000	0.328	0.054	0.058	-0.083	0.122	-0.058
Percent of Hispanic workers 16+ unemployed 2000	0.237	0.066	0.083	0.179	-0.027	-0.052
Percent of minority workers 16+ unemployed 2000	0.202	0.085	0.084	0.219	-0.049	-0.040
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.116	0.509	-0.468	0.109	0.095	0.204
Total stock of rental housing in tract 2000	0.316	0.654	-0.486	0.003	-0.093	0.048
Percent of housing stock that is rental 2000	0.645	0.486	-0.257	-0.066	-0.158	-0.111
Percent of regular rental stock vacant 2000	0.132	-0.098	-0.209	-0.014	0.186	-0.093
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.304	-0.419	0.485	0.113	0.244	0.042
Percent of occupied rental stock 10 + multi-family 2000	0.210	0.584	-0.358	-0.110	-0.257	0.025
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.140	-0.245	0.232	-0.237	-0.317	0.026
Percent of occupied rental stock built years <= 5 years old 2000	-0.117	0.152	-0.221	0.164	0.345	0.128
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.205	0.572	-0.301	0.160	0.194	-0.234
Percent of occupied rental stock moved in <= 5 years 2000	-0.120	0.290	-0.166	0.270	0.496	-0.403
Percent of occupied rental stock moved in 20+ years 2000	0.104	-0.275	0.130	-0.273	-0.470	0.392
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.488	0.445	0.471	0.013	0.086	0.027
Percent of renter households paying 35%+ housing cost hardship 2000	0.283	0.145	0.105	-0.044	0.095	-0.145
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.553	-0.116	-0.205	-0.146	-0.349	0.166
Count of rental units in tract at rents below the FMR in 2000	0.497	0.500	-0.397	-0.030	-0.264	0.088
Percent of rental units below FMR in 2000	0.581	-0.152	-0.231	-0.076	-0.375	0.134
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.059	0.130	-0.082	0.126	0.374	0.680
Change in percent minority population 1990 to 2000	0.196	0.256	0.099	0.210	0.104	-0.057
Change in percent adults with no high school 1990 to 2000	0.060	0.319	0.202	0.297	-0.067	-0.117
Change in percent population below poverty 1990 to 2000	0.090	0.195	0.018	0.068	0.031	-0.228
Percent growth median household income 1990 to 2000	-0.072	-0.107	0.058	-0.046	0.022	0.216
Percent growth in housing stock 1990 to 2000	-0.067	0.124	-0.116	0.115	0.382	0.684
Percent growth renter occupied housing units 1990 to 2000	-0.058	0.154	-0.116	0.102	0.326	0.486
Percent growth median gross rent 1990 to 2000	-0.072	0.003	0.067	0.004	0.095	0.029
Change in percent renters with housing cost hardship 1990 to 2000	-0.009	0.103	0.014	-0.016	0.061	-0.153
Percent of workers who live in a city who commute out of the city to work	-0.107	0.034	0.031	0.090	0.029	0.028
Percent of workers not working at home travel to work less than 30 minutes	-0.081	-0.096	-0.266	-0.001	0.133	-0.370
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.335	0.288	0.113	-0.222	-0.264	0.163

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A11: Tracts:

Factor Analysis

Principal Component Matrix: Central City Tracts in the United States

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.194	0.438	-0.134	0.069	-0.430	0.472
Percent of renters households elderly 2000	0.078	-0.078	0.247	-0.261	-0.292	-0.263
Race and Ethnicity						
Percent tract population Hispanic 2000	0.316	0.488	-0.627	-0.310	0.111	0.017
Percent tract population non-Hispanic black 2000	0.628	-0.356	0.418	0.133	0.065	0.408
Percent tract population non-Hispanic Asian 2000	-0.131	0.298	0.053	-0.255	0.107	0.138
Percent tract population minority 2000	0.766	0.108	-0.042	-0.165	0.167	0.429
Percent of renter household white alone 2000	-0.740	0.073	-0.173	0.048	-0.134	-0.477
Percent of renter household black alone 2000	0.630	-0.351	0.397	0.132	0.046	0.425
Percent of renter households Hispanic any race 2000	0.300	0.471	-0.618	-0.330	0.121	0.008
Female-Headed Households						
Percent of family householders who are female 2000	0.805	-0.072	0.326	0.128	0.031	0.129
Percent of non-family householders who are female 2000	0.011	-0.356	0.248	-0.235	-0.298	0.006
Percent of households with female head 2000	0.716	-0.176	0.427	0.023	-0.139	0.092
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.811	0.142	-0.420	-0.185	0.041	0.007
Percent total population 25+ years high school diploma as terminal degree	0.384	-0.569	-0.201	0.101	-0.479	0.005
Percent total population 25+ years with college 4-year diploma plus 2000	-0.728	0.281	0.460	-0.014	0.285	-0.091
Percent white population 25+ years with college 4-year diploma plus 2000	0.706	0.080	-0.370	-0.195	0.007	0.052
Percent white population 25+ years with high school diploma as terminal degree 2000	0.220	-0.441	-0.275	0.067	-0.443	-0.016
Percent white population 25+ years with college 4-year diploma plus 2000	-0.582	0.256	0.545	0.012	0.317	-0.072
Percent minority population 25+ years with no high school diploma 2000	0.640	0.200	-0.481	-0.167	0.033	-0.089
Percent minority population 25+ years with high school diploma only 2000	0.374	-0.511	0.302	0.258	-0.192	0.187
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.668	0.236	0.397	-0.056	0.237	-0.017
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.774	-0.039	0.091	-0.334	0.231	0.192
Percent of households on public assistance 2000	0.791	0.057	-0.011	-0.007	0.088	0.034
Percent of population below poverty 2000	0.847	0.191	0.029	0.247	0.167	-0.116
Percent of non-elderly population below poverty 2000	0.840	0.179	0.023	0.260	0.167	-0.117
Percent of renter households below poverty and on public assistance 2000	0.795	0.000	-0.021	0.229	0.121	-0.082
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.781	0.052	0.083	0.146	0.288	-0.025
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.713	-0.012	0.130	0.142	0.258	-0.017
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.721	0.120	0.005	0.111	0.261	-0.017
Percent of white non-hispanic workers 16+ unemployed 2000	0.376	0.044	-0.005	0.095	0.185	-0.046
Percent of black workers 16+ unemployed 2000	0.399	0.069	0.042	0.135	0.174	-0.125
Percent of Hispanic workers 16+ unemployed 2000	0.278	0.126	-0.039	0.032	0.128	-0.066
Percent of minority workers 16+ unemployed 2000	0.203	0.169	-0.105	0.013	0.106	-0.073
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.309	0.452	0.109	0.167	-0.541	0.357
Total stock of rental housing in tract 2000	0.070	0.715	0.254	0.207	-0.463	0.172
Percent of housing stock that is rental 2000	0.533	0.592	0.255	0.206	-0.045	-0.195
Percent of regular rental stock vacant 2000	0.175	-0.204	0.021	0.388	-0.004	-0.042
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.097	-0.564	-0.359	-0.078	0.244	0.235
Percent of occupied rental stock 10 + multi-family 2000	-0.010	0.623	0.364	0.071	-0.191	-0.110
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.370	-0.144	0.183	-0.346	0.077	-0.296
Percent of occupied rental stock built years <= 5 years old 2000	-0.252	0.086	-0.062	0.285	0.146	0.242
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.123	0.500	-0.028	0.661	0.121	-0.107
Percent of occupied rental stock moved in <= 5 years 2000	-0.441	0.083	-0.299	0.701	0.137	0.042
Percent of occupied rental stock moved in 20+ years 2000	0.416	-0.053	0.348	-0.645	-0.131	-0.051
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.607	0.146	0.085	-0.332	0.304	0.307
Percent of renter households paying 35%+ housing cost hardship 2000	0.404	0.091	0.014	0.117	0.161	0.055
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.705	0.114	0.157	-0.087	-0.108	-0.210
Count of rental units in tract at rents below the FMR in 2000	0.351	0.660	0.201	0.024	-0.456	0.077
Percent of rental units below FMR in 2000	0.757	0.138	0.027	-0.147	-0.195	-0.205
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.081	0.028	-0.029	0.056	0.180	0.328
Change in percent minority population 1990 to 2000	-0.035	0.080	-0.334	0.063	-0.231	0.267
Change in percent adults with no high school 1990 to 2000	-0.066	0.380	-0.396	-0.063	0.009	0.217
Change in percent population below poverty 1990 to 2000	-0.055	0.129	-0.079	0.001	-0.151	0.154
Percent growth median household income 1990 to 2000	-0.003	0.026	-0.015	0.018	0.175	0.057
Percent growth in housing stock 1990 to 2000	-0.100	0.035	-0.015	0.080	0.216	0.360
Percent growth renter occupied housing units 1990 to 2000	-0.094	0.037	-0.017	0.096	0.166	0.298
Percent growth median gross rent 1990 to 2000	-0.056	0.036	0.033	0.030	0.262	0.056
Change in percent renters with housing cost hardship 1990 to 2000	-0.130	0.084	0.036	0.048	-0.060	0.046
Percent of workers who live in a city who commute out of the city to work	-0.084	-0.116	-0.241	0.144	-0.072	0.078
Percent of workers not working at home travel to work less than 30 minutes	-0.323	-0.207	-0.152	0.593	-0.034	-0.324
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.328	0.335	0.432	-0.367	0.073	0.008

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A12: Block Groups:

Factor Analysis

Principal Component Matrix: Central City Block Groups, United States

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.072	0.547	-0.075	0.194	-0.099	0.359
Percent of renters households elderly 2000	0.065	0.030	0.167	-0.194	-0.431	0.136
Race and Ethnicity						
Percent Block Group population Hispanic 2000	0.386	0.185	-0.751	-0.222	0.023	0.068
Percent Block Group population non-Hispanic black 2000	0.568	-0.239	0.569	0.046	0.265	0.150
Percent Block Group population non-Hispanic Asian 2000	-0.096	0.262	-0.063	-0.249	0.063	0.094
Percent Block Group population minority 2000	0.761	0.012	-0.073	-0.189	0.269	0.206
Percent of renter household white alone 2000	-0.697	0.076	-0.218	0.101	-0.306	-0.197
Percent of renter household black alone 2000	0.568	-0.237	0.548	0.051	0.267	0.159
Percent of renter households Hispanic any race 2000	0.362	0.170	-0.730	-0.236	0.025	0.061
Female-Headed Households						
Percent of family householders who are female 2000	0.720	0.002	0.377	0.031	0.144	-0.036
Percent of non-family householders who are female 2000	-0.016	-0.212	0.249	-0.116	-0.260	0.190
Percent of households with female head 2000	0.624	-0.057	0.482	-0.026	-0.053	0.052
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.801	-0.059	-0.435	-0.102	-0.019	0.072
Percent total population 25+ years high school diploma as terminal degree	0.325	-0.508	0.090	0.400	-0.397	0.160
Percent total population 25+ years with college 4-year diploma plus 2000	-0.715	0.382	0.274	-0.269	0.238	-0.175
Percent white population 25+ years with college 4-year diploma plus 2000	0.677	-0.077	-0.369	-0.104	-0.012	0.093
Percent white population 25+ years with high school diploma as terminal degree 2000	0.189	-0.394	-0.018	0.360	-0.388	0.147
Percent white population 25+ years with college 4-year diploma plus 2000	-0.585	0.362	0.343	-0.283	0.281	-0.185
Percent minority population 25+ years with no high school diploma 2000	0.576	-0.027	-0.461	-0.081	-0.045	0.018
Percent minority population 25+ years with high school diploma only 2000	0.259	-0.290	0.459	0.256	-0.025	0.089
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.580	0.306	0.222	-0.222	0.170	-0.090
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.758	-0.036	0.004	-0.341	0.210	0.117
Percent of households on public assistance 2000	0.717	0.008	-0.015	-0.042	0.130	-0.027
Percent of population below poverty 2000	0.809	0.169	-0.002	0.108	0.172	-0.185
Percent of non-elderly population below poverty 2000	0.799	0.158	-0.003	0.121	0.177	-0.190
Percent of renter households below poverty and on public assistance 2000						
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.728	0.015	0.042	-0.009	0.314	-0.135
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.619	-0.029	0.098	-0.008	0.274	-0.114
Percent of female workers 16+ any race or ethnicity unemployed 2000	0.635	0.058	-0.041	-0.012	0.263	-0.110
Percent of white non-hispanic workers 16+ unemployed 2000	0.298	0.020	-0.020	0.048	0.157	-0.113
Percent of black workers 16+ unemployed 2000	0.369	0.042	0.085	0.042	0.191	-0.109
Percent of Hispanic workers 16+ unemployed 2000	0.265	0.111	-0.163	-0.049	0.132	-0.088
Percent of minority workers 16+ unemployed 2000	0.211	0.130	-0.213	-0.057	0.106	-0.070
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.165	0.655	0.118	0.242	-0.197	0.293
Total stock of rental housing in Block Group 2000	0.159	0.817	0.163	0.184	-0.212	0.116
Percent of housing stock that is rental 2000	0.548	0.630	0.117	0.063	-0.065	-0.184
Percent of regular rental stock vacant 2000	0.165	-0.056	0.112	0.277	0.036	-0.078
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.204	-0.632	-0.198	-0.012	0.264	0.113
Percent of occupied rental stock 10 + multi-family 2000	0.108	0.707	0.178	-0.031	-0.211	-0.012
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.226	-0.234	0.119	-0.393	-0.053	-0.147
Percent of occupied rental stock built years <= 5 years old 2000	-0.136	0.192	-0.031	0.273	0.172	0.215
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.013	0.566	-0.037	0.473	0.181	-0.269
Percent of occupied rental stock moved in <= 5 years 2000	-0.280	0.130	-0.166	0.615	0.332	-0.249
Percent of occupied rental stock moved in 20+ years 2000	0.259	-0.084	0.194	-0.584	-0.323	0.229
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.600	0.076	-0.053	-0.319	0.346	0.134
Percent of renter households paying 35%+ housing cost hardship 2000	0.318	0.045	0.021	0.042	0.200	-0.058
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.644	0.131	0.112	-0.123	-0.272	-0.030
Count of rental units in Block Group at rents below the FMR in 2000	0.387	0.703	0.113	0.034	-0.307	0.084
Percent of rental units below FMR in 2000	0.695	0.123	0.011	-0.117	-0.306	-0.055
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.054	0.103	-0.023	0.132	0.283	0.666
Change in percent minority population 1990 to 2000	0.068	0.015	-0.221	0.227	-0.030	0.144
Change in percent adults with no high school 1990 to 2000	-0.015	0.168	-0.368	0.029	0.083	0.058
Change in percent population below poverty 1990 to 2000	0.042	0.095	-0.058	0.146	0.019	0.027
Percent growth median household income 1990 to 2000	-0.028	-0.036	0.047	-0.169	0.140	-0.067
Percent growth in housing stock 1990 to 2000	-0.074	0.114	-0.012	0.152	0.295	0.701
Percent growth renter occupied housing units 1990 to 2000	-0.078	0.128	-0.010	0.177	0.255	0.604
Percent growth median gross rent 1990 to 2000	-0.123	0.002	0.024	-0.061	0.194	0.018
Change in percent renters with housing cost hardship 1990 to 2000	-0.041	0.071	0.019	0.074	0.044	0.012
Percent of workers who live in a city who commute out of the city to work	-0.071	-0.135	-0.115	0.193	-0.010	0.019
Percent of workers not working at home travel to work less than 30 minutes	-0.314	-0.143	-0.003	0.514	-0.019	-0.287
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.280	0.312	0.214	-0.458	0.006	0.039

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A13: Tracts:

Factor Analysis

Principal Component Matrix: Suburban Tracts in the United States

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.007	0.317	0.159	-0.409	-0.084	-0.133
Percent of renters households elderly 2000	-0.063	-0.201	0.299	0.260	-0.318	0.313
Race and Ethnicity						
Percent tract population Hispanic 2000	0.559	0.331	-0.495	-0.135	-0.342	-0.158
Percent tract population non-Hispanic black 2000	0.464	0.176	0.167	0.366	0.654	-0.130
Percent tract population non-Hispanic Asian 2000	-0.057	0.453	-0.129	0.155	-0.049	-0.145
Percent tract population minority 2000	0.681	0.479	-0.280	0.179	0.173	-0.227
Percent of renter household white alone 2000	-0.613	-0.428	0.111	-0.284	-0.378	0.224
Percent of renter household black alone 2000	0.466	0.199	0.179	0.353	0.648	-0.152
Percent of renter households Hispanic any race 2000	0.519	0.303	-0.505	-0.133	-0.345	-0.146
Female-Headed Households						
Percent of family householders who are female 2000	0.693	0.226	0.278	0.300	0.243	-0.027
Percent of non-family householders who are female 2000	-0.143	-0.132	0.290	0.387	-0.127	0.218
Percent of households with female head 2000	0.557	0.140	0.498	0.389	0.078	0.097
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.840	-0.121	-0.286	-0.103	-0.136	-0.111
Percent total population 25+ years high school diploma as terminal degree	0.325	-0.747	0.257	-0.197	0.109	-0.157
Percent total population 25+ years with college 4-year diploma plus 2000	-0.698	0.507	0.007	0.298	-0.059	0.227
Percent white population 25+ years with college 4-year diploma plus 2000	0.815	-0.155	-0.224	-0.062	-0.091	-0.099
Percent white population 25+ years with high school diploma as terminal degree 2000	0.330	-0.701	0.234	-0.189	0.102	-0.194
Percent white population 25+ years with college 4-year diploma plus 2000	-0.663	0.500	0.007	0.304	-0.034	0.241
Percent minority population 25+ years with no high school diploma 2000	0.594	-0.100	-0.299	-0.181	-0.195	-0.101
Percent minority population 25+ years with high school diploma only 2000	0.207	-0.248	0.286	0.084	0.454	-0.046
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.612	0.373	0.038	0.268	-0.101	0.178
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.754	0.291	-0.277	0.251	0.010	0.028
Percent of households on public assistance 2000	0.756	0.063	-0.178	0.043	-0.004	0.084
Percent of population below poverty 2000	0.866	0.046	-0.100	-0.012	0.016	0.164
Percent of non-elderly population below poverty 2000	0.858	0.049	-0.102	-0.016	0.017	0.168
Percent of renter households below poverty and on public assistance 2000	0.685	-0.163	-0.075	-0.013	0.060	0.172
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.734	0.052	-0.255	0.048	0.042	0.400
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.658	0.014	-0.199	0.090	0.065	0.381
Percent of female workers 16+ any race or ethnicity unemployed 2000	0.685	0.084	-0.272	-0.006	0.007	0.333
Percent of white non-hispanic workers 16+ unemployed 2000	0.459	0.009	-0.183	0.011	-0.037	0.358
Percent of black workers 16+ unemployed 2000	0.234	0.018	-0.037	0.018	0.021	0.198
Percent of Hispanic workers 16+ unemployed 2000	0.237	0.017	-0.131	-0.026	-0.068	0.322
Percent of minority workers 16+ unemployed 2000	0.207	0.043	-0.130	-0.044	-0.091	0.297
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.053	0.295	0.415	-0.398	-0.104	-0.072
Total stock of rental housing in tract 2000	0.403	0.499	0.530	-0.207	-0.201	-0.032
Percent of housing stock that is rental 2000	0.623	0.421	0.366	-0.014	-0.163	0.051
Percent of regular rental stock vacant 2000	0.102	-0.095	0.149	-0.265	0.188	0.195
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.262	-0.273	-0.660	0.067	0.269	-0.100
Percent of occupied rental stock 10 + multi-family 2000	0.102	0.490	0.521	0.035	-0.241	0.090
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.068	-0.421	-0.072	0.430	-0.161	0.046
Percent of occupied rental stock built years <= 5 years old 2000	-0.157	0.210	0.028	-0.467	0.249	0.209
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.198	0.584	0.173	-0.424	0.095	0.093
Percent of occupied rental stock moved in <= 5 years 2000	-0.068	0.455	0.069	-0.544	0.234	-0.010
Percent of occupied rental stock moved in 20+ years 2000	0.037	-0.455	-0.050	0.498	-0.194	0.055
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.514	0.524	-0.307	0.224	0.058	-0.014
Percent of renter households paying 35%+ housing cost hardship 2000	0.278	0.185	-0.029	0.156	-0.069	0.241
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.547	-0.364	0.225	0.097	-0.175	0.012
Count of rental units in tract at rents below the FMR in 2000	0.585	0.292	0.450	-0.046	-0.260	-0.060
Percent of rental units below FMR in 2000	0.582	-0.389	0.214	0.081	-0.202	-0.029
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.079	0.125	-0.074	-0.281	0.296	0.343
Change in percent minority population 1990 to 2000	0.306	0.493	-0.015	0.000	0.063	-0.342
Change in percent adults with no high school 1990 to 2000	0.130	0.525	-0.233	0.068	-0.272	-0.219
Change in percent population below poverty 1990 to 2000	0.150	0.290	0.044	0.145	-0.183	-0.074
Percent growth median household income 1990 to 2000	-0.191	-0.190	-0.180	-0.203	0.217	0.130
Percent growth in housing stock 1990 to 2000	-0.063	0.083	-0.049	-0.246	0.274	0.353
Percent growth renter occupied housing units 1990 to 2000	-0.058	0.124	0.005	-0.223	0.199	0.263
Percent growth median gross rent 1990 to 2000	-0.213	0.039	-0.178	-0.024	0.183	0.188
Change in percent renters with housing cost hardship 1990 to 2000	-0.027	0.127	0.046	0.059	-0.046	0.168
Percent of workers who live in a city who commute out of the city to work	0.119	0.168	0.043	0.079	-0.043	-0.097
Percent of workers not working at home travel to work less than 30 minutes	0.048	-0.147	0.247	-0.088	-0.150	0.231
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.347	0.247	0.091	0.307	-0.009	-0.022

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A14: Block Groups:

Factor Analysis

Principal Component Matrix: Suburban block Groups in the United States

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.033	0.423	0.253	-0.405	0.135	-0.060
Percent of renters households elderly 2000	0.000	-0.132	0.266	0.198	-0.292	0.301
Race and Ethnicity						
Percent Block Group population Hispanic 2000	0.548	0.241	-0.460	-0.309	-0.281	-0.125
Percent Block Group population non-Hispanic black 2000	0.448	0.155	-0.025	0.492	0.590	-0.073
Percent Block Group population non-Hispanic Asian 2000	-0.050	0.416	-0.178	0.095	-0.076	-0.073
Percent Block Group population minority 2000	0.677	0.398	-0.394	0.122	0.160	-0.156
Percent of renter household white alone 2000	-0.569	-0.345	0.273	-0.294	-0.343	0.152
Percent of renter household black alone 2000	0.435	0.170	-0.027	0.486	0.589	-0.093
Percent of renter households Hispanic any race 2000	0.484	0.209	-0.449	-0.306	-0.279	-0.114
Female-Headed Households						
Percent of family householders who are female 2000	0.625	0.193	0.139	0.400	0.174	-0.011
Percent of non-family householders who are female 2000	-0.082	-0.072	0.122	0.336	-0.095	0.185
Percent of households with female head 2000	0.515	0.130	0.310	0.506	0.030	0.100
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.807	-0.168	-0.247	-0.196	-0.097	-0.085
Percent total population 25+ years high school diploma as terminal degree	0.271	-0.713	0.324	-0.103	0.211	-0.142
Percent total population 25+ years with college 4-year diploma plus 2000	-0.674	0.539	-0.063	0.263	-0.143	0.214
Percent white population 25+ years with college 4-year diploma plus 2000	0.759	-0.168	-0.212	-0.148	-0.070	-0.068
Percent white population 25+ years with high school diploma as terminal degree 2000	0.266	-0.660	0.287	-0.109	0.194	-0.164
Percent white population 25+ years with college 4-year diploma plus 2000	-0.637	0.527	-0.065	0.275	-0.120	0.220
Percent minority population 25+ years with no high school diploma 2000	0.474	-0.142	-0.196	-0.238	-0.129	-0.087
Percent minority population 25+ years with high school diploma only 2000	0.135	-0.166	0.185	0.192	0.377	-0.043
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.490	0.350	-0.006	0.195	-0.148	0.171
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.740	0.293	-0.320	0.115	-0.015	0.094
Percent of households on public assistance 2000	0.659	0.033	-0.157	0.001	-0.001	0.063
Percent of population below poverty 2000	0.818	0.040	-0.067	-0.010	-0.020	0.085
Percent of non-elderly population below poverty 2000	0.804	0.041	-0.071	-0.015	-0.016	0.083
Percent of renter households below poverty and on public assistance 2000						
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.669	0.016	-0.262	-0.056	0.022	0.421
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.553	-0.015	-0.209	0.001	0.044	0.381
Percent of female workers 16+ any race or ethnicity unemployed 2000	0.584	0.046	-0.239	-0.101	-0.010	0.321
Percent of white non-hispanic workers 16+ unemployed 2000	0.376	-0.019	-0.145	-0.077	-0.033	0.346
Percent of black workers 16+ unemployed 2000	0.242	0.049	-0.039	0.040	0.095	0.161
Percent of Hispanic workers 16+ unemployed 2000	0.235	0.063	-0.148	-0.137	-0.093	0.274
Percent of minority workers 16+ unemployed 2000	0.216	0.082	-0.155	-0.153	-0.110	0.247
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.055	0.440	0.457	-0.338	0.099	-0.042
Total stock of rental housing in Block Group 2000	0.364	0.551	0.542	-0.112	-0.108	-0.060
Percent of housing stock that is rental 2000	0.633	0.394	0.350	0.078	-0.213	-0.002
Percent of regular rental stock vacant 2000	0.115	-0.060	0.194	-0.119	0.130	0.040
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.329	-0.236	-0.604	-0.058	0.259	-0.049
Percent of occupied rental stock 10 + multi-family 2000	0.201	0.463	0.487	0.096	-0.249	0.045
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	-0.005	-0.356	-0.173	0.314	-0.182	0.148
Percent of occupied rental stock built years <= 5 years old 2000	-0.078	0.196	0.184	-0.359	0.253	0.089
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.274	0.547	0.297	-0.250	0.030	-0.046
Percent of occupied rental stock moved in <= 5 years 2000	-0.021	0.341	0.106	-0.350	0.242	-0.244
Percent of occupied rental stock moved in 20+ years 2000	0.002	-0.332	-0.077	0.323	-0.218	0.263
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.499	0.480	-0.398	0.090	0.068	-0.034
Percent of renter households paying 35%+ housing cost hardship 2000	0.205	0.133	-0.070	0.101	-0.034	0.108
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.444	-0.297	0.258	0.139	-0.218	0.149
Count of rental units in Block Group at rents below the FMR in 2000	0.536	0.355	0.467	0.012	-0.206	-0.036
Percent of rental units below FMR in 2000	0.513	-0.331	0.272	0.092	-0.234	0.100
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.062	0.160	0.062	-0.335	0.395	0.519
Change in percent minority population 1990 to 2000	0.310	0.375	-0.128	0.021	0.050	-0.278
Change in percent adults with no high school 1990 to 2000	0.115	0.355	-0.248	-0.042	-0.234	-0.195
Change in percent population below poverty 1990 to 2000	0.180	0.198	-0.038	0.073	-0.159	-0.064
Percent growth median household income 1990 to 2000	-0.173	-0.101	-0.055	-0.131	0.186	0.174
Percent growth in housing stock 1990 to 2000	-0.062	0.138	0.072	-0.318	0.390	0.528
Percent growth renter occupied housing units 1990 to 2000	-0.039	0.173	0.110	-0.240	0.261	0.337
Percent growth median gross rent 1990 to 2000	-0.121	0.039	-0.092	-0.051	0.143	0.062
Change in percent renters with housing cost hardship 1990 to 2000	0.002	0.096	-0.002	0.066	-0.038	0.054
Percent of workers who live in a city who commute out of the city to work	0.119	0.222	-0.056	0.139	-0.053	-0.060
Percent of workers not working at home travel to work less than 30 minutes	0.045	-0.147	0.219	-0.013	-0.136	0.053
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.289	0.200	-0.020	0.251	-0.048	0.024

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A15: Tracts:

Factor Analysis

Principal Component Matrix: Non-Metropolitan Tracts in the United States

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Tract total population 2000	0.087	0.419	0.314	0.498	0.179	-0.070
Percent of renters households elderly 2000	-0.051	-0.228	-0.370	0.254	0.118	-0.143
Race and Ethnicity						
Percent tract population Hispanic 2000	0.295	0.113	0.373	-0.484	0.329	-0.450
Percent tract population non-Hispanic black 2000	0.605	-0.141	0.126	0.289	-0.571	-0.124
Percent tract population non-Hispanic Asian 2000	0.072	0.268	-0.066	-0.133	-0.109	-0.005
Percent tract population minority 2000	0.753	-0.010	0.298	-0.176	-0.331	-0.254
Percent of renter household white alone 2000	-0.729	0.045	-0.209	-0.014	0.505	0.151
Percent of renter household black alone 2000	0.599	-0.129	0.120	0.304	-0.578	-0.135
Percent of renter households Hispanic any race 2000	0.266	0.109	0.394	-0.476	0.317	-0.462
Female-Headed Households						
Percent of family householders who are female 2000	0.792	0.114	-0.111	0.147	-0.284	0.004
Percent of non-family householders who are female 2000	0.173	-0.127	-0.208	0.343	0.034	-0.267
Percent of households with female head 2000	0.732	0.097	-0.272	0.281	-0.190	-0.102
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.650	-0.452	0.324	0.053	0.191	-0.197
Percent total population 25+ years high school diploma as terminal degree	-0.301	-0.599	-0.101	0.357	0.256	0.159
Percent total population 25+ years with college 4-year diploma plus 2000	-0.233	0.727	-0.222	-0.227	-0.370	0.044
Percent white population 25+ years with college 4-year diploma plus 2000	0.488	-0.463	0.255	0.111	0.351	-0.129
Percent white population 25+ years with high school diploma as terminal degree 2000	-0.297	-0.589	-0.082	0.355	0.290	0.120
Percent white population 25+ years with college 4-year diploma plus 2000	-0.070	0.673	-0.172	-0.258	-0.483	0.040
Percent minority population 25+ years with no high school diploma 2000	0.321	-0.158	0.324	-0.103	0.158	-0.415
Percent minority population 25+ years with high school diploma only 2000	0.222	-0.176	-0.006	0.369	-0.313	0.098
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.206	0.353	-0.269	-0.097	-0.146	0.198
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.734	0.345	0.152	-0.077	-0.242	-0.035
Percent of households on public assistance 2000	0.646	-0.100	-0.035	-0.158	0.104	0.118
Percent of population below poverty 2000	0.879	-0.123	-0.008	-0.095	0.011	0.101
Percent of non-elderly population below poverty 2000	0.872	-0.098	-0.023	-0.108	0.026	0.112
Percent of renter households below poverty and on public assistance 2000	0.765	-0.197	-0.015	0.070	0.045	0.123
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.708	-0.029	0.001	-0.268	0.074	0.500
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.602	-0.018	-0.067	-0.290	0.086	0.505
Percent of female workers 16+ any race or ethnicity unemployed 2000	0.683	-0.042	0.090	-0.178	0.045	0.371
Percent of white non-hispanic workers 16+ unemployed 2000	0.366	0.041	-0.126	-0.178	0.325	0.588
Percent of black workers 16+ unemployed 2000	0.198	0.040	-0.009	0.030	0.012	0.110
Percent of Hispanic workers 16+ unemployed 2000	0.121	0.049	0.010	-0.172	0.148	0.185
Percent of minority workers 16+ unemployed 2000	0.077	0.062	0.031	-0.151	0.190	0.137
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	0.054	0.446	0.214	0.591	0.200	-0.069
Total stock of rental housing in tract 2000	0.410	0.624	-0.133	0.380	0.215	-0.140
Percent of housing stock that is rental 2000	0.567	0.498	-0.351	-0.009	0.118	-0.105
Percent of regular rental stock vacant 2000	0.132	0.055	0.061	0.032	0.157	-0.024
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.212	-0.497	0.247	-0.350	-0.248	-0.005
Percent of occupied rental stock 10 + multi-family 2000	0.158	0.502	-0.399	0.152	0.180	-0.068
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	-0.259	-0.311	-0.460	-0.156	0.071	-0.119
Percent of occupied rental stock built years <= 5 years old 2000	0.015	0.297	0.450	0.177	-0.019	0.193
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.226	0.723	-0.002	-0.002	0.175	0.051
Percent of occupied rental stock moved in <= 5 years 2000	0.064	0.668	0.166	0.038	0.240	0.099
Percent of occupied rental stock moved in 20+ years 2000	-0.084	-0.643	-0.145	-0.049	-0.251	-0.076
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.369	0.626	0.235	-0.105	-0.206	0.093
Percent of renter households paying 35%+ housing cost hardship 2000	0.442	0.242	-0.012	0.070	-0.029	0.214
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.372	-0.353	-0.370	-0.138	0.063	-0.055
Count of rental units in tract at rents below the FMR in 2000	0.499	0.460	-0.335	0.301	0.237	-0.152
Percent of rental units below FMR in 2000	0.355	-0.372	-0.415	-0.110	0.119	-0.060
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.090	0.193	0.538	0.134	0.036	0.251
Change in percent minority population 1990 to 2000	0.268	0.280	0.147	-0.133	0.168	-0.303
Change in percent adults with no high school 1990 to 2000	0.049	0.433	-0.009	-0.293	0.137	-0.281
Change in percent population below poverty 1990 to 2000	-0.019	0.334	-0.140	0.061	0.118	-0.038
Percent growth median household income 1990 to 2000	-0.129	-0.297	0.212	-0.069	-0.112	0.116
Percent growth in housing stock 1990 to 2000	-0.066	0.156	0.481	0.177	0.015	0.274
Percent growth renter occupied housing units 1990 to 2000	0.018	0.304	0.454	0.244	0.088	0.230
Percent growth median gross rent 1990 to 2000	-0.019	0.014	0.071	-0.031	-0.041	0.040
Change in percent renters with housing cost hardship 1990 to 2000	0.031	0.178	-0.008	0.027	-0.041	0.021
Percent of workers who live in a city who commute out of the city to work	-0.097	-0.217	0.103	0.136	0.024	-0.007
Percent of workers not working at home travel to work less than 30 minutes	0.093	0.478	-0.346	-0.105	0.073	-0.235
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.200	0.237	-0.139	-0.079	-0.079	0.041

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A16: Block Groups:

Factor Analysis

Principal Component Matrix: Non-Metropolitan Block Group, United States

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.013	0.385	0.189	0.344	0.480	-0.028
Percent of renters households elderly 2000	0.041	-0.150	-0.391	-0.006	0.121	-0.193
Race and Ethnicity						
Percent Block Group population Hispanic 2000	0.298	0.111	0.375	0.356	-0.439	-0.440
Percent Block Group population non-Hispanic black 2000	0.607	-0.131	0.268	-0.491	0.378	-0.017
Percent Block Group population non-Hispanic Asian 2000	0.038	0.241	0.005	-0.095	-0.075	-0.030
Percent Block Group population minority 2000	0.731	0.009	0.449	-0.227	0.010	-0.221
Percent of renter household white alone 2000	-0.676	0.027	-0.375	0.402	-0.181	0.109
Percent of renter household black alone 2000	0.588	-0.119	0.260	-0.513	0.380	-0.028
Percent of renter households Hispanic any race 2000	0.257	0.098	0.387	0.340	-0.424	-0.446
Female-Headed Households						
Percent of family householders who are female 2000	0.746	0.121	-0.043	-0.276	0.142	0.059
Percent of non-family householders who are female 2000	0.151	-0.049	-0.210	-0.149	0.106	-0.177
Percent of households with female head 2000	0.695	0.110	-0.234	-0.285	0.156	-0.036
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.679	-0.372	0.233	0.236	0.035	-0.239
Percent total population 25+ years high school diploma as terminal degree	-0.186	-0.590	-0.254	0.274	0.269	0.241
Percent total population 25+ years with college 4-year diploma plus 2000	-0.340	0.680	-0.034	-0.445	-0.171	0.009
Percent white population 25+ years with college 4-year diploma plus 2000	0.545	-0.364	0.130	0.329	0.017	-0.196
Percent white population 25+ years with high school diploma as terminal degree 2000	-0.171	-0.560	-0.237	0.298	0.244	0.208
Percent white population 25+ years with college 4-year diploma plus 2000	-0.219	0.645	0.035	-0.510	-0.148	-0.005
Percent minority population 25+ years with no high school diploma 2000	0.275	-0.161	0.205	0.185	-0.076	-0.301
Percent minority population 25+ years with high school diploma only 2000	0.157	-0.133	0.002	-0.212	0.318	0.167
Percent minority population 25+ years with college 4-year diploma plus 2000	-0.201	0.286	-0.128	-0.189	-0.079	0.096
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.748	0.245	0.229	-0.148	-0.008	0.001
Percent of households on public assistance 2000	0.590	-0.035	-0.028	0.088	-0.103	0.085
Percent of population below poverty 2000	0.844	-0.027	0.015	0.004	-0.045	0.069
Percent of non-elderly population below poverty 2000	0.829	-0.008	0.009	0.010	-0.064	0.085
Percent of renter households below poverty and on public assistance 2000						
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.641	-0.020	0.119	0.086	-0.256	0.580
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.514	-0.012	0.063	0.070	-0.259	0.537
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.574	-0.026	0.148	0.082	-0.164	0.423
Percent of white non-hispanic workers 16+ unemployed 2000	0.346	0.008	-0.048	0.206	-0.265	0.603
Percent of black workers 16+ unemployed 2000	0.270	0.016	0.075	-0.086	0.037	0.198
Percent of Hispanic workers 16+ unemployed 2000	0.122	0.069	0.079	0.184	-0.233	0.147
Percent of minority workers 16+ unemployed 2000	0.092	0.073	0.084	0.206	-0.230	0.100
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.040	0.436	0.036	0.330	0.539	-0.041
Total stock of rental housing in Block Group 2000	0.412	0.606	-0.294	0.194	0.241	-0.080
Percent of housing stock that is rental 2000	0.607	0.458	-0.361	0.003	-0.102	-0.051
Percent of regular rental stock vacant 2000	0.110	0.039	-0.007	0.086	-0.014	-0.008
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.254	-0.414	0.398	-0.185	-0.190	0.046
Percent of occupied rental stock 10 + multi-family 2000	0.192	0.441	-0.456	0.063	0.048	-0.111
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	-0.156	-0.309	-0.237	-0.132	-0.327	0.022
Percent of occupied rental stock built years <= 5 years old 2000	-0.027	0.260	0.229	0.187	0.315	0.072
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	0.239	0.655	-0.107	0.180	-0.051	0.074
Percent of occupied rental stock moved in <= 5 years 2000	0.029	0.526	0.079	0.209	-0.042	0.133
Percent of occupied rental stock moved in 20+ years 2000	-0.047	-0.497	-0.056	-0.205	0.040	-0.115
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.422	0.482	0.368	-0.114	-0.054	0.179
Percent of renter households paying 35%+ housing cost hardship 2000	0.290	0.175	0.048	-0.050	0.021	0.175
Fair Market Rents						
FMR as a percent of median gross rent 2000	0.398	-0.241	-0.402	0.025	-0.020	-0.202
Count of rental units in Block Group at rents below the FMR in 2000	0.528	0.427	-0.478	0.150	0.148	-0.136
Percent of rental units below FMR in 2000	0.385	-0.258	-0.433	0.053	-0.036	-0.190
Trend variables 1990 to 2000						
Percent population growth 1990 to 2000	-0.092	0.253	0.327	0.321	0.367	0.066
Change in percent minority population 1990 to 2000	0.254	0.217	0.161	0.129	-0.147	-0.199
Change in percent adults with no high school 1990 to 2000	0.054	0.298	0.072	0.093	-0.254	-0.210
Change in percent population below poverty 1990 to 2000	0.076	0.236	-0.075	0.063	-0.069	0.086
Percent growth median household income 1990 to 2000	-0.087	-0.195	0.143	-0.049	0.057	-0.012
Percent growth in housing stock 1990 to 2000	-0.104	0.241	0.296	0.282	0.424	0.084
Percent growth renter occupied housing units 1990 to 2000	-0.011	0.230	0.177	0.224	0.286	0.062
Percent growth median gross rent 1990 to 2000	-0.031	-0.003	0.097	-0.009	0.003	0.048
Change in percent renters with housing cost hardship 1990 to 2000	0.022	0.126	0.028	-0.025	0.006	0.087
Percent of workers who live in a city who commute out of the city to work	0.062	-0.066	-0.090	0.055	0.058	-0.028
Percent of workers not working at home travel to work less than 30 minutes	0.080	0.422	-0.219	-0.124	-0.251	-0.122
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.154	0.165	-0.070	-0.069	-0.024	0.004

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A17: Tracts:

Descriptive statistics: All Tracts in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	823	11	13,988	4,627.72	1932.52
Percent of renters households elderly 2000	799	0	47	11.85	7.34
Race and Ethnicity					
Percent tract population Hispanic any race 2000	823	33	100	98.64	2.73
Percent tract population Hispanic white 2000	823	11	99	79.01	12.30
Percent tract population Hispanic black 2000	823	0	87	8.13	8.38
Percent tract population Hispanic Asian 2000	823	0	10	0.46	0.77
Percent tract population Hispanic other race including 2 races 2000	823	0	51	11.05	6.05
Percent of renter household white alone 2000	821	10	100	76.57	13.88
Percent of renter household black alone 2000	821	0	81	9.24	9.33
Percent of renter households Hispanic any race 2000	821	27	100	98.09	4.05
Female-Headed Households					
Percent of family householders who are female 2000	822	0	83	35.61	10.95
Percent of non-family householders who are female 2000	821	0	89	50.99	11.03
Percent of households with female head 2000	822	0	78	38.51	9.64
Educational Attainment					
Percent total population 25+ years with no high school diploma	823	4	100	40.77	13.26
Percent total population 25+ years high school diploma as terminal degree	823	0	41	22.38	4.94
Percent total population 25+ years with college 4-year diploma plus 2000	823	0	74	17.78	11.63
Income, Poverty and Public Assistance					
Tract median household income 2000	822	2,959	65,878	15,584.20	7,719.07
Percent of households on public assistance 2000	822	0	59	20.33	9.51
Percent of population below poverty 2000	822	4	100	48.40	15.72
Percent of non-elderly population below poverty 2000	822	3	100	48.92	16.15
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	822	2	58	20.54	9.03
Percent of male workers 16+ any race or ethnicty unemployed 2000	822	0	60	18.55	9.03
Percent of female workers 16+ any race or ethnicity unemployed 2000	822	2	73	23.11	10.95
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	822	3	4,536	1,591.25	618.01
Total stock of rental housing in tract 2000	821	34	2,933	448.48	258.36
Percent of housing stock that is rental 2000	822	0	99	29.54	15.36
Percent of regular rental stock vacant 2000	821	0	42	7.21	5.00
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	821	2	100	71.01	25.35
Percent of occupied rental stock 10 + multi-family 2000	821	0	89	11.19	17.94
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	821	0	97	18.81	16.80
Percent of occupied rental stock built years <= 5 years old 2000	821	0	43	7.74	7.03
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	823	0	99	27.50	8.41
Percent of occupied rental stock moved in <= 5 years 2000	821	25	95	64.81	10.81
Percent of occupied rental stock moved in 20+ years 2000	821	0	57	20.84	9.23
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	799	104	960	317.24	114.06
Percent of renter households paying 35%+ housing cost hardship 2000	821	0	77	38.66	11.05
Fair Market Rents					
FMR in 2000 as a percent of Tract Median Gross Rent	799	33	443	114.89	49.63
Count of units in tract at rents below the FMR in 2000	823	0	1,868	174.52	179.03
Percent of units in tracts with rents below the FMR 2000	821	0	100	53.24	22.92
Commuting					
Percent of workers who live in a city who commute out of the city to work	823	0	100	44.85	32.59
Percent of workers not working at home travel to work less than 30 minutes	823	0	100	56.70	15.18
Percent of workers not working at home with travel less than 30 minutes who use public transit	823	0	28	3.73	4.14
Valid N (listwise)	778				

Table 2-A18: Block Groups:

Descriptive statistics: All Block Groups in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	2,433	11	9,615	1,564.09	781.90
Percent of renters households elderly 2000	2,426	0	100	11.60	10.99
Race and Ethnicity					
Percent Block Group population Hispanic any race 2000	2,433	15	100	98.62	3.30
Percent Block Group population Hispanic white 2000	2,433	0	100	79.10	13.52
Percent Block Group population Hispanic black 2000	2,433	0	88	8.04	8.64
Percent Block Group population Hispanic Asian 2000	2,433	0	20	0.45	1.11
Percent Block Group population Hispanic other race including 2 races 2000	2,433	0	100	11.03	7.93
Percent of renter household white alone 2000	2,426	0	100	77.23	16.78
Percent of renter household black alone 2000	2,426	0	85	8.87	10.60
Percent of renter households Hispanic any race 2000	2,426	0	100	97.94	6.11
Female-Headed Households					
Percent of family householders who are female 2000	2,431	0	100	35.80	13.90
Percent of non-family householders who are female 2000	2,424	0	100	51.72	17.52
Percent of households with female head 2000	2,432	0	100	38.71	12.23
Educational Attainment					
Percent total population 25+ years with no high school diploma	2,433	0	100	40.74	15.86
Percent total population 25+ years high school diploma as terminal degree	2,433	0	49	22.41	6.56
Percent total population 25+ years with college 4-year diploma plus 2000	2,433	0	82	17.81	13.96
Income, Poverty and Public Assistance					
Block Group median household income 2000	2,432	2,499	101,203	16,265.47	10,077.28
Percent of households on public assistance 2000	2,432	0	83	20.46	12.19
Percent of population below poverty 2000	2,432	0	100	48.08	19.32
Percent of non-elderly population below poverty 2000	2,432	0	100	48.47	19.89
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	2,432	0	80	20.73	11.64
Percent of male workers 16+ any race or ethnicty unemployed 2000	2,430	0	85	18.60	11.94
Percent of female workers 16+ any race or ethnicty unemployed 2000	2,432	0	100	23.39	14.74
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	2,432	3	3,097	537.83	249.08
Total stock of rental housing in Block Group 2000	2,427	5	1,256	151.71	109.65
Percent of housing stock that is rental 2000	2,432	0	100	29.74	19.51
Percent of regular rental stock vacant 2000	2,427	0	100	7.21	7.94
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	2,426	0	100	74.50	28.23
Percent of occupied rental stock 10 + multi-family 2000	2,426	0	100	9.25	19.84
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	2,426	0	100	18.56	20.39
Percent of occupied rental stock built years <= 5 years old 2000	2,426	0	87	7.66	10.26
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	2,433	0	100	27.31	10.48
Percent of occupied rental stock moved in <= 5 years 2000	2,426	0	100	65.83	16.97
Percent of occupied rental stock moved in 20+ years 2000	2,426	0	100	20.03	14.13
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	2,419	99	2,001	339.32	174.34
Percent of renter households paying 35%+ housing cost hardship 2000	2,414	0	100	39.16	18.94
Fair Market Rents					
FMR in 2000 as a percent of Block Group Median Gross Rent	2,419	15	488	120.49	74.62
Count of units in Block Group at rents below the FMR in 2000	2,433	0	724	59.06	76.21
Percent of units in Block Groups with rents below the FMR 2000	2,419	0	100	50.34	28.81
Commuting					
Percent of workers who live in a city who commute out of the city to work	2,433	0	100	36.90	32.85
Percent of workers not working at home travel to work less than 30 minutes	2,433	0	100	57.27	17.20
Percent of workers not working at home with travel less than 30 minutes who use public transit	2,433	0	70	3.98	6.55
Valid N (listwise)	2,408				

Table 2-A19: Tracts:

Descriptive statistics: Metropolitan Tracts in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	251	1,374	10,281	4,004.02	1,829.69
Percent of renters households elderly 2000	244	0	47	14.44	8.32
Race and Ethnicity					
Percent tract population Hispanic any race 2000	251	87	100	98.39	1.96
Percent tract population Hispanic white 2000	251	46	96	77.37	10.71
Percent tract population Hispanic black 2000	251	1	30	8.55	6.09
Percent tract population Hispanic Asian 2000	251	0	10	0.58	1.07
Percent tract population Hispanic other race including 2 races 2000	251	2	36	11.88	5.73
Percent of renter household white alone 2000	250	41	100	74.53	12.51
Percent of renter household black alone 2000	250	0	35	10.15	7.33
Percent of renter households Hispanic any race 2000	250	71	100	97.82	3.25
Female-Headed Households					
Percent of family householders who are female 2000	250	17	83	41.47	12.62
Percent of non-family householders who are female 2000	250	18	83	52.09	11.37
Percent of households with female head 2000	250	23	78	43.63	10.25
Educational Attainment					
Percent total population 25+ years with no high school diploma	251	4	90	38.38	15.49
Percent total population 25+ years high school diploma as terminal degree	251	5	34	20.88	5.40
Percent total population 25+ years with college 4-year diploma plus 2000	251	0	74	22.03	15.05
Income, Poverty and Public Assistance					
Tract median household income 2000	250	2,959	65,878	16,420.97	9,138.40
Percent of households on public assistance 2000	250	0	59	18.65	11.18
Percent of population below poverty 2000	250	4	93	46.27	17.93
Percent of non-elderly population below poverty 2000	250	3	94	47.09	18.42
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	250	2	58	19.73	10.72
Percent of male workers 16+ any race or ethnicty unemployed 2000	250	0	60	17.95	10.49
Percent of female workers 16+ any race or ethnicty unemployed 2000	250	3	73	21.94	12.95
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	250	551	3,472	1,481.74	615.08
Total stock of rental housing in tract 2000	250	39	2,933	563.06	343.24
Percent of housing stock that is rental 2000	250	5	99	39.87	19.38
Percent of regular rental stock vacant 2000	250	0	31	7.26	4.92
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	250	2	100	56.23	29.29
Percent of occupied rental stock 10 + multi-family 2000	250	0	87	21.07	22.09
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	250	0	97	28.43	22.09
Percent of occupied rental stock built years <= 5 years old 2000	250	0	43	5.07	6.49
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	251	13	99	31.22	10.08
Percent of occupied rental stock moved in <= 5 years 2000	250	25	92	61.92	11.89
Percent of occupied rental stock moved in 20+ years 2000	250	0	56	22.74	10.08
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	232	109	960	337.19	132.28
Percent of renter households paying 35%+ housing cost hardship 2000	250	7	74	38.55	10.97
Fair Market Rents					
FMR in 2000 as a percent of Tract Median Gross Rent	232	50	443	142.46	66.67
Count of units in tract at rents below the FMR in 2000	251	0	1,868	291.05	251.11
Percent of units in tracts with rents below the FMR 2000	250	0	100	66.22	21.00
Commuting					
Percent of workers who live in a city who commute out of the city to work	251	0	100	26.67	17.74
Percent of workers not working at home travel to work less than 30 minutes	251	0	93	63.24	14.69
Percent of workers not working at home with travel less than 30 minutes who use public transit	251	0	28	5.94	5.53
Valid N (listwise)	227				

Table 2-A20: Block Groups:

Descriptive statistics: Metropolitan Block Groups in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	785	23	5,516	1,301.17	677.38
Percent of renters households elderly 2000	782	0	76	13.77	12.08
Race and Ethnicity					
Percent Block Group population Hispanic any race 2000	785	40	100	98.38	3.09
Percent Block Group population Hispanic white 2000	785	0	99	78.04	12.76
Percent Block Group population Hispanic black 2000	785	0	65	8.30	7.40
Percent Block Group population Hispanic Asian 2000	785	0	20	0.53	1.40
Percent Block Group population Hispanic other race including 2 races 2000	785	0	100	11.50	8.09
Percent of renter household white alone 2000	782	0	100	75.60	16.59
Percent of renter household black alone 2000	782	0	54	9.53	9.63
Percent of renter households Hispanic any race 2000	782	0	100	97.54	6.36
Female-Headed Households					
Percent of family householders who are female 2000	783	9	100	41.19	16.16
Percent of non-family householders who are female 2000	782	0	100	52.68	18.04
Percent of households with female head 2000	784	9	90	43.52	13.50
Educational Attainment					
Percent total population 25+ years with no high school diploma	785	1	100	38.17	18.19
Percent total population 25+ years high school diploma as terminal degree	785	0	45	21.16	7.33
Percent total population 25+ years with college 4-year diploma plus 2000	785	0	82	21.91	17.76
Income, Poverty and Public Assistance					
Block Group median household income 2000	784	2,499	100,475	17,501.71	12,187.84
Percent of households on public assistance 2000	784	0	83	18.88	14.22
Percent of population below poverty 2000	784	0	100	46.03	22.08
Percent of non-elderly population below poverty 2000	784	0	100	46.55	22.66
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	784	0	80	20.09	13.54
Percent of male workers 16+ any race or ethnicty unemployed 2000	782	0	85	18.11	13.87
Percent of female workers 16+ any race or ethnicty unemployed 2000	784	0	100	22.40	16.76
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	784	7	1,649	480.85	229.88
Total stock of rental housing in Block Group 2000	782	5	1,256	182.35	140.12
Percent of housing stock that is rental 2000	784	0	100	39.10	24.36
Percent of regular rental stock vacant 2000	782	0	56	7.32	7.73
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	782	0	100	62.22	33.86
Percent of occupied rental stock 10 + multi-family 2000	782	0	100	17.25	25.75
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	782	0	100	27.68	25.93
Percent of occupied rental stock built years <= 5 years old 2000	782	0	82	5.32	9.30
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	785	5	100	30.51	12.13
Percent of occupied rental stock moved in <= 5 years 2000	782	0	100	63.22	17.71
Percent of occupied rental stock moved in 20+ years 2000	782	0	100	21.80	14.99
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	780	99	2,001	361.00	216.99
Percent of renter households paying 35%+ housing cost hardship 2000	779	0	100	38.93	18.57
Fair Market Rents					
FMR in 2000 as a percent of Block Group Median Gross Rent	780	24	488	154.43	103.42
Count of units in Block Group at rents below the FMR in 2000	785	0	724	93.86	103.50
Percent of units in Block Groups with rents below the FMR 2000	780	0	100	62.09	28.43
Commuting					
Percent of workers who live in a city who commute out of the city to work	785	0	100	23.92	18.55
Percent of workers not working at home travel to work less than 30 minutes	785	0	100	63.71	17.02
Percent of workers not working at home with travel less than 30 minutes who use public transit	785	0	70	6.14	8.65
Valid N (listwise)	777				

Table 2-A21: Tracts:

Descriptive statistics: Non-Metropolitan Tracts in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Tract total population 2000	572	11	13,988	4,901.40	1,914.29
Percent of renters households elderly 2000	555	0	42	10.72	6.55
Race and Ethnicity					
Percent tract population Hispanic any race 2000	572	33	100	98.76	3.01
Percent tract population Hispanic white 2000	572	11	99	79.73	12.88
Percent tract population Hispanic black 2000	572	0	87	7.94	9.21
Percent tract population Hispanic Asian 2000	572	0	5	0.40	0.58
Percent tract population Hispanic other race including 2 races 2000	572	0	51	10.68	6.16
Percent of renter household white alone 2000	571	10	100	77.46	14.35
Percent of renter household black alone 2000	571	0	81	8.84	10.06
Percent of renter households Hispanic any race 2000	571	27	100	98.21	4.35
Female-Headed Households					
Percent of family householders who are female 2000	572	0	75	33.05	9.02
Percent of non-family householders who are female 2000	571	0	89	50.51	10.86
Percent of households with female head 2000	572	0	70	36.27	8.44
Educational Attainment					
Percent total population 25+ years with no high school diploma	572	6	100	41.81	12.02
Percent total population 25+ years high school diploma as terminal degree	572	0	41	23.04	4.58
Percent total population 25+ years with college 4-year diploma plus 2000	572	0	65	15.91	9.16
Income, Poverty and Public Assistance					
Tract median household income 2000	572	4,953	61,558	15,218.48	6,986.71
Percent of households on public assistance 2000	572	0	43	21.06	8.59
Percent of population below poverty 2000	572	6	100	49.34	14.57
Percent of non-elderly population below poverty 2000	572	4	100	49.73	15.00
Employment					
Percent of all workers 16+ any race or ethnicty unemployed 2000	572	2	49	20.90	8.17
Percent of male workers 16+ any race or ethnicty unemployed 2000	572	0	48	18.81	8.30
Percent of female workers 16+ any race or ethnicty unemployed 2000	572	2	57	23.62	9.91
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in tract 2000	572	3	4,536	1,639.11	613.70
Total stock of rental housing in tract 2000	571	34	1,237	398.32	190.48
Percent of housing stock that is rental 2000	572	0	99	25.02	10.41
Percent of regular rental stock vacant 2000	571	0	42	7.18	5.04
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	571	8	100	77.48	20.29
Percent of occupied rental stock 10 + multi-family 2000	571	0	89	6.87	13.72
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	571	0	72	14.60	11.59
Percent of occupied rental stock built years <= 5 years old 2000	571	0	37	8.90	6.95
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	572	0	90	25.86	6.97
Percent of occupied rental stock moved in <= 5 years 2000	571	39	95	66.08	10.05
Percent of occupied rental stock moved in 20+ years 2000	571	0	57	20.01	8.72
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	567	104	888	309.08	104.75
Percent of renter households paying 35%+ housing cost hardship 2000	571	0	77	38.71	11.09
Fair Market Rents					
FMR in 2000 as a percent of Tract Median Gross Rent	567	33	278	103.61	34.93
Count of units in tract at rents below the FMR in 2000	572	0	691	123.38	99.72
Percent of units in tracts with rents below the FMR 2000	571	0	100	47.56	21.38
Commuting					
Percent of workers who live in a city who commute out of the city to work	572	0	100	52.82	34.38
Percent of workers not working at home travel to work less than 30 minutes	572	10	100	53.83	14.50
Percent of workers not working at home with travel less than 30 minutes who use public transit	572	0	22	2.76	2.87
Valid N (listwise)	551				

Table 2-A22: Block Groups:

Descriptive statistics: Non-Metropolitan Block Groups in Puerto Rico

Category Variable	N	Minimum	Maximum	Mean	Std. Deviation
Population and Age					
Block Group total population 2000	1,648	11	9,615	1,689.33	797.30
Percent of renters households elderly 2000	1,644	0	100	10.57	10.27
Race and Ethnicity					
Percent Block Group population Hispanic any race 2000	1,648	15	100	98.73	3.39
Percent Block Group population Hispanic white 2000	1,648	0	100	79.61	13.84
Percent Block Group population Hispanic black 2000	1,648	0	88	7.92	9.16
Percent Block Group population Hispanic Asian 2000	1,648	0	9	0.41	0.93
Percent Block Group population Hispanic other race including 2 races 2000	1,648	0	92	10.80	7.84
Percent of renter household white alone 2000	1,644	0	100	78.00	16.82
Percent of renter household black alone 2000	1,644	0	85	8.56	11.02
Percent of renter households Hispanic any race 2000	1,644	20	100	98.13	5.99
Female-Headed Households					
Percent of family householders who are female 2000	1,648	0	100	33.23	11.86
Percent of non-family householders who are female 2000	1,642	0	100	51.26	17.25
Percent of households with female head 2000	1,648	0	100	36.42	10.85
Educational Attainment					
Percent total population 25+ years with no high school diploma	1,648	0	100	41.96	14.47
Percent total population 25+ years high school diploma as terminal degree	1,648	0	49	23.01	6.07
Percent total population 25+ years with college 4-year diploma plus 2000	1,648	0	76	15.86	11.22
Income, Poverty and Public Assistance					
Block Group median household income 2000	1,648	2,860	101,203	15,677.36	8,843.04
Percent of households on public assistance 2000	1,648	0	72	21.21	11.02
Percent of population below poverty 2000	1,648	0	100	49.05	17.78
Percent of non-elderly population below poverty 2000	1,648	0	100	49.39	18.36
Employment					
Percent of all workers 16+ any race or ethnicity unemployed 2000	1,648	0	71	21.04	10.61
Percent of male workers 16+ any race or ethnicty unemployed 2000	1,648	0	76	18.84	10.90
Percent of female workers 16+ any race or ethnicty unemployed 2000	1,648	0	84	23.86	13.66
Housing Stock by tenure					
Total stock of housing - regular occupied and vacant - in Block Group 2000	1,648	3	3,097	564.94	253.31
Total stock of rental housing in Block Group 2000	1,645	5	869	137.15	88.06
Percent of housing stock that is rental 2000	1,648	0	100	25.29	14.77
Percent of regular rental stock vacant 2000	1,645	0	100	7.16	8.04
Housing Stock by Units in Structure					
Percent of occupied rental stock single-family 2000	1,644	0	100	80.34	22.93
Percent of occupied rental stock 10 + multi-family 2000	1,644	0	100	5.45	14.86
Housing Stock by Age of Structure					
Percent of occupied rental stock built 50+ years old 2000	1,644	0	100	14.23	15.35
Percent of occupied rental stock built years <= 5 years old 2000	1,644	0	87	8.77	10.51
Housing Stock by Turnover					
Percent of population moved 1995 - 2000	1,648	0	94	25.78	9.22
Percent of occupied rental stock moved in <= 5 years 2000	1,644	0	100	67.07	16.48
Percent of occupied rental stock moved in 20+ years 2000	1,644	0	100	19.19	13.63
Housing Stock by Rent and Cost Burden					
Median gross rent 2000	1,639	99	1,906	329.00	148.81
Percent of renter households paying 35%+ housing cost hardship 2000	1,635	0	100	39.27	19.12
Fair Market Rents					
FMR in 2000 as a percent of Block Group Median Gross Rent	1,639	15	292	104.34	48.22
Count of units in Block Group at rents below the FMR in 2000	1,648	0	542	42.47838592	51.24234294
Percent of units in Block Groups with rents below the FMR 2000	1,639	0	100	44.74591199	27.26907618
Commuting					
Percent of workers who live in a city who commute out of the city to work	1,648	0	100	43.07898435	36.21027065
Percent of workers not working at home travel to work less than 30 minutes	1,648	0	100	54.20922482	16.41873399
Percent of workers not working at home with travel less than 30 minutes who use public transit	1,648	0	63	2.946253939	4.934990971
Valid N (list Valid N (listwise)	1,631				

Table 2-A23: Tracts:

Factor Analysis

Principal Component Matrix: Tracts in Puerto Rico

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.127	-0.343	0.075	0.611	0.618	0.108
Percent of renters households elderly 2000	-0.019	0.458	0.255	-0.102	-0.261	0.027
Race and Ethnicity						
Percent tract population Hispanic any race 2000	0.327	-0.252	0.030	0.407	-0.443	0.351
Percent tract population Hispanic white 2000	-0.172	-0.505	0.777	-0.029	-0.204	0.054
Percent tract population Hispanic black 2000	0.206	0.381	-0.760	0.146	-0.006	-0.006
Percent tract population Hispanic Asian 2000	0.125	0.358	-0.320	-0.062	0.151	-0.038
Percent tract population Hispanic other race including 2 races 2000	0.202	0.340	-0.474	0.052	0.205	0.070
Percent of renter household white alone 2000	-0.130	-0.458	0.773	-0.100	-0.103	0.010
Percent of renter household black alone 2000	0.143	0.413	-0.728	0.126	-0.004	-0.048
Percent of renter households Hispanic any race 2000	0.382	-0.234	0.064	0.383	-0.436	0.314
Female-Headed Households						
Percent of family householders who are female 2000	0.347	0.754	-0.101	0.021	-0.160	0.303
Percent of non-family householders who are female 2000	-0.222	0.194	0.187	0.249	-0.492	0.294
Percent of households with female head 2000	0.209	0.769	-0.017	0.071	-0.300	0.349
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.806	-0.303	-0.032	-0.135	0.087	-0.093
Percent total population 25+ years high school diploma as terminal degree	0.417	-0.203	-0.293	0.074	-0.099	0.291
Percent total population 25+ years with college 4-year diploma plus 2000	-0.782	0.340	0.241	0.052	-0.035	-0.073
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.882	0.146	-0.024	0.124	-0.067	-0.124
Percent of households on public assistance 2000	0.831	-0.272	0.127	-0.012	0.051	-0.023
Percent of population below poverty 2000	0.920	-0.212	0.061	-0.080	0.128	0.006
Percent of non-elderly population below poverty 2000	0.922	-0.184	0.075	-0.091	0.121	0.016
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.831	-0.144	0.069	-0.156	0.025	0.142
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.745	-0.154	0.067	-0.136	-0.006	0.172
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.780	-0.133	0.065	-0.149	0.059	0.078
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.211	-0.186	0.165	0.584	0.648	0.176
Total stock of rental housing in tract 2000	0.036	0.603	0.389	0.265	0.502	0.189
Percent of housing stock that is rental 2000	0.236	0.818	0.264	-0.247	0.097	0.042
Percent of regular rental stock vacant 2000	-0.301	0.034	0.019	-0.228	0.051	0.156
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	0.069	-0.803	-0.345	-0.096	0.011	-0.092
Percent of occupied rental stock 10 + multi-family 2000	-0.156	0.679	0.339	0.167	0.061	0.057
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.168	0.558	0.018	-0.394	-0.067	-0.058
Percent of occupied rental stock built years <= 5 years old 2000	0.045	-0.508	-0.060	-0.023	0.276	0.093
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.253	0.513	0.163	-0.361	0.371	0.173
Percent of occupied rental stock moved in <= 5 years 2000	-0.329	-0.343	-0.107	-0.474	0.309	0.392
Percent of occupied rental stock moved in 20+ years 2000	0.303	0.296	0.045	0.461	-0.297	-0.397
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.838	0.061	-0.194	-0.237	-0.046	0.107
Percent of renter households paying 35%+ housing cost hardship 2000	-0.036	-0.071	-0.038	-0.281	-0.023	0.286
Fair Market Rents						
FMR in 2000 as a percent of Tract Median Gross Rent	0.613	0.413	0.260	0.206	-0.004	-0.213
Count of units in tract at rents below the FMR in 2000	0.326	0.690	0.365	0.226	0.273	0.028
Percent of units in tracts with rents below the FMR 2000	0.726	0.231	0.253	0.053	0.096	-0.276
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.123	-0.127	-0.269	0.249	0.054	0.389
Percent of workers not working at home travel to work less than 30 minutes	0.154	0.265	0.399	-0.357	0.081	0.124
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.294	0.450	-0.245	-0.144	0.133	-0.049

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A24: Block Groups:

Factor Analysis

Principal Component Matrix: Block Groups in Puerto Rico

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.095	-0.173	0.128	0.890	-0.180	-0.030
Percent of renters households elderly 2000	0.087	0.288	0.213	-0.243	-0.221	-0.211
Race and Ethnicity						
Percent Block Group population Hispanic any race 2000	0.239	-0.356	-0.018	-0.061	-0.450	0.413
Percent Block Group population Hispanic white 2000	-0.306	-0.352	0.797	-0.157	-0.083	0.112
Percent Block Group population Hispanic black 2000	0.284	0.245	-0.746	0.092	-0.085	0.021
Percent Block Group population Hispanic Asian 2000	0.167	0.165	-0.266	0.050	0.089	-0.079
Percent Block Group population Hispanic other race including 2 races 2000	0.271	0.189	-0.514	0.140	0.070	-0.062
Percent of renter household white alone 2000	-0.253	-0.301	0.767	-0.160	0.012	0.042
Percent of renter household black alone 2000	0.218	0.267	-0.700	0.114	-0.091	0.006
Percent of renter households Hispanic any race 2000	0.287	-0.293	0.000	-0.047	-0.445	0.390
Female-Headed Households						
Percent of family householders who are female 2000	0.656	0.498	-0.073	-0.131	-0.005	0.268
Percent of non-family householders who are female 2000	-0.073	0.218	0.116	-0.187	-0.220	0.515
Percent of households with female head 2000	0.569	0.558	-0.013	-0.195	-0.071	0.381
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.698	-0.488	-0.057	-0.019	0.093	-0.151
Percent total population 25+ years high school diploma as terminal degree	0.331	-0.280	-0.215	-0.014	-0.051	0.216
Percent total population 25+ years with college 4-year diploma plus 2000	-0.690	0.528	0.213	-0.011	-0.018	-0.016
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.786	0.377	0.027	-0.007	-0.053	-0.081
Percent of households on public assistance 2000	0.777	-0.310	0.122	0.011	0.088	-0.005
Percent of population below poverty 2000	0.850	-0.373	0.048	0.056	0.150	-0.005
Percent of non-elderly population below poverty 2000	0.849	-0.363	0.048	0.047	0.161	-0.002
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.773	-0.267	0.089	-0.034	0.201	0.065
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.664	-0.246	0.081	-0.022	0.162	0.060
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.690	-0.257	0.083	-0.028	0.197	0.034
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.135	-0.025	0.191	0.891	-0.163	-0.019
Total stock of rental housing in Block Group 2000	0.465	0.531	0.312	0.491	0.010	-0.010
Percent of housing stock that is rental 2000	0.653	0.586	0.195	-0.069	0.144	0.007
Percent of regular rental stock vacant 2000	-0.205	0.084	0.003	0.005	0.177	0.023
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.344	-0.740	-0.292	-0.045	0.005	-0.120
Percent of occupied rental stock 10 + multi-family 2000	0.230	0.676	0.312	0.119	-0.045	0.119
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.287	0.348	-0.038	-0.297	0.141	-0.242
Percent of occupied rental stock built years <= 5 years old 2000	-0.129	-0.302	0.005	0.307	0.197	0.101
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.068	0.495	0.128	0.153	0.456	0.101
Percent of occupied rental stock moved in <= 5 years 2000	-0.427	-0.135	-0.072	0.178	0.590	0.410
Percent of occupied rental stock moved in 20+ years 2000	0.413	0.110	0.045	-0.184	-0.566	-0.405
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.752	0.256	-0.090	-0.115	0.145	-0.029
Percent of renter households paying 35%+ housing cost hardship 2000	-0.085	-0.101	-0.096	-0.082	0.189	0.131
Fair Market Rents						
FMR in 2000 as a percent of Block Group Median Gross Rent	0.763	0.257	0.200	0.041	-0.117	-0.049
Count of units in Block Group at rents below the FMR in 2000	0.645	0.496	0.269	0.285	-0.053	-0.011
Percent of units in Block Groups with rents below the FMR 2000	0.727	-0.031	0.141	0.057	-0.027	-0.195
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.140	0.107	-0.248	0.009	-0.116	0.360
Percent of workers not working at home travel to work less than 30 minutes	0.153	0.155	0.267	-0.241	0.348	-0.062
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.376	0.162	-0.153	-0.074	0.123	-0.070

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A25: Tracts:

Factor Analysis

Principal Component Matrix: Metropolitan Tracts in Puerto Rico

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.220	-0.335	0.447	-0.256	0.665	0.073
Percent of renters households elderly 2000	0.096	0.418	0.132	0.136	-0.323	0.283
Race and Ethnicity						
Percent tract population Hispanic any race 2000	0.356	-0.500	0.033	-0.306	-0.176	0.447
Percent tract population Hispanic white 2000	-0.519	-0.619	0.407	0.241	-0.185	0.017
Percent tract population Hispanic black 2000	0.525	0.488	-0.354	-0.380	0.149	0.055
Percent tract population Hispanic Asian 2000	0.270	0.387	-0.265	-0.132	0.042	0.062
Percent tract population Hispanic other race including 2 races 2000	0.490	0.392	-0.326	-0.131	0.119	0.056
Percent of renter household white alone 2000	-0.445	-0.533	0.456	0.365	-0.156	-0.051
Percent of renter household black alone 2000	0.413	0.513	-0.324	-0.423	0.155	0.036
Percent of renter households Hispanic any race 2000	0.355	-0.413	0.122	-0.299	-0.235	0.449
Female-Headed Households						
Percent of family householders who are female 2000	0.693	0.492	0.115	0.059	-0.150	0.183
Percent of non-family householders who are female 2000	-0.253	0.026	0.283	-0.364	-0.468	0.340
Percent of households with female head 2000	0.491	0.529	0.240	-0.084	-0.353	0.278
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.801	-0.289	-0.288	-0.014	0.075	-0.119
Percent total population 25+ years high school diploma as terminal degree	0.435	-0.497	-0.077	-0.029	-0.037	0.262
Percent total population 25+ years with college 4-year diploma plus 2000	-0.784	0.390	0.280	0.105	-0.048	-0.067
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.842	0.258	0.103	-0.203	-0.081	-0.104
Percent of households on public assistance 2000	0.720	-0.516	0.121	0.123	-0.021	-0.081
Percent of population below poverty 2000	0.863	-0.332	0.003	0.236	0.112	-0.087
Percent of non-elderly population below poverty 2000	0.861	-0.312	0.014	0.262	0.101	-0.078
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.719	-0.444	0.111	0.369	-0.067	-0.019
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.613	-0.454	0.093	0.381	-0.043	0.052
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.699	-0.372	0.109	0.286	-0.068	-0.097
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.290	-0.108	0.509	-0.146	0.684	0.105
Total stock of rental housing in tract 2000	0.211	0.578	0.526	0.132	0.435	0.095
Percent of housing stock that is rental 2000	0.532	0.715	0.092	0.313	-0.044	0.022
Percent of regular rental stock vacant 2000	-0.314	0.195	-0.312	0.294	0.006	-0.103
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.141	-0.695	-0.524	-0.233	0.063	-0.003
Percent of occupied rental stock 10 + multi-family 2000	0.011	0.546	0.660	0.158	0.013	0.031
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.301	0.585	-0.330	0.216	-0.160	-0.058
Percent of occupied rental stock built years <= 5 years old 2000	-0.069	-0.463	-0.218	0.058	0.300	0.244
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.013	0.617	-0.037	0.527	0.147	0.150
Percent of occupied rental stock moved in <= 5 years 2000	-0.336	-0.072	-0.390	0.513	0.344	0.373
Percent of occupied rental stock moved in 20+ years 2000	0.246	0.025	0.371	-0.492	-0.379	-0.382
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.769	0.349	-0.335	0.080	-0.065	0.084
Percent of renter households paying 35%+ housing cost hardship 2000	-0.069	0.063	-0.403	0.192	0.014	-0.017
Fair Market Rents						
FMR in 2000 as a percent of Tract Median Gross Rent	0.680	0.065	0.435	-0.198	-0.020	-0.166
Count of units in tract at rents below the FMR in 2000	0.513	0.550	0.452	-0.085	0.314	0.095
Percent of units in tracts with rents below the FMR 2000	0.824	-0.033	0.125	-0.227	0.131	-0.132
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.169	-0.192	0.013	-0.230	0.093	0.383
Percent of workers not working at home travel to work less than 30 minutes	-0.012	0.127	0.148	0.642	-0.214	0.159
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.541	0.339	-0.216	0.010	0.067	0.013

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A26: Block Groups:

Factor Analysis

Principal Component Matrix: Metropolitan Block Groups in Puerto Rico

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.024	-0.016	0.338	0.864	0.156	-0.094
Percent of renters households elderly 2000	0.076	0.261	0.188	-0.202	-0.299	-0.130
Race and Ethnicity						
Percent Block Group population Hispanic any race 2000	0.236	-0.406	0.000	0.213	-0.272	0.437
Percent Block Group population Hispanic white 2000	-0.482	-0.427	0.661	-0.124	-0.055	0.115
Percent Block Group population Hispanic black 2000	0.468	0.275	-0.585	0.172	-0.093	0.094
Percent Block Group population Hispanic Asian 2000	0.201	0.168	-0.280	0.005	-0.015	-0.036
Percent Block Group population Hispanic other race including 2 races 2000	0.403	0.239	-0.471	0.125	0.075	-0.098
Percent of renter household white alone 2000	-0.393	-0.334	0.679	-0.200	0.023	-0.055
Percent of renter household black alone 2000	0.355	0.297	-0.559	0.238	-0.106	0.157
Percent of renter households Hispanic any race 2000	0.314	-0.304	-0.007	0.200	-0.283	0.369
Female-Headed Households						
Percent of family householders who are female 2000	0.797	0.296	0.055	-0.150	-0.041	0.218
Percent of non-family householders who are female 2000	-0.082	0.076	0.188	-0.019	-0.325	0.573
Percent of households with female head 2000	0.701	0.335	0.146	-0.171	-0.183	0.360
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.761	-0.380	-0.242	0.014	0.075	-0.137
Percent total population 25+ years high school diploma as terminal degree	0.437	-0.448	-0.058	-0.004	0.044	0.103
Percent total population 25+ years with college 4-year diploma plus 2000	-0.751	0.471	0.267	-0.047	-0.049	0.031
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.800	0.303	0.093	0.003	-0.103	-0.081
Percent of households on public assistance 2000	0.795	-0.300	0.182	-0.055	0.079	-0.039
Percent of population below poverty 2000	0.876	-0.287	0.042	-0.031	0.216	0.015
Percent of non-elderly population below poverty 2000	0.870	-0.279	0.041	-0.040	0.229	0.023
Employment						
Percent of all workers 16+ any race or ethnicity unemployed 2000	0.765	-0.318	0.251	-0.142	0.217	0.011
Percent of male workers 16+ any race or ethnicity unemployed 2000	0.655	-0.301	0.253	-0.122	0.215	0.012
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.699	-0.285	0.198	-0.125	0.187	-0.009
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.080	0.191	0.367	0.815	0.179	-0.080
Total stock of rental housing in Block Group 2000	0.550	0.570	0.326	0.313	0.158	-0.021
Percent of housing stock that is rental 2000	0.739	0.496	0.118	-0.230	0.105	0.013
Percent of regular rental stock vacant 2000	-0.239	0.093	-0.137	-0.111	0.213	0.021
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.414	-0.684	-0.382	0.118	-0.036	-0.088
Percent of occupied rental stock 10 + multi-family 2000	0.297	0.607	0.480	-0.020	-0.010	0.096
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.273	0.377	-0.295	-0.322	-0.006	-0.119
Percent of occupied rental stock built years <= 5 years old 2000	-0.170	-0.270	-0.037	0.241	0.334	0.085
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.050	0.569	-0.021	-0.134	0.484	0.092
Percent of occupied rental stock moved in <= 5 years 2000	-0.493	-0.002	-0.142	0.009	0.642	0.299
Percent of occupied rental stock moved in 20+ years 2000	0.432	-0.036	0.161	-0.049	-0.639	-0.314
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.762	0.237	-0.078	-0.131	0.067	0.019
Percent of renter households paying 35%+ housing cost hardship 2000	-0.149	-0.047	-0.189	-0.080	0.209	0.405
Fair Market Rents						
FMR in 2000 as a percent of Block Group Median Gross Rent	0.803	0.138	0.240	0.060	-0.142	-0.032
Count of units in Block Group at rents below the FMR in 2000	0.691	0.488	0.241	0.271	0.033	-0.013
Percent of units in Block Groups with rents below the FMR 2000	0.788	-0.073	-0.103	0.147	-0.074	-0.182
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.160	0.032	-0.034	0.136	-0.199	0.336
Percent of workers not working at home travel to work less than 30 minutes	-0.014	0.072	0.241	-0.438	0.278	0.006
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.447	0.081	-0.144	-0.141	0.076	-0.061

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A27: Tracts:

Factor Analysis

Principal Component Matrix: Non-Metropolitan Tracts in Puerto Rico

Category Variable	Component 1	2	3	4	5	6
Population and Age						
Tract total population 2000	-0.120	-0.230	0.056	0.839	0.329	0.103
Percent of renters households elderly 2000	-0.022	0.338	0.346	-0.320	0.004	-0.099
Race and Ethnicity						
Percent tract population Hispanic any race 2000	0.300	-0.154	-0.011	-0.264	0.749	0.288
Percent tract population Hispanic white 2000	-0.031	-0.556	0.745	-0.223	0.115	0.078
Percent tract population Hispanic black 2000	0.086	0.484	-0.730	0.034	0.091	-0.060
Percent tract population Hispanic Asian 2000	0.069	0.321	-0.323	0.224	-0.092	-0.011
Percent tract population Hispanic other race including 2 races 2000	0.081	0.337	-0.447	0.274	0.005	0.075
Percent of renter household white alone 2000	0.006	-0.521	0.722	-0.162	-0.021	0.062
Percent of renter household black alone 2000	0.037	0.493	-0.689	0.023	0.047	-0.104
Percent of renter households Hispanic any race 2000	0.376	-0.170	0.001	-0.266	0.696	0.266
Female-Headed Households						
Percent of family householders who are female 2000	0.205	0.794	-0.071	-0.163	0.067	0.327
Percent of non-family householders who are female 2000	-0.204	0.313	0.296	-0.330	0.259	0.247
Percent of households with female head 2000	0.112	0.820	0.046	-0.250	0.084	0.362
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.815	-0.346	-0.042	0.021	-0.056	0.002
Percent total population 25+ years high school diploma as terminal degree	0.329	0.124	-0.347	-0.053	0.031	0.251
Percent total population 25+ years with college 4-year diploma plus 2000	-0.787	0.232	0.277	-0.013	0.041	-0.152
Income, Poverty and Public Assistance						
Tract median household income 2000	-0.891	0.123	0.037	0.005	0.051	-0.166
Percent of households on public assistance 2000	0.867	-0.123	0.072	0.052	-0.058	-0.007
Percent of population below poverty 2000	0.935	-0.177	-0.029	0.070	-0.050	0.025
Percent of non-elderly population below poverty 2000	0.939	-0.150	-0.016	0.060	-0.059	0.030
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.841	0.028	-0.036	-0.029	-0.206	0.135
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.760	0.019	-0.039	-0.058	-0.143	0.139
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.784	0.001	-0.022	-0.009	-0.232	0.105
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in tract 2000	-0.183	-0.144	0.149	0.834	0.313	0.170
Total stock of rental housing in tract 2000	0.020	0.440	0.511	0.604	0.056	0.189
Percent of housing stock that is rental 2000	0.196	0.658	0.469	-0.013	-0.318	0.043
Percent of regular rental stock vacant 2000	-0.279	-0.027	0.078	-0.015	-0.087	0.206
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	0.127	-0.731	-0.457	0.009	-0.076	-0.005
Percent of occupied rental stock 10 + multi-family 2000	-0.228	0.590	0.358	0.071	0.060	-0.059
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.221	0.323	0.119	-0.260	-0.256	0.005
Percent of occupied rental stock built years <= 5 years old 2000	0.065	-0.442	-0.078	0.263	-0.064	0.056
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.338	0.261	0.234	0.265	-0.485	0.173
Percent of occupied rental stock moved in <= 5 years 2000	-0.335	-0.426	-0.129	0.058	-0.405	0.414
Percent of occupied rental stock moved in 20+ years 2000	0.328	0.428	0.049	-0.032	0.362	-0.420
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.857	-0.069	-0.172	-0.130	-0.137	0.149
Percent of renter households paying 35%+ housing cost hardship 2000	-0.012	-0.159	-0.020	-0.133	-0.085	0.412
Fair Market Rents						
FMR in 2000 as a percent of Tract Median Gross Rent	0.713	0.268	0.257	0.077	0.093	-0.258
Count of units in tract at rents below the FMR in 2000	0.405	0.471	0.549	0.366	0.114	0.022
Percent of units in tracts with rents below the FMR 2000	0.799	0.030	0.233	0.134	-0.015	-0.252
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.176	0.229	-0.171	0.163	0.106	0.349
Percent of workers not working at home travel to work less than 30 minutes	0.273	0.119	0.346	0.022	-0.410	0.121
Percent of workers not working at home with travel less than 30 minutes who use public transit	0.181	0.239	-0.399	0.114	-0.095	0.027

Key: Principal Component Loading
Absolute Value:
Greater than 0.70
0.50 to 0.69
0.40 to 0.49

Table 2-A28: Block Groups:

Factor Analysis

Principal Component Matrix: Non-Metropolitan Block Groups, Puerto Rico

Category Variable	Component					
	1	2	3	4	5	6
Population and Age						
Block Group total population 2000	-0.092	-0.103	0.215	0.854	-0.213	0.025
Percent of renters households elderly 2000	0.059	0.186	0.217	-0.294	-0.226	-0.250
Race and Ethnicity						
Percent Block Group population Hispanic any race 2000	0.280	-0.246	-0.078	-0.148	-0.462	0.569
Percent Block Group population Hispanic white 2000	-0.136	-0.502	0.733	-0.261	-0.038	0.104
Percent Block Group population Hispanic black 2000	0.135	0.413	-0.702	0.160	-0.107	0.024
Percent Block Group population Hispanic Asian 2000	0.102	0.219	-0.229	0.134	0.125	-0.098
Percent Block Group population Hispanic other race including 2 races 2000	0.153	0.295	-0.463	0.209	0.034	-0.024
Percent of renter household white alone 2000	-0.105	-0.452	0.684	-0.260	0.052	0.040
Percent of renter household black alone 2000	0.088	0.408	-0.639	0.174	-0.107	-0.011
Percent of renter households Hispanic any race 2000	0.301	-0.218	-0.051	-0.132	-0.445	0.570
Female-Headed Households						
Percent of family householders who are female 2000	0.447	0.656	-0.072	-0.190	0.081	0.237
Percent of non-family householders who are female 2000	-0.095	0.270	0.163	-0.286	-0.016	0.367
Percent of households with female head 2000	0.374	0.703	0.005	-0.272	0.089	0.305
Educational Attainment						
Percent total population 25+ years with no high school diploma	0.740	-0.425	-0.080	-0.001	0.053	-0.083
Percent total population 25+ years high school diploma as terminal degree	0.260	0.004	-0.284	0.011	-0.015	0.204
Percent total population 25+ years with college 4-year diploma plus 2000	-0.743	0.340	0.265	-0.031	-0.018	-0.072
Income, Poverty and Public Assistance						
Block Group median household income 2000	-0.832	0.262	0.080	-0.009	-0.041	-0.136
Percent of households on public assistance 2000	0.814	-0.183	0.049	0.015	0.105	-0.031
Percent of population below poverty 2000	0.888	-0.277	-0.037	0.077	0.103	-0.005
Percent of non-elderly population below poverty 2000	0.888	-0.266	-0.037	0.067	0.112	-0.008
Employment						
Percent of all workers 16+ any race or ethnicty unemployed 2000	0.797	-0.093	-0.061	-0.013	0.248	-0.076
Percent of male workers 16+ any race or ethnicty unemployed 2000	0.681	-0.095	-0.072	-0.002	0.185	-0.066
Percent of female workers 16+ any race or ethnicty unemployed 2000	0.710	-0.109	-0.035	-0.008	0.243	-0.087
Housing Stock by tenure						
Total stock of housing - regular occupied and vacant - in Block Group 2000	-0.140	-0.027	0.289	0.828	-0.199	0.042
Total stock of rental housing in Block Group 2000	0.327	0.482	0.514	0.459	0.003	-0.033
Percent of housing stock that is rental 2000	0.527	0.583	0.344	-0.113	0.143	-0.033
Percent of regular rental stock vacant 2000	-0.193	0.051	0.072	0.019	0.130	0.024
Housing Stock by Units in Structure						
Percent of occupied rental stock single-family 2000	-0.186	-0.704	-0.416	0.037	0.020	-0.096
Percent of occupied rental stock 10 + multi-family 2000	0.045	0.615	0.381	0.051	-0.026	0.084
Housing Stock by Age of Structure						
Percent of occupied rental stock built 50+ years old 2000	0.269	0.142	0.002	-0.315	0.041	-0.245
Percent of occupied rental stock built years <= 5 years old 2000	-0.058	-0.251	0.028	0.330	0.170	0.151
Housing Stock by Turnover						
Percent of population moved 1995 - 2000	-0.155	0.328	0.263	0.181	0.420	0.097
Percent of occupied rental stock moved in <= 5 years 2000	-0.356	-0.195	-0.058	0.192	0.593	0.441
Percent of occupied rental stock moved in 20+ years 2000	0.375	0.197	0.006	-0.173	-0.556	-0.434
Housing Stock by Rent and Cost Burden						
Median gross rent 2000	-0.796	0.116	-0.100	-0.104	0.158	-0.122
Percent of renter households paying 35%+ housing cost hardship 2000	-0.035	-0.127	-0.115	-0.067	0.149	0.045
Fair Market Rents						
FMR in 2000 as a percent of Block Group Median Gross Rent	0.748	0.183	0.240	0.045	-0.142	-0.021
Count of units in Block Group at rents below the FMR in 2000	0.593	0.417	0.460	0.237	-0.072	0.036
Percent of units in Block Groups with rents below the FMR 2000	0.745	-0.115	0.184	0.126	-0.084	-0.049
Commuting						
Percent of workers who live in a city who commute out of the city to work	-0.159	0.398	-0.159	-0.103	0.070	0.162
Percent of workers not working at home travel to work less than 30 minutes	0.236	0.021	0.180	-0.160	0.364	-0.135
Percent of workers not working at home with travel less than 30 minutes who use public transit						

Key: Principal Component Loading
Absolute Value:

Greater than 0.70
0.50 to 0.69
0.40 to 0.49