



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



The Location and Racial Composition of Public Housing in the United States

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in the United States**

*An Analysis of the Racial Occupancy
and Location of
Public Housing Developments*

John Goering
Ali Kamely
Todd Richardson

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FOREWORD

The U.S. Department of Housing and Urban Development is committed to ensuring that all Americans are free to choose where to live. For families who rely on Federal housing assistance, housing choice may be limited by the availability of housing opportunities in neighborhoods of varying racial and economic characteristics. This report examines patterns of racial and poverty concentration in public housing to help determine the extent to which the Nation's public housing system provides a range of neighborhood settings available to residents of different races and ethnicities.

To make this analysis possible, HUD created the Public Housing Race and Location Data File, which has made it possible to study public housing developments in their community context for the first time. This data set matches 1993 demographic information on more than 1,700 public housing projects to 1990 census data on the socioeconomic characteristics of the tract in which each project is located.

Contrary to prevailing negative stereotypes, public housing is located in neighborhoods of widely varying characteristics, although a substantial share of these areas are comparatively poor and racially isolated. Twenty-three percent of public housing residents live in census tracts where fewer than 10 percent of the population is poor, while 28 percent live in areas of concentrated poverty, where the local poverty rate is 40 percent or higher. Approximately 28 percent of public housing tenants live in neighborhoods where African Americans comprise less than 10 percent of the residents; 43 percent live in neighborhoods where more than half the residents are African Americans.

However, this study also reveals a profoundly disturbing pattern of racial disparities within the public housing system. The majority of African American public housing residents are living in areas of concentrated poverty, while the majority of white residents—both families and the elderly—live in neighborhoods with substantially lower levels of segregation and poverty. African American public housing residents also are much more likely than whites to live in predominantly black neighborhoods. At the same time, there is evidence that these patterns are slowly beginning to ease—the average index of segregation among the 15 largest public housing authorities fell by 6 percent between 1977 and 1993.

HUD continues to actively pursue both systemic and local measures designed to reduce segregation in public housing and expand opportunities for low-income recipients of Federal housing assistance. Maximizing housing choice is a fundamental goal of HUD's effort to "reinvent" its programs.



Michael A. Stegman
Assistant Secretary for Policy
Development and Research

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Executive Summary

Critics have characterized public housing as populated exclusively by minority families and located in the poorest, most segregated neighborhoods in America. The purpose of this report is to use current data to describe the actual characteristics of public housing residents and the neighborhoods in which they live to test the hypothesis that assisted households are exclusively concentrated in poor, disadvantaged, and minority communities. The poverty and racial composition of the neighborhoods in which public housing residents are living is examined to provide a clear, current portrait of the extent to which public housing developments in the United States are racially and economically isolated.

This report focuses primarily upon African-American and white families, although data are also presented on Hispanics and Asians living in public housing. A newly created Public Housing Race and Location Data File (PHRLDF) is used to provide current information on the occupancy characteristics of residents in public housing projects and on the census tracts in which these developments are located.¹ The report combines three databases—the Multifamily Tenant Characteristics System (MTCS), the Project Address (Form 951) File, and 1990 Census tract data—to assess the concentration of assisted households in poor, disadvantaged, and minority communities.

For the first time, the PHRLDF matches 1993 public housing resident data to the 1990 Census data for the census tracts in which they are located. The following analysis is based largely, but not entirely, upon a 17-percent sample of all public housing projects.

The major finding of this report is that most African Americans living in public housing live in a largely African-American and poor community, whereas whites, living in elderly housing, typically live in areas with large numbers of whites who are not poor.

There are, however, notable exceptions to this rule. Some African Americans live in more economically advantaged and whiter areas, and a few whites live in low-income communities. It is also the largest public housing agencies (PHAs) that are the most segregated, and there is some evidence of a decline in this segregation over the last 20 years.

The major causes of the segregation in public housing appear to be closely linked to, if not caused by, the size of the African-American population living in the surrounding metropolitan area and the degree of segregation of that population.

The key findings of this report are summarized below.

Accurate Stereotypes About Public Housing

1. African-American public housing residents typically live in African-American neighborhoods; white public housing residents live in white neighborhoods. Tracts that have less than 1 percent African-American residents have projects in which 71 percent of the residents are white. Tracts that have 70 percent or more African-American population have residents that are 92 percent African American.

The distribution of Hispanics tends to be slightly more concentrated within white areas. For Hispanics, 63 percent of residents live in tracts that have 20 percent or fewer African Americans and only 12 percent live in areas that are 69 percent or more African American.

2. The majority of African Americans living in public housing projects in the United States are living in poverty-concentrated areas, whereas the majority of public housing white tenants—both families and the elderly—are living in neighborhoods with substantially lower poverty rates. One of the most popular but perverse beliefs about "public housing projects" and their residents is that the residents are almost all African American and the projects are all located in the worst neighborhoods in inner cities. Poverty concentration, for this report, is defined as any census tract in which 30 or 40 percent or more of the households are classified as living below poverty.

The results indicate that nonpoor tracts containing public housing projects—those with less than 30 percent poverty—have higher proportions of white tenants, while the poorest tracts—those with more than 30 percent poverty—are almost exclusively (91 percent) African American. In high-poverty areas, public housing development households represent 52 percent of all households. In low-poverty areas, they represent only 2 percent of the total.

3. Family developments are predominantly African American, while elderly developments are largely white. In family developments, 20 percent of heads of households are white, 64 percent African American, 13 percent Hispanic, and 2 percent Asian.

Although only 34 percent of all households in public housing developments reside in elderly developments, they constitute 52 percent of all whites in public housing developments. In elderly developments, heads of households are 55 percent white, 35 percent African American, 8 percent Hispanic, and 2 percent Asian.

4. Public housing residents are more than twice as poor as their neighbors. The rate of poverty among households in public housing developments is almost two and a half times higher than that of the neighborhood or census tracts in which the projects are located (65.2 percent for public housing developments compared with 26.3 percent for their census tracts).

The average household income of families living in projects is \$7,400, whereas it is \$21,000 for the entire tract's population. By comparison, the census tracts in which public housing developments are located are much poorer than the Nation as a whole—the national average household income as of 1989 was \$31,750.

5. The larger the project, the more likely the project and the tract are to be predominantly African American and poor. Large public housing developments (developments with more than 2,500 units) on average are 73 percent African American and are located in tracts that, on average, are 45 percent African American. Large public housing developments represent 38 percent of the total number of public housing units but only 20 percent of the total number of public housing developments.

Small PHA developments (fewer than 500 units) are on average 28.4 percent African American and are located in areas that are 11 percent African American. Small developments represent 21 percent of the total public housing units and 44 percent of the total public housing developments.

Furthermore, as the percent of African Americans in a tract increases, the size or density of public housing developments, as measured by the ratio of project households to tract households, also increases.

Inaccurate Stereotypes

1. Not all residents of family projects are African American. In family developments, 20 percent of the residents are white, 64 percent African American, 13 percent Hispanic, and 2 percent Asian heads of households. While 70 percent of African Americans and 73 percent of all Hispanics reside in family projects, as opposed to elderly projects, so do 38 percent of all white tenants.

2. Not all African-American tenants live in predominantly African-American communities. In areas that are less than 1 percent African American, for example, 29 percent of the public housing residents are minority. While 59 percent of African-American residents are concentrated in tracts that are more than 60 percent African American, 15 percent of African-American residents live in areas with less than 20 percent African-American population.

3. More than half of the family projects are in communities with less than 40 percent poverty. Family projects located in tracts with 40 percent or less poverty are home to 47 percent of African Americans and to 68 percent of Hispanics (as well as to 83 percent of all white households). That is, more than half of all family units are located in areas in the middle of the poverty distribution, with 55 percent of all family units located in tracts with less than 40 percent poverty.

4. Some African-American families live in low-poverty communities. In tracts with the lowest levels of poverty—below 20 percent—25 to 37 percent of the project residents are African American. In the poorest tracts, 15 percent of the public housing households have earned income.

5. Virtually all residents living in elderly projects—regardless of race—are located in areas with lower levels of poverty. Elderly projects are different in that 76 percent are located in tracts with less than 40 percent poverty. That is, although 42 percent of family project residents are located in poverty-concentrated areas (with at least a 40-percent tract poverty rate), only 24 percent of all households in elderly projects are living in such neighborhoods.

For white households living in elderly projects, 75 percent live in areas with less than 30 percent poverty. For African Americans the figure is 45 percent, and it is 53 percent for Hispanics.

6. There are white concentrations of poverty. Thirty percent of all white tenants live in tracts where 30 percent or more of the population is poor. (The comparable figures for Hispanics and African Americans is 50 and 69 percent, respectively.)

7. For African Americans and whites (non-Hispanic households), there are differences in the level of segregation depending on the size of the PHA. While nearly 11 percent of all PHAs are highly segregated, 27 percent are moderately segregated and 63 percent are slightly segregated. The data also reveal that nearly 35 percent of large PHAs are highly segregated (with a segregation index of 70 percent or higher), while only 19 percent of medium-sized PHAs and only about 7 percent of small PHAs fall into this category.

8. There have been slight declines in racial segregation in some PHAs from 1977 to 1993.

Comparing segregation indexes for the 15 largest PHAs in 1993 with those of 1977, the average index has declined from .73 in 1977 to .67 in 1993. Segregation indexes have declined for two-thirds of the PHAs and increased for the remaining third. There have been declines in segregation for family developments. The average segregation index has not changed notably for elderly projects since 1977, but there has been a noticeable drop in the index for family units—a decline of 16 percent.

9. Preliminary regression analysis reveals that the factors that are most important in influencing the level of segregation in public housing are the size of the African-American population living in the metropolitan area, the overall level of segregation in the metropolitan housing market, the concentration of elderly housing in the PHA, and the size or number of units in the PHA.

With Whom and Where Does the Typical African-American, White, or Hispanic Public Housing Household Live?

To simplify the above statistics, the following provides a description of the types of fellow tenants and their neighbors in the surrounding census tract separately for African Americans, whites, and then Hispanics. The purpose is, using weighted values for all family and elderly households, to provide a synthesis of the typical experience of low-rent public housing tenants throughout the United States.

This synthesis makes it easier, for example, to see that Hispanic tenants are more likely to be living in projects where more of the tenants are working and where the majority of neighbors are whites, while African-American tenants live in projects with half the level of working families experienced by Hispanics and much higher levels of households living in poverty. The synthesis also makes clear that elderly families are substantially less likely to be living among higher concentrations of households living below the poverty level when compared with residents in family buildings, regardless of which racial or ethnic group they belong.

With Whom and Where Does the Typical African-American Public Housing Household Live?

The typical African-American household in public housing lives in a project that is 81 percent African American, 12 percent white, with 75 percent of tenants below the poverty level, 21 percent working, and 44 percent single female-headed households with children. They live in a census tract that is 65 percent African American, 28 percent white, 44 percent poor, and 82 percent working.

In a family development, the typical African-American lives in a project that is 85 percent African American, 8 percent white, with 79 percent of tenants below the poverty level, 24 percent working, and 51 percent single female-headed households with children. They live in a census tract that is 68 percent African American, 25 percent white, 47 percent poor, and 81 percent working.

In an elderly development, the typical African-American household lives in a project that is 69 percent African American, 24 percent white, 64 percent below poverty level, 12 percent working, and 23 percent single female-headed households with children; and lives in a census tract that is 52 percent African American, 41 percent white, 36 percent poor, and 84 percent working.

With Whom and Where Does a Typical White Household Live?

The typical white household in public housing lives in a project that is 72 percent white, 19 percent African American, with 52 percent of tenants living below the poverty level, 15 percent working, and 21 percent single female-headed households with children. They live in a census tract that is 79 percent white, 13 percent African American, 24 percent poor, and 90 percent working.

In a family development, the typical white household lives in a project that is 61 percent white, 27 percent African American, 70 percent below poverty level, 25 percent working, and 43 percent single female-headed households with children. They live in a census tract that is 76 percent white, 15 percent African American, 27 percent poor, and 89 percent working.

For elderly developments, the typical white household lives in a project that is 80 percent white, 14 percent African American, 41 percent below poverty level, 25 percent working, and 8 percent single female-headed households with children. They live in a census tract that is 82 percent white, 10 percent African American, 21 percent poor, and 91 percent working.

With Whom and Where Does a Typical Hispanic Household Live?

The typical Hispanic household in public housing lives in a project that is 52 percent Hispanic, 18 percent African American, 18 percent white, with 61 percent of fellow tenants below the poverty level, 31 percent working, and 30 percent single female-headed households with children. They live in a census tract that is 39 percent Hispanic, 19 percent African American, 36 percent white, 34 percent poor, and 85 percent working.

In family developments, the typical Hispanic household lives in a project that is 56 percent Hispanic, 27 percent African American, 12 percent white, with 64 percent below the poverty level, 36 percent working, and 33 percent single female-headed households with children. They also live in a tract that is 41 percent Hispanic, 20 percent African American, 32 percent white, 35 percent poor, and 88 percent working.

In an elderly development, the typical Hispanic household lives in a project that is 43 percent Hispanic, 23 percent African American, 31 percent white, with 53 percent of residents below the poverty level, 36 percent working, and 21 percent single female-headed households with children. They are living in a census tract within which the population is 32 percent Hispanic, 17 percent African American, 47 percent white, 29 percent poor, and 88 percent working.

Tables A.1, A.2, and A.3 in Appendix A provides the detailed statistics for the above.

I. Introduction

Implementing HUD's commitment to the principle of reducing the spatial separation or segregation of races and income groups that characterize urban America requires understanding the current scale and forms of racial and economic isolation of residents in its own projects. For too many years, HUD has existed without adequate information with which to assess its own role in creating, sustaining, or mirroring the segregation apparent throughout America's cities (Hirsch 1983; Massey and Denton 1993; Farley and Frey 1994).

The purpose of this report is to provide a current description of the racial and income characteristics of residents in traditional public housing projects and an analysis of the characteristics of the census tracts or neighborhoods in which they are living. The report uses current data to describe the actual characteristics of public housing residents and the neighborhoods in which they live to test the hypothesis that assisted households are exclusively concentrated in poor, disadvantaged, and minority communities.

The project combines three databases—the MultiFamily Tenant Characteristics System (MTCS), the Project Address (Form 951) File, and 1990 Census tract data—to assess the concentration of assisted households in poor, disadvantaged, and minority communities.

II. Background

While the economic isolation of African Americans has been convincingly related to their racial isolation, including the role of discrimination and segregation (Massey, Gross, and Shibuya 1994), the role of Federal housing in fostering or paralleling these forces has been less convincingly demonstrated. This shortcoming is partly due to the prior inadequacies of HUD's automated resident-based data systems.

Social historians and policy analysts have documented the role of historical, *de jure* segregation on the isolation, reputation, and occupancy of nearly 1 million public housing units. Many of these units were built before laws were changed to ban discrimination, with projects in the South built to conform to a standard of *de jure* segregation. Outside the South, new projects were tenanted with families of the same racial group, taking care not to disturb the prevailing neighborhood racial pattern. Adherence to this "neighborhood composition rule" was of fundamental importance in solidifying earlier, historical patterns of racial segmentation, adding a Federal imprimatur to the convention that "Negroes and whites do not mix" (Abrams 1955: 252, 263; Bauer 1951; Bauman 1987: 96; Chudacoff 1987; Fisher 1959; Hirsch 1983: 218; Wood 1982).

Recently, while there has been a modest level of movement in the development of newer public housing and Section 8 units in areas outside the inner cities, many of these noncentral city units have been allocated to white elderly households (Gray and Tursky 1986; Warren 1986; Bauman 1987: 174). This practice has, according to some critics, deepened the isolation of African-American families by creating new forms of "separate but unequal" Federal housing.

Some local agencies have used their discretion to select and assign residents so that projects in the newest, best condition are allocated to the elderly white families, while mostly African-American and

Hispanic families are relegated to the oldest buildings in the worst condition (Flournoy 1985; *Young v Cisneros*). Bickford and Massey (1991: 1035), using 1977 HUD data for all PHAs, concluded that public housing "projects represent a federally funded, physically permanent institution for the isolation of poor minority families by race and class." The racial segregation in public housing also reportedly helps create higher levels of racial segregation throughout the entire housing market of many metropolitan areas (Massey and Kanaiaupuni 1993).²

These last researchers, in a separate study of public housing and segregation in Chicago, conclude that:

Public housing thus represents a key institutional mechanism for concentrating large numbers of poor people within a small geographic space, often within dense, high-rise buildings. Because low-income projects were systematically targeted to African-American neighborhoods in a discriminatory fashion..., the institutional mechanism greatly exacerbated the degree of poverty concentration for one group in particular—African Americans (Massey and Kanaiaupuni 1993: 120).

The popular as well as social scientific view of public housing is, therefore, a punitive reserve for the poorest, most troubled, African-American families.

The consequences of this concentration are of profound significance both for these families and for all urban residents. Massey and Denton (1993: 196–197) describe the public policy impact of these patterns:

Because segregation concentrates any factor associated with poverty and focuses it upon segregated African-American neighborhoods, high African-American poverty rates are translated directly into social environments where welfare dependency and single parenthood are the prevailing categories of social and economic behavior. The same change in the absence of segregation would expose poor African Americans to a social milieu in which the vast majority of families with children are self-supporting and have two parents present.

While the level of racial segregation in the overall U.S. residential market declined modestly for African Americans in the 1970s and 1980s (Harrison and Weinberg 1992; Farley and Frey 1994), these changes have not been uniform, with rates declining in some cities and regions but solidifying in others (Lieberson 1980; Galster 1988; Massey and Denton 1993). The largest decreases in segregation between 1980 and 1990 occurred in newer, metropolitan areas in the South and West with significant recent housing construction (Farley and Frey 1994). Rates for Hispanics appear to have increased from 1980 to 1990, in part because of immigration.

No information has been available on the level of segregation in public housing since 1977. This report attempts to examine the above concerns and hypotheses to provide policymakers and researchers with an up-to-date description and analysis of the extent of racial and economic isolation in public housing in America.

Public policymakers have focused on this issue for more than 30 years. The first presidential action to ban discrimination in future Federal housing programs was in 1962, followed by Title VI of the Civil Rights Act of 1964, which banned discrimination in all federally assisted housing programs.

Fair housing compliance investigations have documented commonplace—overt and subtle—forms of discrimination over the past 30 years with at least 50 public housing agencies found by the U.S. Department of Justice or HUD to have violated civil rights laws; in 28 of the agencies, discrimination was found in both family and elderly housing (Miller, De Pallo, and Rotendaro 1985: 2/18). While Congress amended the 1968 Fair Housing Act in 1988, the 1964 Civil Rights Act has remained untouched (Lazin 1973; Whalen and Whalen 1985; Halpern 1985; Vernarelli 1986).

The absence of current data on these patterns, and their change over time, has seriously impeded sensible policy analysis, including assessing how effective current law has been in reducing the level of segregation in public housing. This paper is a first step in addressing these limitations.

III. Project Objectives/Research Scope

The specific objectives of this report are to provide a current description of the racial and income characteristics of residents in traditional public housing projects and an analysis of the characteristics of the neighborhoods in which they are living, using 1990 decennial census data and 1993 MTCS information.

A newly created Public Housing Race and Location Data File (PHRLDF) is used to provide sample-based information on occupancy characteristics of residents in public housing projects and on the census tract characteristics of those projects. Standard indexes of dissimilarity or racial segregation were also created for all Public Housing Agencies (PHAs). The relationship between poverty concentration of tracts and racial composition of public housing projects is also addressed in this report. Finally, to explore the sources of variation in the determinants of race and location of public housing projects, patterns of racial occupancy for each HUD region were examined separately.

The specific issues addressed in this report include the following:

Racial and Demographic Characteristics of Residents

Patterns of occupancy are examined in terms of the racial and demographic characteristics of the assisted population in order to describe the extent to which households currently assisted under the HUD low-rent public housing program are members of racial or ethnic minority groups. The variation across metropolitan and nonmetropolitan areas in these patterns is also discussed.

Spatial and Racial Distribution of Housing Projects

This section of the report focuses on the racial and poverty or income characteristics of the communities in which public housing projects are located. Using 1990 census data, it provides—for the first time—information about the racial concentration of residents in public housing. This report examines census tract measures of poverty or underclass concentration in relation to race.

To what extent are public housing projects located in areas occupied primarily by minority and lower-income households? Conversely, to what extent—if at all—are public housing projects located in economically and racially nonimpacted or "integrated" areas? Do elderly housing projects differ in their patterns of racial and economic isolation compared to family projects?

Public Housing Segregation

One of the standard social science tools used for measuring the degree of overall racial residential isolation in both private and public sector housing is indexes of segregation or dissimilarity (Taeuber and Taeuber 1965; O'Loughlin 1983; Massey and Denton 1993).

Such segregation measures usefully describe public housing occupancy patterns and permit a comparison of levels of segregation in public housing in 1977 (Bickford and Massey 1991) with current (1993) information. Have the efforts to desegregate housing agencies had any effect? Have the efforts of a small number of housing agencies to redesign their occupancy patterns to address evidence of unlawful discrimination been reflected in current data on occupancy?

Determinants of Public Housing Segregation

The final objective of this report is to use multiple regression analysis to sort out the causal significance of the host of variables and information presented. It is a preliminary effort to directly examine as many influences as could be plausibly measured and included. It is recognized that there may well be patterns of simultaneous causality that confound our understanding of the direction and degree of significance of these influences (Galster 1991).

IV. Description and Limitations of the Data

The public housing, race, and location data file (PHRLDF) for this report was created to provide a current description of the racial and income characteristics of tenants living in traditional public housing projects coupled with an analysis of the characteristics of the neighborhoods in which they are living. It links current tenant characteristics data with neighborhood data for the first time. The PHRLDF combines information from three databases, including two HUD administrative data sets and the 1990 decennial census.

The Multifamily Tenant Characteristics System (MTCS)

MTCS is HUD's principal database for recording the income and demographic characteristics of all tenants currently living in public housing projects throughout the United States. The system, which became partially operational in 1992, contains household-level data collected annually from each household (using HUD Forms 50058, 50060, as well as a Tenant Data Summary submitted by local housing agencies).

Currently, the coverage of MTCS is limited to conventional public and Indian housing projects, the Section 23 (leased) housing projects, the Section 10c housing projects, the Turnkey III, and Indian Mutual Help homeownership program. Approximately 1.1 million out of 1.3 million public housing

units had records on MTCS as of June 1993. No comparable occupancy data are available for other federally assisted low-income housing projects.³

The "Geo-Coded" Project Address File

The second database, the 951-File, is a geographically based Project Address File containing current street and mailing addresses for all public housing projects. HUD began to assemble the street addresses and unit counts for the entire stock of multifamily assisted housing projects in 1986. HUD Forms 951 were mailed to approximately 61,000 project administrators (including PHAs, FHA, and Section 8 projects), with more than 827,000 addresses collected by 1990. More than 540,000 addresses were gathered from public housing projects, which represent 84 percent of the public housing universe. The file includes a variety of geographic identifiers, including geo-coded 1980 and 1990 census tract codes as well as 9-digit ZIP codes (see Casey 1992).

The 1990 STF3A Census Tract Data

The final database is 1990 STF3. A census tract data on the socioeconomic (income, employment, poverty rate) and demographic (race, ethnicity, median age, median household) characteristics of a sample of census tracts in which one or more public housing projects are located. The census data were matched with those in the MTCS/951 Sample File.

Sampling Method: Combining and Matching Data Files

As MTCS is not a geo-coded database. The initial step in creating this file was to match MTCS project identifiers with the 951 project address file before linking to 1990 census information. The new PHRLDF was created in the following steps:

Household-level data were sampled from the MTCS as of June 1993. This file contained information on 1,087,795 households or cases. To match the MTCS file with the 951-Project Address File, the MTCS data were then aggregated to the project level, which resulted in a file with 14,814 public housing projects.

A 30-percent random sample, using the SPSS-X sample mode, of the MTCS file was then drawn, resulting in a sample with 4,412 projects, including 369,520 public housing units.

The MTCS sample file was next matched with the 951-File using the project code to establish the match. Because the 951-File did not provide complete census tract codes for all projects, all cases with an incomplete tract code had to be eliminated.

After these deletions, the file was left with 212,100 public housing units and 3,114 census tracts, resulting in a 17-percent sample file. This sample file was further checked to eliminate repetitions of census tracts stemming from housing projects located in more than one tract.

This MTCS/951 sample file was next matched with 1990 census tract data and provides information about the characteristics of public housing residents for all those projects located in that census tract. This file includes 3,114 cases, representing approximately 17 percent of all public housing units in the United States. As noted earlier, scattered-site public housing projects may be located in more than one

tract. In addition, some single-site projects are located in more than one tract. As a result, the 17-percent sample file had some repeated tracts but no repeated projects.

To overcome this problem, all cases in the 17-percent sample file were aggregated to the tract level so that each case provides accurate census data (for the entire neighborhood), while also giving information about the characteristics of public housing residents for all those projects located in one tract. This file is the final sample and includes 2,218 census tracts.

Table 1 provides a description of the racial and ethnic characteristics of both the entire 1993 MTCS data file and the samples drawn. The data indicate that the samples are essentially representative of the universe.

The total African-American, non-Hispanic households of the MTCS file is, for example, 47.7 percent and is 51.8 percent for the 17-percent sample. For white, non-Hispanic persons, MTCS is 39.2 percent white and 33.6 percent white for the sample. Female-headed households are 76.4 percent of the universe and 77 percent of the sample. Elderly households are 35 percent of the total MTCS file and 34 percent of this sample database. There are therefore slight differences in percentages comparing the final 17-percent sample file with the complete MTCS database, resulting largely from missing tract codes in the 951-File. There is nevertheless a high enough degree of correspondence on core demographic characteristics to provide confidence in sample estimates.

Data Limitations

Each of the databases used in this report has a number of recognized limitations.⁴ MTCS occupancy data, for example, are aggregated only at the project and not at the individual building level. For a multibuilding project, project-level data can mask significant racial disparities in the location of residents in segregated buildings. For a scattered-site housing project, the difference between project-level occupancy and building-level occupancy could be substantial. Bickford and Massey (1991: 1015-1016), for example, report that Chicago has 8,700 units of elderly housing in one project that is actually located in 53 buildings scattered around the city. In other instances smaller projects consisting of multiple garden-style apartments have been built.

MTCS is also limited to conventional public and Indian projects, the Section 23 (leased) housing projects, the Section 10c housing projects, the Turnkey III program, and the Mutual Indian Help homeownership program. Although it currently covers approximately 1.1 million public housing units, it does not provide information on the location and occupancy characteristics of Section 8 project-based and tenant-based housing. It is therefore not possible to compare changes in the patterns and distribution of more recently funded programs with traditional, low-rent public housing programs.

Another limitation is that not all required data have been supplied by PHAs, resulting in a currently unknown level of missing data. While there presently is an overall reporting rate of 80 percent, some large cities have rates below 40 percent. MTCS data must therefore be used with care when attempting to measure small changes in PHAs where there are reporting and data accuracy concerns. A new data collection form is expected to reduce some of the major data reporting problems.

Table 1

**Racial Composition of Public Housing Projects:
Complete MTCS Data and Sample File**

Variable Name	Complete MTCS File	30% Sample	17% Sample
Housing units	1,238,490	369,520	212,100
Counted Hhs	1,087,795	326,107	167,330
Number of projects	14,814	4,412	1,734
Number of census tracts	N/A	N/A	2,218
Elderly units	358,712	109,902	56,500
Households			
White, non-Hispanic	39.16%	40.2%	33.61%
African American, non-Hispanic	47.70	48.32	51.82
Indian, non-Hispanic	1.36	1.26	0.60
Asian, non-Hispanic	1.89	1.44	3.08
Hispanic	9.89	8.78	10.89
Total	100%	100%	100%
Persons			
White	29.02%	29.74%	22.89%
African American	53.86	55.36	58.32
Indian	1.85	1.70	0.60
Asian	2.71	2.05	2.79
Hispanic	12.56	11.15	14.40
Total	100%	100%	100%
Heads of Households			
Male	23.60%	23.56%	22.96%
Female	76.40	76.44	77.04
Elderly	35.29	36.07	33.66
Disabled/Handicapped	13.65	13.63	14.58

It is important to note that the MTCS data file has been established as a management tool, not as a research tool. The confidentiality of information about residents requires that any data released to the public be carefully summarized and purged of any information that might violate the privacy rights of residents.

The 951-File does not include the addresses for all projects and gives no clear information about which PHAs refused to provide information on which projects. The street locations provided also were not verified. Moreover, given the heterogeneity of housing within census tracts, there is no way to confirm the exact location of projects within tracts to assess whether projects that appear to be located in a nonracially or economically segregated area are, in fact, within isolated pockets or blocks within the tract.

In addition, 1990 census under-enumeration problems, particularly in poor and minority communities, have been well documented (U.S. Census 1993).

"Subtracting" Public Housing Characteristics From Tract Characteristics

One of the more desirable methodological steps that would make the presentation of these data more compelling would have been to subtract out the public housing tenants from the population reported by the census as living in the surrounding tract. For tracts where public housing households constitute a large proportion of the total number of tract households, the nonpublic housing and the public housing characteristics should be separated to assess the weight of influence exerted by public housing tenant characteristics upon census information. Decennial census tract information, however, only provides aggregated information on housing stock and household characteristics of the entire neighborhood, including public housing.

An effort was made to separate out the nonpublic housing and the public housing characteristics within the sample file. This would have been possible if each public housing project was entirely located within a single census tract. In many cases, however, projects cut across census tract boundaries (in particular "scattered site" projects) and the lack of information on each portion of the project, which is located in one tract rather than in another, make it currently impossible to produce accurate data on the tract's census characteristics independent of the public housing residents living within the area.

When those census tracts that produce accurate information about the percentage of each racial group for both public housing projects and their surrounding neighborhoods were selected, a sample file resulted, which included only 871 out of 2,218 census tracts in the PHRLDF sample. This sample accordingly did not represent the entire public housing stock and their occupants because there were substantial differences in characteristics compared with those of the universe. Therefore, no further analysis could be conducted based on this selected nonpublic housing census sample file because the results could not be extended to the entire stock of public housing projects and their neighborhoods.

It was possible for select non-racial characteristics to establish an appropriate sample file, including 1,953 out of 2,218 census tracts containing public housing projects. This file distinguishes some of the public housing characteristics from those of the nonpublic census data. These distinguished characteristics are summarized in Table 2.

Table 2

Characteristics of Census Tracts Including Public Housing vs. Excluding Public Housing

Characteristics	Tract Average		Difference
	With Public Housing	Excluding Public Housing	
Median Household Income	\$24,155	\$24,868	\$713
Median Year Structure Built	1957	1956	1
Vacancy Rate	9.3 %	9.6 %	0.3 %
Average Number of Rooms	4.9	5.1	0.2
Percent Owner-Occupied Units	49.5 %	52.2 %	2.7 %

According to Table 2, there is on average no significant difference between the characteristics of the entire census tract population compared to those characteristics excluding public housing sector.

It is useful to note that in the majority of census tracts the ratio of public housing units to total units (density) is very small. As presented in Table 3, more than half of the census tracts have less than two percent public housing units. Only seven percent of the census tracts in the sample file have a public housing density of 25 percent or higher. In general, 60 percent of all tracts with public housing have less than 50 units, 33 percent have less than 10 units, and 25 percent have less than 5 units of public housing (Table 4). The median of 29 public housing units in those tracts indicates that public housing is a small component within the larger tract. It is therefore argued that since the majority of public housing projects in the study sample are relatively small, the aggregated census tract data is a reasonable proxy for the characteristics of the nonpublic housing sector.

Table 3

**Distribution of Public Housing Projects by the Ratio of
Public Housing Units to Total Housing Units in the Tract**

Public Housing Units/Tract Units	%	Cumulative %
< 0.01	36	36
0.01-0.02	15	51
0.02-0.03	8	59
0.03-0.04	5	64
0.04-0.05	5	69
0.05-0.07	7	76
0.07-0.10	6	82
0.10-0.15	5	87
0.15-0.25	6	93
0.25-0.40	4	97
0.40-0.50	1	98
0.50-0.90	1	99
0.90 or above	1	100

Table 4

**Counted Households in Public Housing Projects
and Their Distribution Across Census Tracts**

Counted Households	%	Cumulative %
< 5	25	25
5-10	8	33
10-20	10	43
20-50	17	60
50-100	16	66
100-200	24	90
200 or above	10	100

V. Characteristics of Public Housing Residents and Their Neighborhoods

The purpose of this section is to provide a description of basic demographic characteristics of the residents in the sample projects. It answers such questions as: Who lives in public housing and how do they differ from residents living in the surrounding census tracts? Where are public housing projects located? To what extent are public housing residents members of minority groups? How different is the distribution of racial groups in elderly housing? Finally, it addresses the differences of the population characteristics of the entire census tract in which public housing projects are located.

Racial Composition of Public Housing Projects

Table 5 provides a picture of the racial composition of public housing projects and compares these figures with those of the corresponding census tracts.

Public housing project households represent less than 5 percent of the average tract's population. African-American households constitute more than 51 percent of all public housing households, but less than one-quarter of all households living in census tracts with public housing are African American. White households represent 34 percent of all residents in public housing and 65 percent of all households in tracts with public housing projects. Roughly 11 percent of all public housing residents are Hispanic, and they reside within tracts that are roughly 9 percent Hispanic. The proportion of Asians and American Indians is approximately the same in both census tracts and projects.

Sources of Income and Income Distribution of Households

Table B.1 (Appendix B) presents the income distribution of households in public housing projects, and Table B.2 reports this information for households at the tract level.

Public housing residents are much poorer than their neighbors with the median household income for projects less than \$8,000 but about \$20,000 for the census tracts that contain projects. While almost 75 percent of all public housing residents earn less than \$10,000 annually, the figure for the tract populations in which those projects are located is only 11 percent, and although only 4 percent of projects have an average household income above \$15,000, 73 percent of the corresponding tracts have an average household income above that level.

Most households in projects rely on social security or public assistance income, while 21 percent of all households are wage earners. Table B.3 indicates that 79 percent of all households reported no earned income but 21 percent report some wages. The average income of those earning a wage is, however, only \$11,700. For those families receiving Aid to Families with Dependent Children (AFDC), their income is less than \$5,000 annually (Table B.4).

Number of Children and Average Age of Head of Households

As shown in Table B.5, approximately 48 percent of households in projects live with one or more children. Those households with three or more children constitute only 17 percent of all households. Table B.6 indicates the median age in both elderly and family projects, with a median age of 44 for all projects. The median age in elderly projects is 59 but 40 for family projects.

Overall Characteristics of Public Housing Residents and Their Neighborhoods

Table 6 describes the overall occupancy characteristics of public housing developments as well as the characteristics of the census tracts in which they are located.

As noted earlier, public housing units constitute only 4.9 percent of all housing units in census tracts that contain at least one public housing development. However, there are notable examples of projects such as Robert Taylor Homes in Chicago and high-rise projects in the East Harlem area of New York in which one or more adjacent census tracts are entirely filled with public housing developments. However, only 4 out of 2,218 census tracts in the sample file fall in this category and only 13 tracts in the sample file include public housing projects that constitute 80 percent or more of the tract's population.

Table 5

**Racial and Ethnic Composition of Public Housing Projects
and Corresponding 1990 Census Tract Characteristics**

Race and Ethnicity	% Public Housing	% Census Tract
Households		
White, non-Hispanic	33.61	64.65
African American, non-Hispanic	51.82	23.71
Indian, non-Hispanic	0.60	0.68
Asian, non-Hispanic	3.08	1.92
Hispanic	10.89	8.97
Other non-Hispanic	0.00	0.07
Total number of households	100.00% = 167,330	100.00% = 3,684,696
Persons		
White, non-Hispanic	22.89	58.20
African American, non-Hispanic	58.32	25.87
Indian, non-Hispanic	0.60	0.79
Asian, non-Hispanic	2.79	2.58
Hispanic	14.40	12.43
Other non-Hispanic	0.00	0.13
Total number of persons	100.00% = 451,791	100.00% = 9,871,230

Table 6

**Overall Characteristics of Public Housing Occupants
and Their Neighborhoods (Census Tracts)**

Description	Public Housing Projects	Census Tracts
Average rental vacancy rate	9.00%	7.20%
Average of median years structure built	1964	1956
Percent elderly units	28.70%	-
Percent disabled heads of household	12.00%	-
Percent underclass tracts	7.40%	-
Percent with income below poverty level	65.80%	26.30%
Average household income	\$7,395.00	\$21,109.00
Percent employed	19.8% ¹	88.7% ²
Percent on welfare	47.20%	-
Per capita income	\$3,108.00	\$10,271.00
Average of median gross rents	\$162.00	\$365.00
Average fair market rent (excluding public housing projects) ³	-	\$507.00
Average household members	2.40%	2.70%
Percent white, non-Hispanic households	33.60%	64.60%
Percent African American, non-Hispanic households	51.80%	23.70%
Percent Indian, non-Hispanic households	0.60%	0.70%
Percent Asian, non-Hispanic households	3.10%	1.90%
Percent Hispanic households	10.90%	9.00%

¹Average employment rate of head of households.

²Average employment rate for all census tracts with projects.

³FMRs (Fair Market Rents) are gross rent estimates; they include shelter rent plus the cost of all utilities, except telephones. FMRs are defined by HUD as the 45th percentile rent, the dollar amount below which 45 percent of the standard quality rental housing units rent. HUD estimates FMRs on an annual basis for 354 metropolitan FMR areas and 2,355 nonmetropolitan county FMR areas.

It is important to note that large PHAs—more than 2,500 units—have larger proportions of family units: 78 percent family and 22 percent elderly. Medium-sized PHAs, with between 500 and 2,500 units, have 69 percent of their units used for families. Smaller PHAs, with fewer than 500 units, have 59 percent of their units for families and 41 percent for elderly households. The larger concentration of elderly units in smaller PHAs is associated with higher concentrations of white heads of household living in these PHAs.

Compared to the rental vacancy rate of 7.2 percent for all rental units across the United States in 1990³, the average vacancy rate of 9.0 percent in census tracts with public housing developments reflects a slightly higher rate of vacant units.

Public housing developments were, on average, built in 1964 and are located in neighborhoods where the median construction year of structures within the tract is 1956 (in tracts with public housing developments).

The rate of poverty among households in public housing developments is almost two and a half times higher than that of the entire neighborhoods (65.2 percent for public housing developments compared to 26.3 percent for the census tracts). Average household income in the projects is \$7,400 and \$21,000 for the tract population. Roughly 20 percent of project households are employed, compared with 89 percent of the tract population as a whole.

Although African-American households comprise only 23.7 percent of the population in the tracts with public housing developments, African Americans occupy 52 percent of all public housing units. Whites constitute 65 percent of all households in tracts with public housing developments but occupy only 34 percent of public housing units.

While Hispanics and Asians constitute 9 and 1.9 percent of the tracts' households, they occupy 11 and 3 percent of public housing units, respectively.

Characteristics of Households in Elderly Developments Versus Family Developments

A single census tract might include only one or more family developments, only elderly project(s), or both family and elderly developments; 55 percent of all units are located in family projects, 34 percent in elderly projects, and 10 percent in mixed developments. Table 7 summarizes the racial distribution of households along with other information for each of these three types of projects. Although elderly units are designed to house elderly heads of households, these units may also contain families.

The general pattern is that elderly developments are more than half white, while family developments are predominantly African American. In elderly developments, 55 percent of the resident heads of households are white, 35 percent African American, 8 percent Hispanic, and 2 percent Asian.

In family developments, 20 percent of the residents are white, 64 percent African American, 13 percent Hispanic, and 2 percent Asian heads of households.

Table 7 also reveals that 70 percent of African American tenants and 73 percent of all Hispanic tenants reside in family projects, as do 38 percent of all white tenants.

Table 7
Distribution of Households by Project Design

Project Design	(% of Each Column) % Head of Households in HUD Developments That Are						% of All Households		
	White	African American	Hispanic	Asian	Employed	SFWC ¹		Elderly	Poverty
Family ²	38	70	73	60	80	77	32	65	55.40
Elderly ³	52	19	21	30	11	14	56	24	34.50
Mixed ⁴	10	11	6	10	9	9	12	16	10.10
Total	100	100	100	100	100	100	100	100	100.00

Distribution of Households by Project Design

Project Design	(% of Each Row) % Head of Households in HUD Developments That Are						Development Households/ Tract Households		
	White	African American	Hispanic	Asian	Employed	SFWC ¹		Elderly	Poverty
Family ²	20	64	14	2	29	46	16	73	4.24
Elderly ³	55	35	8	2	8	17	55	54	5.13
Mixed ⁴	31	60	7	2	19	32	34	69	9.14
All Projects	34	52	11	2	23	36	34	67	4.94

¹SFWC stands for single female (head of household) with children.

²Tracts with family developments only.

³Tracts with elderly developments only.

⁴Tracts with both elderly and family developments.

The percentages of households that are employed, single females with children, or households with an income below poverty level are much lower for elderly developments than those for family developments. The poverty of tenants is also much greater in family than in mixed and elderly buildings.

The last column in the second panel of this table also shows that mixed projects are slightly larger than family or elderly as a percent of all households living in the tract (9.1 percent compared to 4 or 5 percent).

VI. Racial Isolation and Public Housing Projects

This section examines the racial distribution of households in public housing developments in African-American concentrated areas. Tables 8 and 9 provide information regarding the distribution of different groups in public housing developments within census tracts with different proportions of African-American population. As expected, the higher the percent in the tract that is African American, the higher the percent of African Americans in public housing developments.

The most striking feature of the results is the virtually inverse relationship between the percentage of a census tract's population that is African American and the occupancy of projects within that tract by whites.

Tracts that have less than 1 percent African-American residents have projects in which 71 percent of the tenants are white. Tracts that have 70 percent or more African-American population have tenants who are 92 percent African American. The distribution of Hispanics tends to be slightly more concentrated within white areas.

There is also an important relationship between the African-American concentration rate in a census tract and the size of a public housing development. Table 8 also shows in the last two columns that larger public housing developments are located in tracts with higher proportions of African Americans, whereas smaller developments are usually located in areas with lower concentrations of African Americans. As the percent of African Americans in the tract increases, the size or density of public housing developments, as measured by the ratio of project households to tract households, also increases.

Table 8 also shows that there are some instances in which African Americans and Hispanics do reside in largely white census tracts. In areas that are less than 1 percent African American, for example, 29 percent of the public housing residents are minority, and in tracts that are 1 to 5 percent African American, 39 percent of the residents of public housing projects are minority. In tracts where the overall population is 5 to 10 percent African American, African Americans are 28 percent of the residents of projects, whites are 55 percent, and Hispanics are 14 percent.

Table 8 also reveals that those who are employed⁶ are as likely to be located in tracts with high or low percentages of African Americans, although poverty⁷ is more concentrated within all African-American tracts; 78 percent of the tenants living in all African-American tracts are poor compared to only 53 percent in largely white tracts.

Table 8
Percent Tract African American and Public Housing Developments
(All Units)

% Tract African American	% Head of Households in HUD Developments That Are (% Within Each Row)							Density: Project House- holds/Tract Households	% of Tract House- holds
	White	African American	Hispanic	Employed	SFWC ¹	Elderly	Poverty		
<1	71	7	17	26	28	39	53	3	20
1-5	61	16	20	22	26	38	57	4	23
5-10	55	28	14	20	30	34	63	4	10
10-20	43	35	16	23	31	34	59	6	10
20-30	32	54	11	22	40	28	69	7	8
30-40	21	62	13	25	37	27	66	9	5
40-50	17	69	13	24	39	24	69	8	4
50-60	18	67	13	23	35	36	59	12	3
60-70	13	75	9	25	41	25	70	11	4
>70	5	92	3	23	43	21	78	16	13

¹SFWC stands for single female (head of household) with children.

Table 9 provides information about the overall distribution of all racial and ethnic groups across census tract racial categories. The table shows that 77 percent of all white residents live in projects located in census tracts with less than 20 percent African Americans. Only 7 percent of white residents live in areas with more than 60 percent African Americans.

For Hispanics, 63 percent of residents live in tracts that have 20 percent or fewer African Americans, and 12 percent live in areas that are 69 percent or more African American.

While 15 percent of African-American residents live in areas with less than 20 percent African-American population, 59 percent are concentrated in tracts that are more than 60 percent African American.

The employed are concentrated at the extremes of the racial distribution by tract: 26 percent are in areas that are essentially white and 31 percent in tracts that are over 70 percent African American. Single families with children are also located with the latter tracts. The elderly⁸ and poverty households appear to follow the same bipolar distribution, with 33 and 23 percent of the elderly concentrated at the extremes.

The last two columns of the table provide an indication of why project households are so concentrated at the extremes: 21 percent of all project households are concentrated within essentially white tracts while another 31 percent are located within tracts that are predominantly African American. In contrast, 43 percent of all tract households are concentrated in essentially white areas, while only 13 percent are located in predominantly African-American neighborhoods.

Tables 10 and 11 show this same difference between tracts with only elderly developments and tracts in which only family developments are located. For elderly projects, Table 10 shows that 35 percent of all elderly units are located in areas with African-American populations of less than 5 percent. The table shows that 53 percent of all elderly units are located in tracts with a smaller than 20-percent African-American population. Another 18 percent of elderly units are located in tracts with a 70-percent African-American population.

For African Americans, 39 percent of the elderly units are located in tracts with 70 percent or more African-American neighbors. There are modest levels of distribution of African-American elderly units throughout the remaining tracts—with 22 percent of African-American occupied elderly units in largely white (80 percent or more) neighborhoods. Interestingly, there are heavy concentrations of the employed located in these same tracts; 38 percent are in tracts that are largely white.

The distributions for family projects are shown in Table 11. The data reveal heavy concentrations for all three groups at the extremes of the distribution of census tract's African-American population. Sixty-nine percent of whites living in family projects are located in tracts with 20 percent or fewer African Americans. The figure for Hispanics is 62 percent.

African Americans are again, conversely, concentrated in tracts with 70 percent or more African Americans; 55 percent live in such neighborhoods. Thus, while 45 percent of all African-American families living in public housing projects are living in less racially concentrated areas as of 1993, only 13 percent are located in tracts that have 80 percent or more whites.

Table 9
Public Housing Developments and Percentage of Tract African American
(All Units)

% Tract African American	% Head of Households in HUD Developments That Are (% Within Each Column)							% of Development-Households	% of Tract Households
	White	African American	Hispanic	Employed	SFWC ¹	Elderly	Poverty		
<5	52	6	42	26	19	33	21	21	43
5-10	14	4	10	7	6	9	7	7	10
10-20	11	5	11	8	7	9	7	9	10
20-30	7	7	7	7	8	7	7	8	8
30-40	4	7	7	7	6	6	6	7	5
40-50	3	7	6	5	6	4	5	5	4
50-60	2	5	5	4	4	5	4	6	3
60-70	2	6	4	5	5	4	5	6	4
>70	5	53	8	31	39	23	38	31	13
Total	100	100	100	100	100	100	100	100	100

¹SFWC stands for single female (head of household) with children.

Table 10
Public Housing Developments and Percentage of Tract African American
(Elderly Units¹)

% Tract African American	% Head of Households in HUD Developments That Are							% of Elderly Units	% of Tract Households
	White	African American	Hispanic	Employed	SFWC ²	Elderly	Poverty		
<5	58	9	47	38	27	45	31	35	49
5-10	13	8	10	10	9	11	11	10	11
10-20	10	5	10	7	5	10	7	8	10
20-30	6	9	7	7	10	6	8	8	7
30-40	3	7	4	5	5	5	5	5	5
40-50	3	10	10	9	12	4	7	6	4
50-60	3	7	5	5	6	5	5	5	3
60-70	2	6	3	4	3	3	5	5	3
>70	2	39	4	14	22	11	21	18	8
Total	100	100	100	100	100	100	100	100	100

¹Census tracts with elderly developments only.

²SFWC stands for single female (head of household) with children.

Table 11
Public Housing Developments and Percentage of Tract African American
(Family Units¹)

% Tract African American	% Head of Households in HUD Developments That Are							% of Family Units	% of Tract Households
	White	African American	Hispanic	Employed	SFWC ²	Elderly	Poverty		
<5	49	5	41	25	19	23	19	17	41
5-10	15	3	10	6	6	7	6	7	10
10-20	9	5	11	7	6	7	6	8	10
20-30	9	7	7	7	8	8	8	8	8
30-40	5	6	7	7	6	6	6	7	5
40-50	3	7	6	5	5	6	6	5	4
50-60	2	5	5	4	4	6	4	6	3
60-70	2	7	4	5	5	5	5	7	4
>70	6	55	9	34	41	32	40	35	15
Total	100	100	100	100	100	100	100	100	100

¹Census tracts with family developments only.

²SFWC stands for single female (head of household) with children.

The last two columns of the table provide an indication of why family units in public housing projects are so concentrated at the extremes: 17 percent of all family units are concentrated in essentially white tracts while another 35 percent are located in tracts that are predominantly African American. In contrast, 41 percent of all tract households are concentrated in essentially white areas, while only 15 percent are located in predominantly African-American neighborhoods.

VII. Poverty Areas and the Location of Projects

One of the most popular beliefs about "public housing projects" and their tenants is that the tenants are almost all African American and the projects all located in the worst neighborhoods in inner cities. The purpose of this section is to examine this stereotype by documenting the exact patterns of poverty concentration of both family projects and elderly projects. Poverty concentration, for the purpose of this report, is defined as any census tract within which either 30 or 40 percent or more of the households are classified by the census as living below poverty.

Tables 12 and 13 classify all census tracts with public housing projects into nine different groups of poverty rates. Table 12 provides percentages for each of the nine groups and answers questions concerning the characteristics of families living in a tract at any given level of poverty. Table 13, which sums the percentages for each column, answers questions about the typical patterns of distribution of poverty for households with such characteristics as race and poverty.

Table 12 shows that tracts with low levels of poverty have higher proportions of white tenants, and tracts with high levels of poverty are almost exclusively (91 percent) African American. The second-to-last column in the table also shows that in high-poverty areas, public housing development households represent 52 percent of all households. In low-poverty areas, they represent only 2 percent.

This stark characteristic tends to confirm popular images, but there are notable exceptions. In tracts with the lowest levels of poverty—below 20 percent—25 to 37 percent of the project residents are African American. Within the poorest tracts, 15 percent of the residents are employed.

Table 13 helps to clarify these patterns and shows the heavy concentrations of whites in tracts with low levels of poverty but also shows that 30 percent of all white residents live in tracts where 30 percent or more of the population is poor. The comparable figures for Hispanics and African Americans are 50 and 69 percent, respectively.

Figure 1 provides a graphic image of the general tendency for tract poverty rates and percentage of African Americans in projects to increase in tandem. The association, or correlation, is clearly not perfect but provides a visual indication of the extent to which project occupancy has bifurcated along racial lines as poverty increases.

The tables and figure cannot, of course, indicate any of the causal forces that have lead to this distribution.

Table 12
Tract Poverty Rate and Public Housing Projects
(All Units)

% Tract Poverty	% Head of Households in HUD Projects That Are (% Within Each Row)								Project Households/ Tract Households	% of All Households
	White	African American	Hispanic	Employed	SFWC ¹	Elderly	Poverty			
<5	57	30	11	32	29	40	41	2	7	
5-10	62	25	10	25	28	45	45	2	16	
10-20	50	37	10	25	32	35	60	4	28	
20-30	36	46	14	25	33	31	64	5	21	
30-40	31	54	13	23	36	28	68	8	14	
40-50	14	68	16	24	39	24	71	13	8	
50-60	15	75	9	21	41	25	75	19	4	
60-70	9	87	2	18	43	21	84	25	1	
>70	5	91	3	15	45	15	88	52	1	

¹SFWC stands for single female (head of household) with children.

Table 13
Tract Poverty Rate and Public Housing Projects
(All Units)

% Tract Poverty	% Head of Households in HUD Projects That Are (% Within Each Column)							% of Public Housing Households	% of All Households
	White	African American	Hispanic	Employed	SFWC ¹	Elderly	Poverty		
<5	5	1	3	4	2	4	2	2	7
5-10	14	3	7	8	5	11	5	6	16
10-20	30	12	17	19	17	23	17	15	28
20-30	21	15	23	19	17	19	17	18	21
30-40	17	18	20	17	17	17	17	17	14
40-50	6	17	19	14	15	11	15	16	8
50-60	5	15	8	10	12	9	12	13	4
60-70	1	7	1	4	6	3	6	5	1
>70	1	12	2	5	9	3	9	8	1
Total	100	100	100	100	100	100	100	100	100

¹SFWC stands for single female (head of household) with children.

In the sample of census tracts with public housing projects, only 2 percent of all households (including public housing residents) live in tracts with a poverty rate of 60 percent or higher, while more than 13 percent of households in public housing projects are located in such tracts. On the other hand, tracts with a poverty rate of 20 percent or less contain 51 percent of all households but only 23 percent of public housing residents. The greater the concentration of public housing residents, the higher the tract poverty rate.

Defining a poverty-concentrated area as a census tract with at least 30 percent of its population having incomes below the poverty level income, Table 14 indicates that only 28 percent of all households in census tracts with public housing projects live within such neighborhoods. In contrast, 59 percent of all public housing residents are located in such poverty-concentrated areas. Using the 30-percent threshold also reveals that 30 percent of all white families live in projects and 69 percent of African Americans live within such areas. That is, there is a profound racial difference in the chance that an African-American or white public housing resident will have to live in a densely poor neighborhood.

Using a definition of poverty as an area with at least a 40-percent tract poverty rate, 42 percent of public housing residents are located in poverty-concentrated areas, whereas only 14 percent of the total households in tracts with public housing projects are located in such areas (see Table 15).

Under the 40-percent threshold, 13 percent of white households, 30 percent of Hispanic, but 51 percent of African-American public housing heads of households live within such deeply impoverished communities.

Table 15 shows that of all public housing residents living in areas with 40 percent or more poverty, 12 percent are white, 9 percent are Hispanic, and 77 percent are African American.

These last tables (9, 10, 11, and 12) clearly show that **the majority of African Americans living in public housing projects in the United States are living in poverty-concentrated areas, while the majority of public housing white tenants—both families and the elderly—are living in neighborhoods with substantially lower poverty rates.** These patterns are also displayed in Figure 1.

As expected, there is a negative relationship between percent employed (head of households) and tract poverty rate. Table 12 clearly demonstrates that the percent of households with a single female head of household with children (SFWC) living in public housing projects has a positive relationship with the tract poverty rate. However, even in tracts with 20 percent or less poverty, nearly 30 percent of such families are single heads of households.

The percentage of elderly in public housing projects appears to have a negative relationship with the poverty rate of census tracts: of those public housing residents living in low-poverty areas—areas with less than 20-percent poverty—roughly 40 percent are elderly.

Although there is a positive relationship between tract poverty rate and the level of poverty of households living in the projects, Table 12 clearly shows that the poverty rates of projects is much higher than those of corresponding tracts. In tracts with less than 5 percent of the population having an income below the poverty level, there is, on average, a 41-percent poverty rate among households in public housing projects. At the other extreme, when a census tract has a poverty rate of 50 to 70

Table 14

Poverty-Concentrated Areas and Public Housing Projects
(All Units)

% Tract Poverty	(% Within Each Column) % of All Head of Households in Public Housing Projects That Are						% of Public Housing Households	% of All Households
	White	African American	Hispanic	Employed	SFWC ¹	Elderly		
> 30%	30	69	50	50	59	43	59	28
> 40%	13	51	30	33	42	26	42	14

¹SFWC stands for single female (head of household) with children.

Table 15

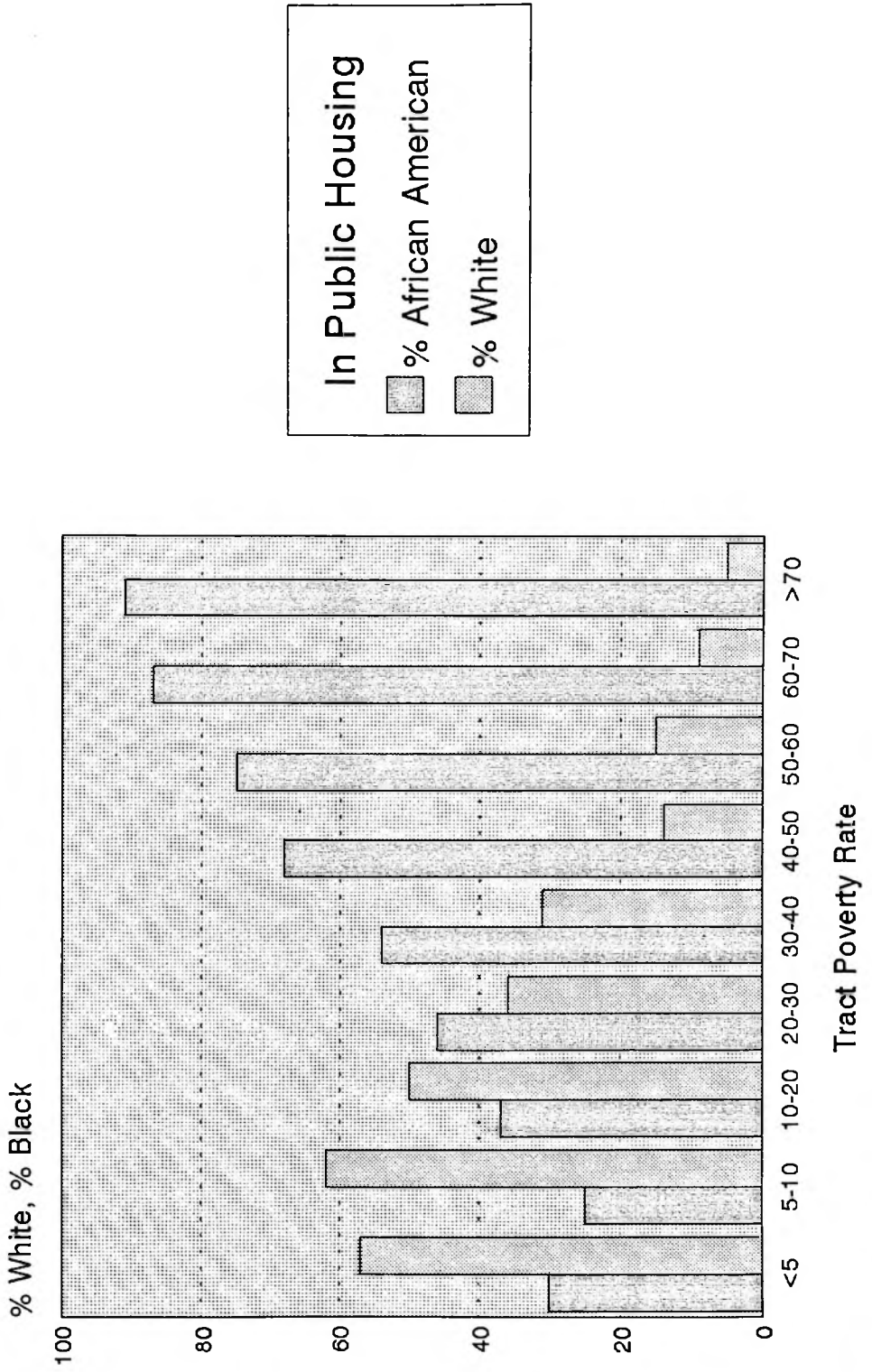
Poverty-Concentrated Areas and Public Housing Projects
(All Units)

% Tract Poverty	(% Within Each Row) % of All Head of Households in Public Housing Projects That Are						% of Public Housing Households	% of All Households
	White	African American	Hispanic	Employed	SFWC ¹	Elderly		
> 30%	18	70	10	21	40	24	59	28
> 40%	12	77	9	21	41	22	42	14

¹SFWC stands for single female (head of household) with children.

Figure 1
 Tract Poverty Rate

Percent White vs. African American Households in Public Housing Projects



percent, the project's poverty level increases to more than 75 percent. The relationship between poverty concentration and population characteristics of public housing projects has been examined separately for family and elderly projects. Table 16 presents information regarding the percent of each group of households in elderly projects for different tract poverty rates. The same information is provided for family projects in Table 17.

Table 16 reveals that virtually all elderly households and projects are located in areas with lower levels of poverty. Only a handful of white, African-American, and Hispanic households are located in areas with more than 50 percent poverty. Fully three-quarters are located in areas with 40 percent or less poverty.

For white households living in elderly projects, 75 percent live in areas with less than 30 percent poverty. For African-Americans, the figure is 45 percent and is 53 percent for Hispanics. That is, there is a 30-percentage-point "deficit" for African-American elderly households in their opportunity to live in nonpoor areas.

Areas with 40 percent or less poverty house 89 percent of all white elderly, 67 percent of African Americans, and 74 percent of all Hispanics.

Public housing projects in the United States are therefore far less "ghettoized" for elderly households even when the percentage of elderly units within tracts reaches over 20 percent of the total. The vast majority of such units are clearly located in the least concentrated tracts. However, African-American elderly households are much more likely to be located in poorer areas than whites.

Table 17 reveals the comparable distributions for family projects. It also shows a surprising concentration of African-American and Hispanic households not in high-poverty areas; the second-to-last column of this table indicates that the bulk of family units are in tracts in the middle of the distribution, with relatively few units located in tracts with either the highest or lowest levels of poverty. Fifty-five percent of all family units are located in tracts with less than 40 percent poverty, while for elderly units the comparable figure is 76 percent.

Tracts with 40 percent or less poverty house 83 percent of all white households, 47 percent of African Americans, and 68 percent of Hispanics. African-American families are, however, much more likely to live in poverty than are whites, with a comparable, yet higher (36 percentage points) deficit than that for elderly households.

Tables 18 and 19 present the distribution of elderly units within poverty-concentrated areas that are more than either 30- or 40-percent poor. Defining a poverty-concentrated area as a census tract with at least 30 percent of its population having an income below the poverty level, Table 18 indicates that only 23 percent of all households in census tracts with elderly projects live in such neighborhoods, but 41 percent of all elderly project residents are located in such areas.

Using the 30-percent threshold, Table 18 also reveals that 25 percent of all white households live in elderly projects, but 55 percent of African Americans and 47 percent of Hispanics live in such areas. That is, almost twice as many African-American elderly families live in the poorest areas compared with whites.

Table 16

Public Housing Projects and Tract Poverty Rate
(Elderly Units¹)

% Tract Poverty	% Head of Households in HUD Projects That Are						% of Elderly Units	% of Tract Households
	White	African	Hispanic	Employed	SFWC ²	Elderly		
<5	6	2	1	3	1	5	4	7
5-10	17	5	11	11	6	16	12	20
10-20	30	16	18	22	19	26	23	29
20-30	22	22	23	25	25	21	20	21
30-40	14	23	21	18	21	16	17	13
40-50	6	13	14	10	11	8	11	6
50-60	4	8	9	7	8	5	7	3
60-70	1	5	2	3	3	2	3	1
>70	0	6	1	1	5	1	3	0
Total	100	100	100	100	100	100	100	100

¹Census tracts with elderly projects only.

²SFWC stands for single female (head of household) with children.

Table 17
Public Housing Projects and Tract Poverty Rate
(Family Units¹)

% Tract Poverty	% Head of Households in HUD Projects That Are							% of Family Units	% of Tract Households
	White	African American	Hispanic	Employed	SFWC ²	Elderly	Poverty		
<5	3	1	3	4	2	1	2	1	7
5-10	12	3	6	7	5	7	4	5	14
10-20	29	11	17	18	16	18	15	14	26
20-30	21	15	22	19	17	18	17	17	22
30-40	18	16	20	17	17	17	17	18	15
40-50	6	18	20	15	15	16	16	17	9
50-60	7	16	9	11	13	12	13	14	5
60-70	2	8	1	4	6	5	6	5	1
>70	2	12	2	5	9	6	10	9	1
Total	100	100	100	100	100	100	100	100	100

¹Census tracts with family projects only.

²SFWC stands for single female (head of household) with children.

Table 18

**Poverty Concentrated Areas and Public Housing Projects
(Elderly Units¹)**

% Tract Poverty	(% Within Each Column) % of All Head of Households in Public Housing Projects That Are					% of Elderly Units	% of All House- holds
	White	African American	Hispanic	Employed	SFWC²		
> 30%	25	55	47	39	48	41	23
> 40%	11	32	26	21	27	24	10

¹Census tracts with elderly projects only.

²SFWC stands for single female (head of household) with children.

Table 19

**Poverty Concentrated Areas and Public Housing Projects
(Elderly Units¹)**

% Tract Poverty	(% Within Each Row) % of All Head of Households in Public Housing Projects That Are					% of Elderly Units	% of All House- holds
	White	African American	Hispanic	Employed	SFWC²		
> 30%	37	52	9	13	21	41	23
> 40%	32	57	10	13	22	24	10

¹Census tracts with elderly projects only.

²SFWC stands for single female (head of household) with children.

Using a definition of poverty as an area with at least a 40-percent tract poverty rate, 24 percent of the elderly project residents are located in poverty-concentrated areas, whereas only 10 percent of the total households in tracts with elderly housing projects are located in such areas (see Table 19).

Using the 40-percent threshold, 11 percent of white households, 26 percent of Hispanic, and 32 percent of African-American elderly project heads of households live within such deeply impoverished communities. Table 19 further shows that of all of the elderly project residents living in areas with 40 percent or more poverty, 32 percent are white, 10 percent are Hispanic, and 57 percent are African American.

Tables 20 and 21 provide the same percentages for households living in family projects in poverty-concentrated areas.

Under the 30-percent threshold, Table 20 indicates that only 31 percent of all households in census tracts that contain family projects live in such neighborhoods. In contrast, 60 percent of all public housing family project residents are located in such poverty-concentrated areas.

Table 20 also reveals that 35 percent of all white households are located in family projects, but 70 percent of African Americans and 52 percent of Hispanics live in such areas.

Using a definition of poverty as an area with at least a 40-percent tract poverty rate, 42 percent of family project residents are located in poverty-concentrated areas, whereas only 16 percent of the total households in tracts with family housing projects are located in such areas (see Table 21).

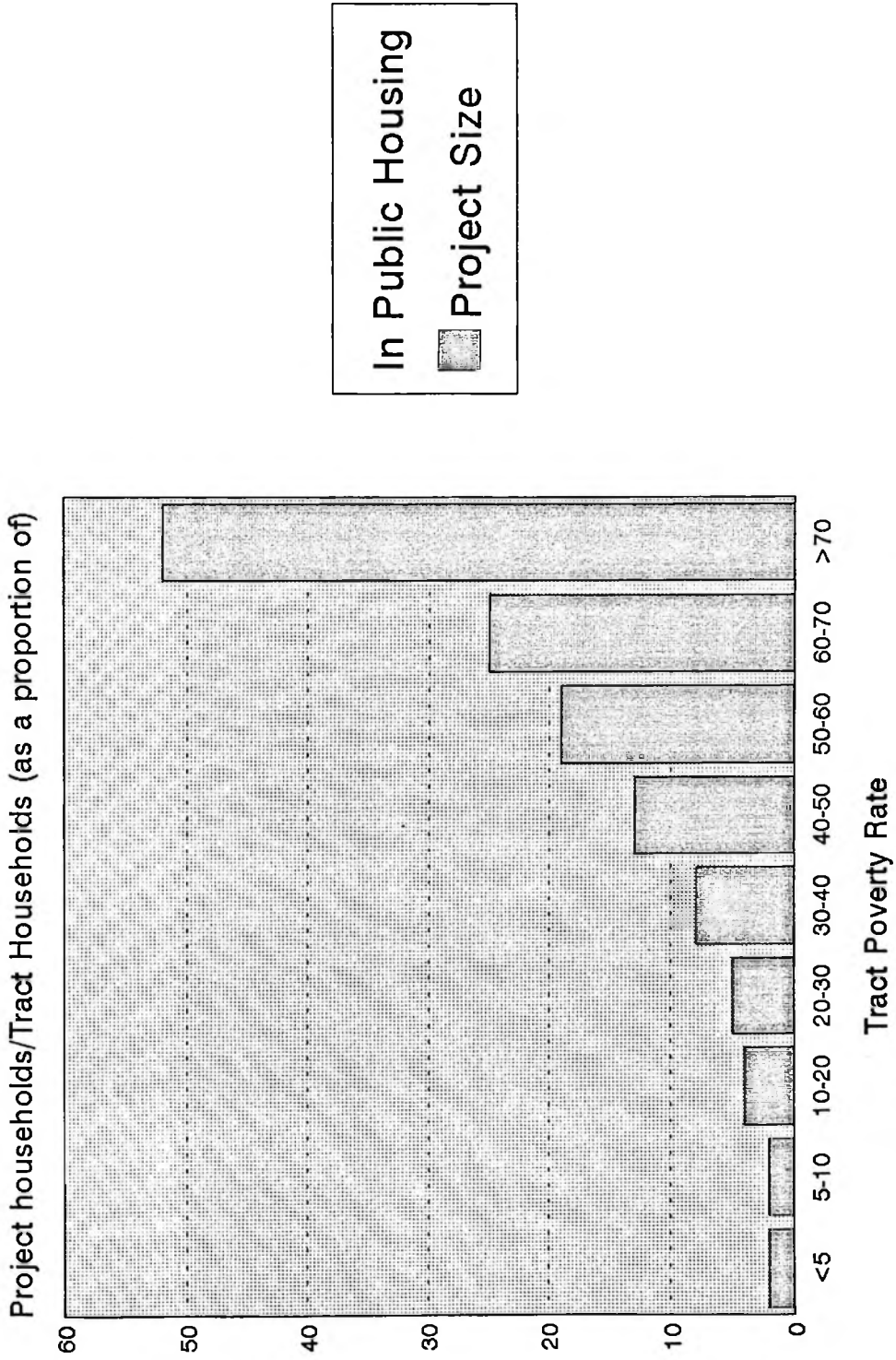
Using the 40-percent threshold, 17 percent of white, 32 percent of Hispanic, but 54 percent of African-American family project heads of households live in such deeply impoverished communities.

Table 21's most striking finding is that of all the family project residents living in areas with 40 percent or more poverty, 6 percent are white, 10 percent are Hispanic, and 83 percent are African American. This pattern confirms the popular perception that public housing residents living in these worst-off neighborhoods are mostly African American.

Measuring the relative size of a project as the ratio of project households to the number of all households in a census tract (public housing density), there is a direct and positive relationship between the size of a public housing project and the tract poverty rate as shown in both Table 12 and Figure 2. As the public housing density increases, the tract poverty rate also increases.

Figure 2 shows that when the density of a public housing project reaches less than 10 percent of the tract's population, that project is already located in a poverty-concentrated area. Projects with a density of 50 percent or more are most likely located in tracts with a poverty rate of greater than 70 percent. These large projects—most of which are for families—appear to be a major contributor to the poverty concentration of their surrounding neighborhoods.

Figure 2
 Tract Poverty Rate and Project Size



Data Source: PHRLDF (17-percent Sample File).
 Project size is measured as project households divided by tract households.

Table 20

Poverty-Concentrated Areas and Public Housing Projects
(Family Units¹)

% Tract Poverty	(% Within Each Column) % of All Head of Households in Public Housing Projects That Are					% of Family Units	% of All Households
	White	African American	Hispanic	Employed	SFWC ²		
> 30%	35	70	52	52	60	60	31
> 40%	17	54	32	35	43	42	16

¹Census tracts with family projects only.

²SFWC stands for single female (head of household) with children.

Table 21

Poverty Concentrated Areas and Public Housing Projects
(Family Units¹)

% Tract Poverty	(% Within Each Row) % of All Head of Households in Public Housing Projects That Are					% of Family Units	% of All Households
	White	African American	Hispanic	Employed	SFWC ²		
> 30%	11	76	11	25	47	60	31
> 40%	6	83	10	23	48	42	16

¹Census tracts with family projects only.

²SFWC stands for single female (head of household) with children.

For tracts where public housing households constitute a large proportion of the total number of tract households, the nonpublic housing and the public housing characteristics should be separated to assess the weight of influence exerted by public housing tenant characteristics upon census information. Decennial census tract information, however, only provides aggregated information on housing stock and household characteristics of the entire neighborhood, including public housing.

An effort was made to separate out the nonpublic housing and the public housing characteristics within the sample file. This would be an easy task if each public housing project was entirely located in one tract. In many cases, however, projects cut across census tract boundaries (in particular "scattered-site" projects), and the lack of information on each portion of the project, which is located in one tract rather than in another, makes it currently impossible to produce an accurate data on the tract neighborhood census characteristics independent of the public housing residents living within the area.

Tables 22 through 24 classify all census tracts with public housing projects into nine different groups of public housing density (percentage of tract households in the project). These tables sum percentages for each column and answer questions about the typical patterns of distribution of public housing density for households for such characteristics as race, employment, and poverty. Tables B.20, B.21, and B.22 in Appendix B provide percentages for each of the nine groups and describe the characteristics of households living in a tract at any given level of public housing density.

Table 22 provides information about the overall distribution of all racial and ethnic groups across public housing density categories. The table shows that 78 percent of all white residents live in projects with a density of less than 20 percent; Only 10 percent of white residents live in areas with more than 40 percent public housing units.

For Hispanics, 71 percent of residents live in tracts that have 20 percent or fewer public housing units and 15 percent live in projects with 40 percent or more density. While 46 percent of African-American residents live in areas with less than 20 percent public housing units, 29 percent are concentrated in projects with a density of 40 percent or more.

The employed, single female-headed households with children, the elderly and poverty households appear to follow the same distributional pattern as those for the percentage of public housing units across the density categories.

The last two columns of the table provide an indication of why project households are so concentrated at the extremes: 60 percent of all project households are concentrated within tracts with less than 20 percent public housing units, while only 21 percent are located within tracts that have a density of 40 percent or more. In contrast, 92 percent of all tract households are concentrated in areas with less than 20 percent of public housing units, and only 2 percent are located in neighborhoods with projects of 40 percent or higher density.

Tables 23 and 24 show this same difference between tracts, with only family developments and tracts in which only elderly developments are located. For elderly projects, Table 24 shows that 80 percent of all elderly units are located in areas with less than 20 percent public housing units. The table shows that only 6 percent of all elderly units are located in tracts with a higher than 40-percent public housing density.

For African Americans, 52 percent of the elderly units are located in tracts with 20 percent or less of public housing units, while 25 are located areas with a public housing density of 40 percent or higher.

The distributions for family projects are shown in Table 23. The data reveal heavy concentrations for all three groups (African-American, white, and Hispanic Households) within tracts with less than 20 percent of public housing units.

Table 22

Public Housing Projects and Percentage of Tract Households in Projects
(All Units)

% Tract Households in Project	% Head of Households in HUD Projects That Are (% Within Each Column)							% of Public Housing Units	% of Tract Households
	White	Black	Hispanic	Employed	SFWC ¹	Elderly	Poverty		
< 5	28	13	28	24	20	17	7	19	62
5-10	25	14	24	19	17	24	17	19	19
10-20	25	19	19	20	19	25	21	22	11
20-30	8	15	9	12	13	11	12	12	4
30-40	4	10	5	8	8	7	8	7	2
40-50	1	8	4	5	6	4	6	5	1
50-60	3	3	4	3	3	3	3	3	*
60-70	1	3	2	2	2	2	3	3	*
> 70	5	15	5	7	12	7	13	10	1
Total	100	100	100	100	100	100	100	100	100

¹SFWC stands for single female (head of household) with children.

*Less than .5 percent.

Table 23

Public Housing Projects and Percentage of Tract Households in Projects
(Family Units¹)

% Tract Households in Project	% Head of Households in Family Projects That Are (% Within Each Column)						% of Family Units	% of Tract Households	
	White	Black	Hispanic	Employed	SFWC ²	Elderly			Poverty
< 5	35	13	27	27	22	15	18	20	68
5-10	17	14	23	17	16	15	15	16	15
10-20	24	19	20	20	18	23	20	20	9
20-30	7	16	7	12	14	14	14	14	4
30-40	4	11	5	8	8	11	8	8	2
40-50	1	7	6	5	6	6	6	5	1
50-60	4	3	4	3	3	4	3	3	*
60-70	2	3	2	1	2	2	3	3	*
>70	6	14	6	7	11	10	13	11	1
Total	100	100	100	100	100	100	100	100	100

¹Census tracts with family projects only.

²SFWC stands for single female (head of household) with children.

*Less than .5 percent.

Table 24

Public Housing Projects and Percentage of Tract Households in Projects
(Elderly Units¹)

% Tract Households in Project	% Head of Households in Elderly Projects That Are (% Within Each Column)							% of Elderly Units	% of Tract Households
	White	Black	Hispanic	Employed	SFWC ²	Elderly	Poverty		
<5	26	14	33	26	22	23	21	21	60
5-10	30	17	22	23	18	30	20	25	24
10-20	24	21	19	20	22	24	23	23	11
20-30	9	14	14	11	12	10	11	11	3
30-40	5	9	5	7	7	4	7	6	1
40-50	1	7	1	4	3	2	4	3	*
50-60	2	3	1	3	4	2	3	3	*
60-70	1	5	3	4	4	2	4	3	*
>70	2	10	2	2	8	3	7	5	*
Total	100	100	100	100	100	100	100	100	100

¹Census tracts with elderly projects only.

²SFWC stands for single female (head of household) with children.

*Less than .5 percent.

VIII. Poverty Concentration and Race

This section examines the statistical relationship or correlation between the concentration of poverty within census tracts, the race of public housing residents, and the race of the entire population of the census tract. Given the major importance of family projects compared to elderly projects, this analysis and data are presented separately for each project type.

Table 25 reveals a positive and significant correlation (R^2 of .37) between the percentage of African Americans in a tract and the tract's poverty rate. As the poverty rate of the census tract increases, the percentage of African Americans in the census tract also increases.

There is no clear relationship between the concentration of the racial characteristics of family and elderly projects and the poverty of the tracts within which they are located.

Table 26 shows the relationship between percent white in the tract and the poverty concentration of tracts. There is a highly negative and significant relationship between percent tract white and the poverty concentration of tracts. That is, the higher the tract poverty rate, the lower the white population percent in the tract is. However, this negative relationship is not as high for white residents of projects (a correlation coefficient of $-.44$ for projects versus $-.66$ for the tract). This negative relationship is also higher for elderly projects when compared with family projects, that is, white elderly households are located in relatively less poverty-concentrated areas than nonelderly whites in projects.

No relationship was shown in correlations between the percentage of white or Hispanic in a tract and the poverty rate (see Table B.18, Appendix B).

IX. The Impact of Regional Location on Poverty, Race, and Public Housing Projects

Tables 27 and 28 provide the regional characteristics of public housing projects as well as the characteristics of their neighborhoods. The analysis used the then existing 10 HUD regions, which were as follows:

Region 1:	New England
Region 2:	New York/New Jersey
Region 3:	Mid-Atlantic
Region 4:	Southeast
Region 5:	Midwest
Region 6:	Southwest
Region 7:	Great Plains
Region 8:	Rocky Mountain
Region 9:	Pacific/Hawaii
Region 10:	Northwest/Alaska

Table B.14 in Appendix B lists the States in each of these regions.

Table 25

Tract Poverty Rate and African Americans

Classification of African Americans	Correlation	R²	Stand. Error	Sig. Level
% Tract African American	.605	.367	13.1	.000
% Public Housing Project African American	.428	.183	14.9	.000
% Elderly Project African American	.413	.170	14.1	.000
% Family Project African American	.415	.172	15.2	.000

Table 26

Tract Poverty Rate and Whites

Classification of Whites	Correlation	R²	Stand. Error	Sig. Level
% Tract White	-.659	.434	12.4	.000
% Public Housing Project White	-.442	.196	14.7	.000
% Elderly Project White	-.482	.232	13.6	.000
% Family Project White	-.420	.176	15.2	.000

Table 27
Regional Characteristics of Public Housing Projects

HUD Region	Public Housing Projects								Density: Project Household Tract Household
	% White	% African American	% Hispanic	% Asian	% Elderly	Per/Cap. Income	% Poverty		
1	64	19	16	1.0	52	\$6,558	37	5	
2	20	59	20	0.7	33	5,614	46	16	
3	37	60	3	0.3	33	4,501	66	6	
4	25	73	2	0.02	26	3,023	80	8	
5	34	60	3	1.3	27	3,639	73	5	
6	26	58	14	0.3	26	3,236	82	5	
7	42	54	1	2.4	42	4,465	67	6	
8	28	25	43	2.3	17	3,820	67	2	
9	20	33	35	14.0	23	4,018	57	6	
10	71	9	8	9.7	24	4,518	61	3	

Table 28

Regional Characteristics of Public Housing Projects

HUD Region	Census Tracts (With Public Housing Projects)							% of All Tracts Households
	% White	% African American	% Hispanic	% Asian	% Vacancy	Per/Cap. Income	% Poverty	
1	79	11	8	1.8	6.9	\$13,186	16	5
2	41	38	18	2.4	6.6	10,788	26	8
3	67	30	2	0.7	9.1	10,623	22	11
4	63	35	1	0.4	9.9	9,198	26	21
5	70	25	4	1.2	8.6	10,025	23	16
6	56	27	16	0.4	14.1	8,773	29	7
7	68	28	3	0.9	10.8	9,312	22	3
8	71	8	19	1.3	10.6	10,343	20	6
9	55	13	24	7.0	7.9	10,782	21	14
10	90	2	4	2.4	6.5	12,893	14	9

The popular perception of public housing in the United States is that there are few significant variations: public housing projects are uniformly seen as highrise, high-poverty family projects, warehousing indigent African-American families (Hirsch 1983). The purpose of this section is to examine the extent to which there are significant regional differences in the patterns of racial isolation and impoverishment that appear in the preceding discussion.

There are, as presented in the following tables, some notable differences among the HUD regions. Region 4, with its headquarters in Atlanta, Georgia, for example, has the highest percentage African-American population among public housing residents (73 percent). The lowest is in Region 10 (the northwestern States), which has only a 9-percent African American and 71-percent white tenant population.

The highest percentage of elderly heads of households is found in Region 1, the Boston-New England area, which also has the highest per capita income (about \$6,558) among projects. Boston also has the highest per capita income, about \$13,186, for those census tracts with projects. The two regions on the east and west coasts (1 and 10) that contain the largest numbers of white tenants also have higher per capita incomes and the lowest rates of poverty at the tract level.

Conversely, regions 4 and 6, with the latter centered in Dallas, Texas, have the highest number of African Americans, the highest poverty rates, and the lowest per capita income among the 10 regions, for both projects and the census tracts that contain those projects.

Region 5, which contains the Chicago, Detroit, and St. Louis PHAs, has a tenant population that is 60 percent African American. The average project, to the extent that can be calculated, is located in a census tract that is 70 percent white, 25 percent African American, and 4 percent Hispanic.⁹

Table 29 also shows that the Boston-New England region has heavy concentrations of elderly housing: 56 percent of its units are in elderly projects. The corresponding figure in the Atlanta-Southeast region is only 14 percent.

This table also indicates the percentage of households in each region that are in poverty, with an average of 23 percent overall.

The key regional differences are therefore:

- For all regions a positive relationship exists between the percentage of African-Americans and tract poverty rate, with Region 4 having the highest positive relationship between the percentage of African-Americans and the poverty concentration of the tracts. As the tract poverty rate increases, the percentage of white in the projects declines for all regions.
- The highest proportion of African-American households (73 percent) in public housing is in the Atlanta area while the Northwest area, centered in Seattle, has the lowest level of African-American households, with only 9 percent of African Americans in the projects.
- The two HUD areas with the highest ratio of whites (Boston and Seattle) also have the highest per capita income and the lowest rates of poverty at the tract level.

Table 29

**Poverty Rate and Percentage of Elderly Units
in Public Housing Projects Within HUD Regions**

HUD Regions	% Elderly Units ¹⁰ in Public Housing	% Households in Poverty	
		Census Tract	Public Housing
1. New England	56.0	16	35
2. New York/New Jersey	17.9	26	46
3. Mid-Atlantic	38.3	22	64
4. Southeast	14.0	26	79
5. Midwest	35.6	23	72
6. Southwest	27.7	29	79
7. Great Plains	46.3	22	70
8. Rocky Mountains	38.4	20	68
9. Pacific/Hawaii	20.1	21	52
10. Northwest/Atlanta	41.0	14	59
All Regions	26.6	23	65

- The highest percentage of elderly heads of households is found in the Boston area, which also has the highest per capita income (about \$6,558) among projects.
- Conversely, the Atlanta and Dallas areas—with the largest numbers of African Americans—have the highest poverty rates and the lowest per capita income among the HUD Field Offices for both projects and census tracts.

X. Racial and Ethnic Segregation in Public Housing Projects

The separation of residents by race within individual housing projects can be referred to as racial segregation; the higher the concentration of residents from the same racial group in one housing development, the higher the degree of racial segregation. Conversely, the lower the relative concentration of residents from the same racial group in an individual housing development, the smaller the degree of racial segregation. Measures of segregation have been used for decades to express numerically the relative level of racial or ethnic concentration. This methodology has also been applied to public housing segregation by Bickford and Massey (1991).

Measuring Racial Segregation

The distribution of units within each public housing development will be racially neutral in occupancy—or nonsegregated—if each racial group receives a share in units equal to its proportion among all tenants living in the PHA, given the PHA-wide racial composition of the resident population. For any two racial groups (African Americans and whites, or Hispanics and whites) the index of racial segregation of tenants can be expressed by the following formula:

$$D = \frac{1}{2} \sum_{i=1}^n \left| \frac{w_i}{W} - \frac{b_i}{B} \right| \quad (1)$$

where: D is the index of dissimilarity (or index of racial segregation);

n is the total number of public housing projects in the PHA;

w_i is the number of white households in the project;

b_i is the number of African-American households in the project;

W is the total number of white households in the PHA;

B is the total number of African-American households in the PHA.

This index measures the extent to which minority households are unevenly distributed among housing projects and varies between 0, when all housing projects have a minority percentage equal to that of the public housing authority as a whole, and 1, when no minority households share a project in common.¹¹

It is assumed that the PHA-wide share of racial group X in households is proportional to group X's actual demand for low-income housing assistance. Consequently, if the proportion of tenants from racial group X in housing development j is significantly different from its overall share in households, then housing development j will be considered to be segregated.

If a PHA has no housing development in which the racial composition of tenants deviates significantly from the PHA-wide racial composition of households, then the distribution of units among racial groups will be racially neutral.

An index that parallels the index of dissimilarity is the replacement index. The numerical value of the replacement index indicates the percentage of African Americans (or whites) who would have to be shifted from one project to another to produce an index of segregation of 0.

The replacement index can be expressed as follows:

$$R = \frac{W}{T} \times \frac{B}{T} \times D \quad (2)$$

where: R is the replacement index;

T is total white and African-American households in the PHA;

D is the index of dissimilarity;

W and B are the same as explained earlier.

Equation (1) has been used to measure the African American and white and also Hispanic and white residential dissimilarity indexes for all PHAs across the United States. Although the segregation index is not influenced by the relative sizes of PHAs, each PHA has been classified into one of the following categories:

Large PHA: more than 2,500 units.

Medium PHA: 500 to 2,500 units.

Small PHA: fewer than 500 units.

This classification allows the reader to compare segregation indexes for different-sized PHAs.

Table 30 provides the distribution of PHAs with at least a 3-percent African-American population (and excluding Indian Housing Agencies (IHAs) in each of these size classes, accompanied by the number of projects, total housing units, and percent of all units for each class. This section of the data analysis draws upon information from the entire June 1993 file rather than from the sample used in preceding tables.

Although only 66 out of 1,926 PHAs have more than 2,500 units (excluding the New York City Housing Authority), they provide 37.8 percent of all units. The New York City Housing Authority alone has 13.5 percent of all units. On the other hand, the 1,547 small PHAs include only 20.8 percent of public housing units.

Tables 31 and 32 list the most African-American and white segregated PHAs among public housing projects. In addition, each table provides the following related information for each PHA:

Column No.	Provided Information
1	State code
2	PHA name
3	Total number of projects in the PHA
4	Total number of households in the PHA
5	Segregation index
6	Replacement index
7	Percentage African-American households in the PHA
8	Percentage African-American households in the SMSA

The same information is also provided for Hispanic and White segregated PHAs in Tables 33 and 34.¹² Roughly, 10 percent of households living in public housing developments are Hispanic, which are about 107,500 households. The number of Hispanic households in the sample file is about 23,000.

Table 30**Distribution of PHAs by Size and Number of Projects¹**

PHA-Size Class (No. of Units)	Mean Size	Share of Units	Total Units	Total Projects	No. of PHAs²
1-500	157	20.8%	242,493	4,674	1,547
501-2,500	1,043	27.9%	325,515	3,453	312
2,501 or more ³	6,673	37.8%	440,418	2,155	66
New York City	—	13.5%	156,954	238	1
Total	—	100.0%	1,165,380	10,520	1,926

¹Excluding Indian housing projects.

²Selected PHAs with at least 3 percent African Americans.

³Excluding New York City Housing Authority.

Table 31
African American and White Residential Dissimilarity Among Public Housing Projects
(For PHAs With More Than 2,500 Units)

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA ¹⁰ HOUSEHOLDS	SEGREGATION INDEX	REPLACEMENT INDEX	% PHA BLACK	% SMSA BLACK
IL	CHICAGO HA	92	27199.00	.90	.08	87	13
IL	COUNTY OF COOK HA	25	2365.00	.87	.22	55	13
GA	AUGUSTA HA	15	2723.00	.83	.10	85	50
NC	CHARLOTTE	25	3218.00	.82	.07	88	26
OH	CUYAHOGA	53	7767.00	.81	.09	86	10
GA	SAVANNAH HA	13	2526.00	.80	.07	90	46
AL	MOBILE HOUSING BOARD	15	4596.00	.79	.11	82	35
NJ	NEWARK HA	28	6993.00	.78	.09	75	11
PA	PITTSBURGH HA	35	514.00	.78	.10	84	8
PA	PHILADELPHIA HA	67	16783.00	.77	.03	91	8
NJ	JERSEY CITY HA	14	3016.00	.77	.09	75	11
CT	BRIDGEPORT HA	16	2196.00	.76	.15	44	12
GA	ATLANTA HA	48	12137.00	.76	.05	92	24
MD	BALTIMORE HA	61	13975.00	.76	.06	90	28
MO	SAINT LOUIS	32	5531.00	.72	.03	95	9
TX	DALLAS	20	4046.00	.72	.05	86	17
MA	BOSTON HA	74	10734.00	.71	.17	32	11
CA	SAN FRANCISCO	42	6715.00	.69	.11	51	07
NY	BUFFALO MUNICIPAL HA	23	3949.00	.68	.15	61	11
TN	METRO DEVELOPMENT HOUSING AGENCY	27	7279.00	.68	.11	79	14
TX	SAN ANTONIO	60	8075.00	.67	.17	15	11
NV	LAS VEGAS	23	2303.00	.66	.16	46	8
CT	NEW HAVEN HA	33	3231.00	.65	.07	82	12
TX	HOUSTON HA	19	2538.00	.64	.05	76	19
DE	WILMINGTON HA	17	2512.00	.63	.06	84	15
OH	CINCINNATI METROPOLITAN HA	32	6808.00	.60	.03	94	10
WI	MILWAUKEE HA	27	4232.00	.60	.11	70	13

PHAs are rank ordered by the degree of dissimilarity or the segregation index.

Source: Data from MTCS 1993 and Census 1990 have been used to calculate all indexes.

Note: Calculation of segregation index for New York Housing Authority in 1993 was not possible due to a very low reporting rate to MTCS. Table B.19 (Appendix B) lists a sample of projects in New York HA with low reporting rates.

Table 32

African American and White Residential Dissimilarity Among Public Housing Projects
(For PHAs With 500 to 2,500 units)

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA HOUSEHOLDS	SEGREGATION INDEX	REPLACEMENT INDEX	% PHA BLACK	% SMSA BLACK
LA	MONROE	12	1671.00	.97	.12	85	27
IL	ST CLAIR COUNTY HA	23	1070.00	.92	.20	69	13
AL	SYLACAUGA HA	7	586.00	.91	.23	45	22
FL	FT MYERS HA	6	776.00	.90	.18	70	5
FL	BROWARD COUNTY HA	8	801.00	.89	.15	76	11
AR	NORTH LITTLE ROCK PHA	8	1232.00	.88	.22	57	25
GA	FULTON COUNTY HA	4	426.00	.88	.13	82	28
NJ	HOBOKEN HA	5	115.00	.86	.15	12	11
GA	VALDOSTA HA	7	394.00	.86	.04	95	24
FL	PINELLAS COUNTY HA	5	997.00	.86	.16	25	7
FL	GAINESVILLE HA	7	649.00	.85	.10	85	20
AL	TUSCALOOSA HA	8	1176.00	.85	.05	93	32
IL	MADISON COUNTY HA	10	760.00	.85	.16	75	14
FL	DAYTONA BEACH HA	12	1091.00	.84	.16	74	7
NC	WINSTON SALEM	20	2530.00	.82	.07	90	31
AL	FLORENCE HA	6	661.00	.81	.20	51	15
FL	ORLANDO HA	13	315.00	.81	.09	64	11
RI	PAWTUCKET HA	6	1126.00	.80	.11	13	3
NJ	PATERSON HA	10	1687.00	.80	.13	63	7
IL	SPRINGFIELD HA	12	764.00	.79	.18	64	13
AL	BESSEMER HA	6	1498.00	.79	.09	86	31
PA	BUCKS CO HA	7	576.00	.78	.08	12	19
IL	LAKE COUNTY HA	13	653.00	.78	.15	23	13
TX	GALVESTON HA	8	1427.00	.77	.12	71	26
TN	JACKSON HA	8	1209.00	.76	.06	90	14
PA	MONTGOMERY CO HA	9	545.00	.76	.17	34	19
AL	SELMA HA	7	665.00	.75	.12	80	22
MI	SAGINAW	9	1001.00	.75	.17	64	18
PA	ALLENTOWN HA	12	1597.00	.75	.10	9	4
NJ	BERGEN COUNTY HA	6	530.00	.75	.05	7	11

PHAs are rank ordered by the degree of dissimilarity or the segregation index.

Source: Data from MTCS 1993 and Census 1990 have been used to calculate all indexes.

Table 33

Hispanic and White Residential Dissimilarity Among Public Housing Projects
(For PHAs With More Than 2,500 Units)

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA HOUSE- HOLDS	SEGRE- GATION INDEX	REPLACE- MENT INDEX	% PHA BLACK	% SMSA BLACK
PA	PHILADELPHIA HA	67	16783.00	.86	.21	5	1
CT	BRIDGEPORT HA	16	2196.00	.72	.14	41	11
NJ	NEWARK HA	28	6993.00	.71	.18	13	8
NY	BUFFALO MUNICIPAL HA	23	3949.00	.69	.14	11	2
CT	NEW HAVEN HA	33	3231.00	.65	.15	7	11
MA	BOSTON HA	74	10734.00	.64	.13	18	5
TX	DALLAS	20	4046.00	.63	.16	6	11
OK	OKLAHOMA CITY	24	3653.00	.63	.07	6	3
DE	WILMINGTON HA	17	2512.00	.62	.15	7	2
TX	SAN ANTONIO	60	8075.00	.61	.07	73	20
SC	COLUMBIA HA	19	2432.00	.60	.14	9	1
NV	LAS VEGAS	23	2303.00	.60	.12	15	8
CA	L.A. COUNTY	38	2260.00	.58	.13	39	28
CT	HARTFORD HA	12	3024.00	.57	.05	51	5
CA	OAKLAND CITY	76	3383.00	.54	.14	3	10
NJ	JERSEY CITY HA	14	3016.00	.53	.13	13	29
CA	SAN FRANCISCO	42	6715.00	.49	.12	9	10
CO	DENVER HA	31	4134.00	.48	.09	51	11
TX	HOUSTON HA	19	2538.00	.48	.11	13	17
WI	MILWAUKEE HA	27	4232.00	.46	.06	4	3
HI	HAWAII HA	59	5257.00	.46	.10	6	5
NE	OMAHA HA	16	3643.00	.45	.03	3	2
NY	SYRACUSE HA	12	1269.00	.43	.08	9	1
NY	ROCHESTER HA	23	2555.00	.41	.05	6	3
OR	PORTLAND HA	33	2387.00	.39	.02	4	2
WA	SEATTLE HA	45	6414.00	.28	.02	4	2
FL	TAMPA HA	21	4708.00	.25	.06	12	6

PHAs are rank ordered by the degree of dissimilarity or the segregation index.

Source: Data from MTCS 1993 and Census 1990 have been used to calculate all indexes.

Table 34

**Hispanic and White Residential Dissimilarity Among Public Housing Projects
(For PHAs With 500 to 2,500 Units)**

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA HOUSE-HOLDS	SEGREGATION INDEX	REPLACEMENT INDEX	% PHA BLACK	% SMSA BLACK
OK	CREEK NATION	60	88.00	.94	.05	3	2
CA	OXNARD HA	7	692.00	.90	.04	89	18
RI	PAWTUCKET HA	6	1126.00	.84	.16	23	4
CT	BRISTOL HA	7	668.00	.82	.13	19	5
IL	DANVILLE HA	6	429.00	.80	.05	3	5
CT	NEW BRITAIN HA	7	797.00	.80	.20	36	5
CA	KERN CO HA	15	1003.00	.79	.16	59	21
PA	ALLENTOWN HA	12	1597.00	.79	.20	42	1
TX	HARLINGEN	4	615.00	.76	.05	93	76
MA	WORCESTER HA	17	1716.00	.75	.14	22	4
MA	SPRINGFIELD HA	17	1447.00	.74	.18	42	4
TX	GALVESTON HA	8	1427.00	.73	.17	11	15
PA	YORK HA	14	1161.00	.73	.10	12	1
FL	FT MYERS HA	6	776.00	.72	.08	4	3
PA	READING HA	9	1676.00	.72	.18	49	3
NJ	PASSAIC HA	6	693.00	.72	.14	42	8
IL	SPRINGFIELD HA	12	764.00	.71	.07	4	5
IL	CITY OF ROCK ISLAND HA	6	391.00	.70	.03	3	4
MA	LAWRENCE HA	8	1235.00	.70	.17	54	5
KS	WICHITA HA	7	494.00	.68	.06	3	3
NJ	TRENTON HA	12	1840.00	.65	.16	4	6
RI	PROVIDENCE HA	16	2080.00	.65	.16	31	3
CA	MONTREY COUNTY	15	663.00	.64	.13	70	26
CA	RICHMOND	8	799.00	.64	.16	15	10
CT	NORWALK HA	13	713.00	.64	.15	16	11
PA	LANCASTER HA	5	519.00	.64	.16	43	3
CA	SAN DIEGO HOUSING COMMISSION	28	1173.00	.64	.16	31	18
CT	WATERBURY HA	8	447.00	.64	.15	34	5

PHAs are rank ordered by the degree of dissimilarity or the segregation index.

Source: Data from MTCs 1993 and Census 1990 have been used to calculate all indexes.

To determine which classes of PHAs are more segregated than the others, PHAs are classified by their segregation indexes: a highly segregated PHA is defined as the one with a segregation index of .70 or higher; a segregation index of .40 to .69 reflects a moderately segregated PHA; and an index of less than .40 reflects less segregation.

Tables 35 and 36 provide this information for African-American and white and for Hispanic and white segregation, respectively.

On average, 10.8 percent of all PHAs are highly segregated, 27.2 percent are moderately segregated, and 62.8 percent are slightly segregated.

According to Table 35, 34.5 percent of large PHAs are highly segregated, while 19 percent of medium-sized PHAs and only about 7 percent of small PHAs fall into this category. On the other hand, none of the large PHAs have low levels of segregation, while 76.5 percent of small PHAs and 22.2 percent of medium-sized PHAs are slightly segregated.

The following is a list of the most highly segregated African-American and white PHAs:

PHA Name	Segregation Score
1. St. Clair County HA, Illinois	.97
2. Sylacauga HA, Alabama	.92
3. Chicago HA, Illinois	.90
4. Ft. Myers HA, Florida	.90
5. County of Cook HA, Illinois	.87
6. Augusta HA, Georgia	.83
7. Charlotte HA, North Carolina	.82
8. Cuyahoga HA, Ohio	.81
9. Newark HA, New Jersey	.78
10. Philadelphia HA, Pennsylvania	.77
11. Atlanta HA, Georgia	.76
12. Baltimore HA, Maryland	.76
13. Dallas HA, Texas	.72
14. Saint Louis HA, Missouri	.72

Among moderately African-American and white segregated PHAs are the following:

PHA Name	Segregation Score
1. San Francisco HA, California	.69
2. Buffalo HA, New York	.68
3. San Antonio HA, Texas	.67
4. New Haven HA, Connecticut	.65
5. Houston HA, Texas	.64
6. Cincinnati Metro. HA, Ohio	.60

Table 36 demonstrates a much better situation for Hispanic and white segregation in large and medium-sized PHAs. Only 10.7 percent of large PHAs and 14.6 percent of medium-sized PHAs are highly segregated. In addition, 33.6 percent of large PHAs and 60.8 percent of medium-sized PHAs can be classified as low-segregated.

Among the most highly and moderately Hispanic and white segregated PHAs are the following:

PHA Name	Segregation Score
1. Philadelphia HA, Pennsylvania	.86
2. Pawtucket HA, Rhode Island	.84
3. Boston HA, Massachusetts	.64
4. San Antonio HA, Texas	.61

Comparison of 1977 Segregation Indexes With Current Information

To assess the possibility that the current level of racial segregation in projects has changed over the last decade, a comparison is presented of data from an earlier study by Bickford and Massey (1991), which focused on the pattern of racial segregation among public housing projects in the 15 largest PHAs using 1977 racial occupancy data from HUD. Table 37 summarizes the results of their study and compares it with current information.

The data show a general pattern of decline in segregation, ranging from a mere 1-point decline for Chicago to a large increase of 16 points for St. Louis.

The overall decline was from .76 to .70. For several of the PHAs reporting declines in segregation, there have been major civil rights legal actions taken by the agencies and HUD to alter the pattern of racial isolation. Such fair housing cases have been brought against the Boston, Chicago, Cleveland, Dallas, Los Angeles, Milwaukee, Newark, New York, and St. Louis agencies.

The housing projects in these large PHAs were also grouped into those only for elderly, those for families, and those containing projects housing both family and elderly units. Table 38 provides the African-American and white segregation indexes by these project types for both 1977 and 1993. Table 39 lists the number of elderly projects, family projects, and mixed family and elderly projects for each of these large PHAs. For several of the project types, no information was available with which to make the comparisons.

Table 35

PHA Size and African-American/White Segregation

	Large-Sized PHAs	Medium-Sized PHAs	Small-Sized PHAs	All PHAs
Highly Segregated	34.5%	19.0%	7.2%	10.8%
Moderately Segregated	65.5	58.8	16.3	27.2
Slightly Segregated	0.0	22.2	76.5	62.8
Total (%)	100	100	100	100

Table 36

PHA Size and Hispanic/White Segregation

	Large-Sized PHAs	Medium-Sized PHAs	Small-Sized PHAs	All PHAs
Highly Segregated	10.7%	14.6%	8.3%	9.8%
Moderately Segregated	78.6	51.8	30.9	37.9
Slightly Segregated	10.7	33.6	60.8	52.3
Total (%)	100	100	100	100

Table 37

**Comparison of African-American/White Segregation Indexes
for Selected PHAs (1977 and 1993)**

PHA Name	State	Segregation Index 1977 ¹⁴	Segregation Index 1993
Baltimore Housing Authority	MD	.84	.76
Boston Housing Authority	MA	.78	.71
Chicago Housing Authority	IL	.91	.90
Cuyahoga Housing Authority	OH	.58	.81
Dallas Housing Authority	TX	.88	.72
Ft. Worth Housing Authority	TX	.88	.69
Detroit Housing Authority	MI	.68	.38
Houston Housing Authority	TX	.52	.64
Los Angeles Housing Authority	CA	.58	.61
Milwaukee Housing Authority	WI	.65	.60
Newark Housing Authority	NJ	.76	.78
Philadelphia Housing Authority	PA	.82	.77
San Francisco Housing Authority	CA	.68	.69
St. Louis Housing Authority	MO	.88	.72
Average		.76	.70

Indexes for 1993 calculated using data from MTCS Data File 1993.

Note: Calculation of segregation index for New York Housing Authority in 1993 was not possible due to a very low reporting rate to MTCS. Table B.19 (Appendix B) lists a sample of projects in New York HA with low reporting rates.

Table 38

Comparison of African-American/White Segregation Indexes Among Public Housing Projects
by Project Design: Selected PHAs (1977 vs. 1993)

PHA Name	State	Segregation Index in 1977 ¹⁵				Segregation Index in 1993			
		All Elderly	All Family	Family-Elderly	Total	All Elderly	All Family	Family-Elderly	Total
Baltimore HA	MD	NA	.87	.60	.84	.63	.85	.51	.76
Boston HA	MA	.69	.77	.57	.78	.65	.76	.63	.71
Chicago HA	IL	.80	.94	.74	.91	.75	.91	.94	.90
Cuyahoga HA	OH	NA	.42	NA	.58	.87	.79	.81	.81
Dallas HA	TX	NA	.81	.65	.88	NA	.38	NA	.72
Ft. Worth HA	TX	NA	.81	.65	.88	NA	.64	NA	.69
Detroit HA	MI	.70	.62	.78	.68	.52	.36	.23	.38
Houston HA	TX	NA	.48	.30	.52	NA	.33	.66	.64
Los Angeles HA	CA	NA	.84	.36	.58	NA	.60	NA	.61
Milwaukee HA	WI	.53	.58	NA	.65	.50	.49	NA	.60
Newark HA	NJ	.59	.73	.78	.76	.38	.77	.88	.78
Philadelphia HA	PA	.75	.80	.82	.82	.91	.63	.76	.77
San Francisco HA	CA	.34	.70	.39	.68	NA	.41	.67	.69
St. Louis HA	MO	.66	.88	.95	.88	NA	.29	.69	.72
Average		.63	.73	.63	.76	.65	.59	.68	.70

Indexes for 1993 calculated using data from MTCS Data File 1993.

Table 39

Selected PHAs by Project Design and the Number of Projects

PHA Name	State	Number of Projects				Total Units
		All Elderly	All Family	Family-Elderly	Total	
Baltimore HA	MD	15	41	5	61	18,073
Boston HA	MA	27	23	5	55	16,356
Chicago HA	IL	48	55	5	108	39,941
Cuyahoga HA	OH	22	32	32	86	12,371
Dallas HA	TX	3	16	2	21	7,181
Ft. Worth HA	TX	1	7	0	8	1,509
Detroit HA	MI	10	15	0	25	10,652
Houston HA	TX	2	13	2	17	4,133
Los Angeles HA	CA	4	55	1	60	8,936
Milwaukee HA	WI	11	12	6	29	4,779
Newark HA	NJ	7	22	1	30	13,537
Philadelphia HA	PA	12	22	27	61	23,558
San Francisco HA	CA	23	15	3	41	7,495
St. Louis HA	MO	8	16	5	29	7,289

The data show that the average segregation index has increased a modest 1 point for elderly projects but has declined by 15 points for projects containing only family units over the 16-year period. This average pattern of decline includes some agencies in which there was negligible change (such as Baltimore and Boston) and others, such as Dallas, Fort Worth, Detroit, and Los Angeles, where there were major declines in the segregation of African Americans from whites.

The sharp decrease in segregation in the St. Louis agency from .88 to .29 can be largely explained by the sharp increase in the size of the African-American population living in the agency's family projects. The resident population is now 95 percent African American, and the dissimilarity index and the replacement index reflect the fact that more and more African Americans are separated from fewer and fewer whites. That is, the segregation index has only limited utility in explaining changing patterns. To illustrate this claim, consider the example in Tables 40 and 41.

It is assumed that this hypothetical PHA with 500 units is occupied by 20 percent white and 80-percent African-American households in 1977. It is further assumed that this PHA keeps the same proportion of whites in each housing project in either 1977 or 1993, but with a sharp decrease in the total of white population in the PHA (from 100 white households in 1977 to 20 in 1993).

The African-American and white segregation index in 1977 is equal to .87 versus .72 for 1993. Obviously, a drop of 15 points in the index does not reflect a better situation for this hypothetical PHA in 1993 because each housing project still houses the same proportion of white households in each year. In this case, a large drop in the number of white households during this period, which is replaced by additional African-American households in the PHA, has produced a lower index of dissimilarity for African-American and white residents.

Referring back to Table 37, two PHAs with the highest increase and the highest decrease in the segregation index were selected for further analysis. The Cuyahoga Housing Authority, with an increase of 23 points, and the Detroit Housing Authority with a 30-point decline in their segregation indexes represent the two extreme cases.

The sharp decrease in the segregation index of the Detroit PHA does not necessarily reflect a desegregation process which occurred over the past 16 years. As illustrated in the previous example, a large decline in the population of white or a substantial increase in the number of African-American residents in public housing projects have produced a lower segregation index for this PHA. Table 42 provides data on percentages of each racial group for 1977 and 1993 within each project within the PHA and changes in the percent of white and African American during this period.

In 1977, 5 out of 15 projects had a double digit percentage of white households (ranging from 10 to 40 percent), while in 1993 only one project represented more than a 3-percent white population (it was 6 percent white). The average percentage of white households of 8.8 percent in 1977 for the Detroit Housing Authority has been reduced to only 1.5 percent as of 1993. On the other hand, the average percentage of African American in this PHA has increased from 91 percent in 1977 to about 98 percent in 1993.

Note that the number of households from whom information on the racial composition of the household was gathered differs for the two reporting periods. This may be due to lower or incomplete reporting into the MTCS system in 1993 as well as to the higher levels of unoccupied

Table 40

Pattern of Racial Occupancy in a Hypothetical PHA in 1977						
Housing Project	Total Units	In PHA		In Housing Project		
		White	African-American Households	White Households	% of White	African-American Households
A	150	100	400	10	10	140
B	100	100	400	90	90	10
C	250	100	400	0	0	250
Total	500	100	400	100	100	400

Table 41

Pattern of Racial Occupancy in a Hypothetical PHA in 1993						
Housing Project	Total-Units	In PHA		In Housing Project		
		White Households	African-American Households	White Households	% of White	African-American Households
A	150	20	480	2	10	148
B	100	20	480	18	90	82
C	250	20	480	0	0	250
Total	500	20	480	20	100	480

Table 42

Percentage of White and African-American Households Within Each Public Housing Project, 1977-1993, Detroit Housing Authority

Project Code	1977 Total Households	1993 Total Households	1977 % White	1993 % White	Change In % White	1977 % African American	1993 % African American	Change In % African American
MI001002	323.00	265.00	6	0	-6	93	99	+6
MI001004	1745.00	823.00	20	3	-17	80	96	+16
MI001005	360.00	240.00	7	1	-6	93	99	+6
MI001006	196.00	185.00	24	2	-22	74	98	+24
MI001007	1909.00	1187.00	1	1	0	99	98	-1
MI001008	882.00	506.00	0	1	+1	100	98	-2
MI001014	682.00	83.00	12	1	-11	88	98	+10
MI001015	190.00	125.00	0	0	0	100	100	0
MI001017	101.00	59.00	0	0	0	100	97	-3
MI001019	24.00	20.00	0	0	0	100	100	0
MI001020	42.00	43.00	2	0	-2	98	98	0
MI001021	107.00	202.00	1	0	-1	99	100	+1
MI001026	206.00	208.00	40	2	-38	60	97	+37
MI001027	208.00	187.00	0	0	0	100	99	-1
MI001028	122.00	126.00	3	6	+3	97	94	-3
MI001029	206.00	167.00	0	0	0	99	99	0
MI001032	215.00	108.00	8	1	-7	92	98	+6
MI001033	40.00	37.00	10	0	-10	90	100	+10
MI001037	93.00	79.00	5	3	-2	95	96	+1
PHA	9,037.00	5,353.00*	8.8	1.5	-7.3	91	97.6	+6.6

*Note: HUD's SMIRPH database indicates that the overall project occupancy rate was 57.5 percent in 1994.

Table 43
Change In Percentage of White and African-American Households
Within Each Public Housing Project, 1977-1993, Cuyahoga Housing
Authority

Project Code	1977 Total Households	1993 Total Households	1977 % White	1993 % White	Change In % White	1977 % African American	1993 % African American	Change In % African American
OH003001	262.00	138.00	5	1	-4	94	931	-1
OH003003	438.00	282.00	0	1	+1	100	99	-1
OH003004	516.00	400.00	4	1	-3	96	98	+2
OH003005	17.00	1.00	41	0	-41	53	100	+47
OH003007	1092.00	640.00	0	0	0	100	99	-1
OH003008	428.00	214.00	73	24	-49	26	69	+43
OH003011	384.00	375.00	11	1	-10	89	99	+10
OH003013	375.00	650.00	0	0	0	100	99	-1
OH003014	624.00	283.00	15	0	-15	85	100	+15
OH003015	558.00	205.00	0	0	0	100	100	0
OH003016	591.00	289.00	24	3	-21	75	91	+16
OH003017	219.00	197.00	96	78	-18	3	17	+14
OH003018	617.00	218.00	0	0	0	100	100	0
OH003021	292.00	281.00	8	0	-8	92	99	+7
OH003022	271.00	252.00	12	1	-11	88	99	+11
OH003023	12.00	12.00	0	0	0	100	100	0
OH003024	281.00	284.00	4	0	-4	96	99	+3
OH003025	762.00	110.00	78	34	-44	20	55	+35
OH003026	448.00	343.00	0	0	0	100	99	-1
OH003028	250.00	25.00	2	60	+58	97	28	-69
OH003030	127.00	6.00	72	0	-72	27	100	+73
OH003031	210.00	155.00	95	24	-71	5	70	+65
OH003033	282.00	231.00	94	46	-48	5	46	+41
OH003034	307.00	188.00	1	1	0	99	99	0
OH003035	243.00	241.00	81	34	-47	19	66	+47
OH003036	63.00	154.00	100	50	-50	0	23	+23
OH003037	166.00	177.00	13	1	-12	87	98	+11
OH003039	109.00	63.00	5	0	-5	95	100	+5
OH003040	111.00	69.00	98	94	-4	1	0	-1
OH003041	142.00	107.00	25	5	-20	75	95	+20
OH003042	265.00	97.00	66	8	-58	34	92	+58
OH003043	26.00	12.00	0	0	0	100	100	0
OH003044	182.00	172.00	7	1	-6	93	99	+6
OH003054	92.00	91.00	68	49	-19	32	51	+19
OH003060	5.00	2.00	0	0	0	100	100	0
OH003061	30.00	10.00	53	20	-33	33	70	+37
OH003062	16.00	2.00	50	0	-50	50	100	+50
OH003063	33.00	3.00	18	0	-18	76	100	+24
OH003064	40.00	1.00	0	0	0	100	100	0
OH003065	30.00	3.00	0	0	0	100	100	0
OH003066	36.00	15.00	0	0	0	100	100	0
OH003067	14.00	2.00	86	0	-86	0	50	50
OH003068	47.00	11.00	13	0	-13	85	100	+15
OH003072	11.00	9.00	18	0	-18	82	100	+18
PHA	11,296.00	7,767.00*	24.8	11.8	-13.0	74.8	85.5	+10.7

*Note: HUD's SMIRPH database indicates that the overall project occupancy rate was 72 percent in 1994.

units within the authority. It is important to note that the rate of occupancy of projects within the Detroit housing authority was only 57 percent in 1994 and 72 percent for Cuyahoga. There may, therefore, be slight changes in the final racial composition when all projects have fully reported data. Mixed family and elderly units have experienced an increase in the index of dissimilarity in that period by 4 points.

Table B.17 (Appendix B) indicates that only 7 out of 15 large PHAs have Hispanic residents and that since 1977, the average Hispanic and white segregation index for family units has declined by 6 points. There are too few cases to report changes for elderly and mixed projects.

Regression Analysis of African-American and White Segregation in PHAs

The level of racial segregation in public housing agencies may vary throughout the Nation for a variety of reasons. The purpose of this section is to examine the statistical significance of many of the key demographic variables presented earlier with the objective of testing whether they do or do not have a statistically significant effect on the measured level of segregation of public housing projects.

Based upon the earlier review of data and prior research (Bickford and Massey 1991; Farley and Frey 1994), the following factors were expected to affect the level of public housing segregation:

- The level of racial segregation of the Metropolitan Statistical Area (MSA).
- The racial composition of neighborhoods surrounding public housing projects.
- The racial composition of the PHA.
- Socioeconomic characteristics of neighborhoods surrounding public housing projects.
- Socioeconomic characteristics of the population resident in a PHA.
- The relative size of the PHA and its projects.
- The age of the projects.
- Project design (family versus elderly projects).

There are, of course, other factors that might plausibly affect the level of segregation indexes such as the quality of the management of a PHA, the racial preferences of residents, the level of voluntary compliance with Title VI by the PHA, and population characteristics of the waiting list for a PHA. Data on these factors were not available for this study.

It is assumed, for example, that the level of racial segregation within the entire housing market in a metropolitan area can be a major factor that may affect the segregation level within a PHA. In a highly segregated metropolis, for example, one would expect to find a highly segregated PHA. The higher the overall level of segregation in an area, the more likely it is that public housing projects either reflect that segregation or have been collusive in the development or maintenance of the overall level of racial segregation.

The racial composition of neighborhoods surrounding public housing projects, as well as the racial composition of a PHA, might also plausibly affect the level of residential segregation in a PHA. A census tract with a high percentage of African-American population may contribute to a higher level of residential dissimilarity in public housing projects.

Some portion of the segregation within public housing might be due to the socioeconomic characteristics of its residents: the income, education, or other factors could be influential. The magnitude of the segregation index may be affected by socioeconomic characteristics of a PHA as well as the socioeconomic characteristics of the census tract within which the public housing project is located. The proportion of households with incomes below the poverty level, the percentage of heads of households with no wage income, and the average household income at the project level are examples of socioeconomic characteristics of public housing residents that may well influence its patterns of racial concentration.

The ratio of African American to white per capita income is used to index the economic status of African Americans; a lower segregation index is expected with a higher relative income of African Americans.

Among other factors that may contribute to the magnitude of the segregation index are the relative size or number of units in the public housing agency, as well as the design of projects for either elderly or families. As shown earlier (Tables 31 through 39), there is a positive relationship between the size of a PHA and its segregation score, and a PHA with more elderly units typically has a higher index of dissimilarity than a PHA with fewer elderly units.

It is also possible that there is a relationship between the segregation level of a PHA and the age of its projects. Younger PHAs, or those with projects that have been built more recently, can be assumed to be racially less segregated than the older ones because of antidiscriminatory pressures.

Regional differences may also be of significance. HUD (former) regional Offices may have an impact on the segregation level of PHAs in their jurisdictions by imposing different administrative policies on PHAs. The 10 former regional offices were therefore related to segregation indexes.

This following section examines the significance and the relative importance of each of these factors on the segregation level of PHAs. Two different databases have been used for this analysis:

1. The first is based on an extract of a large sample of public housing projects (8,300 out of 14,814 projects) from the MTCS file. This database provides information on public housing projects and their occupants at the project level, but the neighborhood or census tract characteristics of those projects are not included.
2. The second database, relatively smaller with 1,066 census tracts, includes variables describing both public housing projects and their neighborhoods at the census tract level.

Using the first database, African-American and white segregation indexes were calculated for 1,362 PHAs.¹⁶ These indexes were then matched with the 17-percent sample file (PHRLDF), which includes both public housing and census tract data. African-American and white segregation indexes for metropolitan areas in 1990 were also matched with this database.¹⁷

The list of explanatory variables are described in Table 44.

Results of the Regression on the Large Sample of PHAs

Table 45 presents the result of the first regression using the large sample extracted from the MTCS data file. The R-square of .23 clearly indicates a moderate degree of success in explaining segregation. Prior to calculating these results, regional dummies were included in various regression models but proved to be not statistically significant in determining segregation scores. Therefore, regional variables were excluded from subsequent analyses.

Table 44

List of Independent Variables

Variable Name	Definition of Variables
1. ELD	Percentage elderly head of households in the project
2. ELDDUMMY	A dummy variable = 1 if project is an elderly one, = 0 otherwise
3. BWINCOME	Ratio of African American to white per capita income
4. CBLACKRT	Percentage tract African-American population
5. CWOHSRT	Percentage of adults without high school diploma
6. MED90	Median household income at Standard Metropolitan Statistical Area (SMSA) level in 1990
7. MULTRACE	A dummy variable = 1 if PHA tenants are of mixed racial groups
8. PCTBLMSA	Percentage African-American households in the SMSA
9. PCTBLPHA	Percentage African-American head of households in the PHA
10. PHRATE	Percentage of tract households in public housing
11. POVERTY	Percentage of project households with an income below poverty level
12. PROJAGE	Age of the project
13. PROJUT	Number of housing units in the project (in hundreds of units)
14. TOTINC	Average household income at the project level
15. TOTUTS	Number of housing units in the entire PHA (in hundreds of units)
16. WAGES0	Percentage head of households in Public Housing with no earned wages
17. WBSEG90	White/African-American segregation index in 1990 for the SMSA

Nine of the 12 included variables shown in Table 45 are significant at the .05 level.

- The percentage of African-American heads of households in the PHA is the most important variable. The parameter estimate suggests that the segregation score in a PHA increases by 0.24 for every 1-percent increase in the PHA's African-American households. In other words, if the African-American population of a PHA increases by 10 percent (holding everything else constant), the segregation level of that PHA increases by 2.4 points.

The estimated values of the remaining eight significant variables are listed in order of their relative importance to the regression model. In all cases (except for the percentage of African-American households in the MSA), the sign of the significant variables is consistent with expectations.

- The relative size of a PHA, as reflected by the total number of units, is the second important explanatory variable. Every additional 10,000 units in a PHA increases the segregation level by 1 point.
- The overall segregation level of the metropolitan area has a considerable impact on the segregation level of a PHA. As shown in Table 45, African-American and white segregation in a PHA increases by .26 point for every additional point in the MSA index of African-American and white residential dissimilarity.
- The presence of elderly projects within a PHA has a positive and significant impact on the segregation level of a PHA; a PHA with a relatively high number of elderly projects can be expected to be more segregated than a PHA with a relatively low number of elderly projects.
- The average household income at the project level also seems to be important in determining the segregation level of the PHA. As the average household income at the project level increases, the African-American and white segregation of the PHA also increases. For every \$10,000 increase in the average income of the project households, the segregation score increases by 5 points.

Table 45

Segregation Index for PHAs: Results of the First Regression Model

Dependent Variable: Segregation Index for PHA

Summary Results:

F-value	= 105.30	R-Square	= .2317
Significant F	= 0.0	Adjusted R-Square	= .2295

Independent Variables	Rank	Parameters	Standard Error	T-Ratio
PCTBLPHA	1st	0.2382**	0.0119	20.070
TOTUTS	2d	0.0001**	0.0000	12.325
WBSEG90	3d	0.2630**	0.0292	9.015
ELDDUMMY	4th	3.9309**	0.8993	4.371
TOTINC	5th	0.0005**	0.0002	3.132
PCTBLMSA	6th	-0.1147**	0.0292	-3.926
WAGES0	7th	0.0531**	0.0204	2.598
PROJAGE	8th	0.0752**	0.0221	3.397
PROJUT	9th	0.0025*	0.0010	2.451
MULTRACE	10th	-1.8014	1.1683	-1.542
POVERTY	11th	0.0086	0.0018	0.483
MED90	12th	-0.0001	0.0001	0.713
Intercept Term		13.1055**	3.7706	3.476

**Significant at 0.01 level.

*Significant at 0.05 level.

Contrary to expectations, the higher the percentage of African-American households in the metropolitan area, the lower the segregation level of the PHA. At this point, no persuasive explanation for this result appears; however, when other census or neighborhood variables are included in the regression model, this variable is no longer significant.

- A high level of segregation is also associated with a higher proportion of heads of households who have no earned wage income. (This variable is also positively correlated with the percentage of elderly head of households in projects.)

- Older projects also appear to be more segregated than newer ones. The parameter estimate suggests that segregation index increases by .07 of 1 point for each additional year after the first date of the project occupancy. For example, a 50-year-old project is expected to have a segregation score approximately 3.5 points higher than a similar project built 1 year ago.
- The last significant variable shown in Table 45 is project size, as measured by the number of units in the project. Every additional 100 units in a project increases the segregation index by .25 of 1 point.

The last three variables, which are not significant in explaining segregation score variations across PHAs, are (1) the poverty rate of public housing projects, (2) PHAs with multirace residents, and (3) the median household income at the MSA level.

Results of the Regression on the Small Sample of PHAs, Including Data on the Neighborhood Characteristics of Public Housing Projects

While the first regression model above suggested significant variables that might affect the level of African-American and white segregation across PHAs, the relatively low R-Square (.23) clearly suggested the need to search for a more persuasive and analytically sound set of data and variables for an additional regression model. A second regression model was therefore formulated, which includes neighborhood characteristics of public housing projects.

A variety of neighborhood variables was examined through a series of different regression analyses. This section of the report presents only the results of the final variables used in predicting the level of African-American and white segregation of PHAs, including census variables.¹⁸

Table 46 presents the results of the second regression model. Seven of nine included variables are significant at .05 level. The estimated values of all variables are listed in order of their relative importance to the regression model.

- The most important explanatory variable in this regression model is the index of African-American and white residential dissimilarity of the MSA. The parameter estimate suggests that the segregation score in a PHA increases by 0.5 points per 1 point increase in the MSA segregation score. In other words, if the MSA index of dissimilarity increases by 1 point (holding everything else constant), the segregation level of the corresponding PHA increases by 0.5 points.
- The second important factor in determining the segregation level of a PHA is the proportion of African Americans within a PHA's population. The parameter estimate reveals that the higher the percentage of African-American households living in the PHA, the higher the segregation index for that PHA; a 10-percent increase in the number of African-American households increases the segregation index by 1.2 points.
- The size of a PHA is the third most important variable in this model. The parameter estimate (the same as it was in the first model) indicates that for every additional 10,000 units in a PHA the segregation index rises by 1 point.
- Since the size of a PHA is partially related to the size of its projects, the relative size of a project (number of households living in public housing/total number of households in the census tract) was

also entered into the regression model. The relative size of the project also positively affects the level of segregation. Table 46 shows that a 1-percent increase in the relative size of the project increases the PHA segregation index by .07 point.

- As expected, a higher percentage of elderly heads of households in public housing projects contributes to a higher African-American and white segregation index for the PHA.
- The population composition of the census tracts that contain public housing projects also contributes to the segregation level of a PHA. The higher the percent of the African-American population within the census tract, the higher the PHA segregation score. The magnitude of the impact is quite low, however.
- The educational level of the adult population in the census tract also affects the PHA segregation level; a 10-percent increase in the number of adults without a high school education increases the PHA segregation index by .75 point. The lower the level of education, the higher the segregation.
- Project age and the ratio of African-American to white per capita income proved to be insignificant in determining variations of PHA segregation index.

Table 46

Results of the Second Regression Model

Dependent Variable: Segregation Index for PHA

Summary Results:

F-value = 75.80 R-Square = .3925
 Significant F = 0.0 Adjusted R-Square = .3873

Independent Variables	Rank	Parameters	Standard Error	T-Ratio
WBSEG90	1st	0.5014**	0.0420	11.942
PCTBLPHA	2nd	0.1222**	0.0200	6.094
TOTUTS	3rd	0.0001**	0.0000	6.860
ELD	4th	0.0674**	0.0145	4.641
CBLACKRT	5th	0.0498**	0.0185	2.692
CWOHSRT	6th	0.0756*	0.0307	2.463
PHRATE	7th	0.0776*	0.0397	1.955
PROJAGE	8th	-0.0409	0.0376	-1.090
BWINCOME	9th	-0.3645	0.8460	-0.431
Intercept Term		8.7138**	2.7866	3.127

**Significant at 0.01 level.

*Significant at 0.05 level.

In general, the results of the second regression model, with some neighborhood characteristics of public housing projects included, confirms the result of the first regression equation for which a large sample of PHAs without census tract information was used. These two regression models clearly demonstrate that any increase in the following factors can significantly increase the level of African-American and white segregation in public housing agencies:

- The segregation level of the metropolitan area.
- Percentage of African Americans (head of households) in the PHA.
- The size of the PHA.
- The number of elderly units.
- The size of the projects (whether relative size or absolute size).
- Percentage of adults without high school education in the census tract.

According to these outcomes, the segregation level within public housing is strongly related to the segregation level of the metropolitan area as a whole, with no ability to ascertain whether public housing segregation helped to initially cause the segregation within the overall housing market. The results also suggest that segregation can be more readily reduced within smaller projects and PHAs.

The relatively modest levels of explained variance nevertheless suggest that many determining influences have not been captured in this analysis, and additional data collection and model specification are clearly required.

XI. Conclusions

Understanding why and under what conditions local patterns of racial concentration exist is essential information for appreciating the need for fair housing antidiscrimination practices and the need for strategic, long-term planning by Federal, State, and local governments to address patterns of racial and economic isolation of residents.

This report offers the first systematic, if preliminary, look at the degree and forms of racial and economic isolation of residents currently living in traditional low-rent public housing developments throughout the United States. The data draw upon recent MTCS and decennial census information to offer a statistical portrait of the racial and economic condition of residents and the communities in which they are living.

The data confirm that African-American residents living in family projects are housed in segregated projects in severely poor neighborhoods. Elderly projects and their residents fare better in that the degree of racial and economic isolation is less pronounced. The sharpness of this difference is recorded in regression findings indicating the powerful importance of project type—family or elderly—in determining its racial and economic isolation.

The principal finding of this report is that the majority of African Americans living in public housing projects in the United States are living in poverty-concentrated areas, while the majority of public housing white tenants—both families and the elderly—are living in neighborhoods with substantially lower poverty rates.

A corollary finding is, however, that more than half of family developments are located in nonpoor communities. Not all of the stereotypes about public housing are consistently correct; there are enough exceptions to seek to learn more about the reasons for their placement and tenancing. The selective declines in the level of segregation that appear are also somewhat promising in that in those declines may be a message that progress in desegregation is possible.

The report also clearly shows that the segregation of public housing is comparable to, if not caused by, the degree of racial segregation that exists throughout the surrounding metropolitan area. High levels of racial isolation within public housing developments is closely paralleled by the segregation of African Americans throughout the entire housing market.

This study also amply demonstrates that additional research and model specification is required to develop explanations of patterns and differences that have both social scientific and policy relevance. Better measures of the concentration or isolation of tenants are required that avoid the limitations of

conventional measures of the index of dissimilarity. In addition, clearer insights into the differences between African-American and Hispanic public housing tenants might offer useful insights into the management of economic and poverty impaction.

Appendix A

Median Housing Values

The median housing prices at the tract level are shown in Table B.7 and reveal that the median housing value is \$51,000 for the census tracts within which projects are located.

Number of Bedrooms and Household Size

A two-bedroom unit represents the average number of rooms in a public housing unit, which corresponds to the average household size of 2.7 across projects.

Public housing projects are distinguished by their designs either as elderly projects or as family projects. Approximately 29 percent of all units are designed for elderly families, but 35 percent of households (head of households) are elderly. Disabled or handicapped heads of households represent only about 14 percent of all households in projects.

Distribution of Projects Within States

More than 3,200 Public Housing Agencies (PHAs) are administrating more than 1.2 million public housing units within 14,814 projects across the United States. The first 10 States with the highest number of public housing units are as follows:

1. New York	154,417 units
2. Pennsylvania	80,808 units
3. Illinois	73,880 units
4. Texas	66,200 units
5. Ohio	59,511 units
6. California	45,719 units
7. New Jersey	45,479 units
8. North Carolina	45,318 units
9. Georgia	42,013 units
10. Tennessee	<u>41,244 units</u>
Total	654,589 units

Approximately 53 percent of all public housing units are located in these 10 States, and the rest are scattered in the other 40 States and the District of Columbia.

Table A.1

Where the Typical African-American Head of Household Lives

Public Housing Project Design	(% Within Each Row)					(% Within Each Row)					
	% Head of Households in HUD Developments That Are					% of Households in the Census Tracts					
	White	African American	Hispanic	Employed	SFWC ¹	Poverty	White	African American	Hispanic	Employed	Poverty
All Projects ⁴	12	81	5	21	44	75	28	65	5	82	44
Family ²	8	85	6	24	51	79	25	68	6	81	47
Elderly ³	24	69	6	12	23	64	41	52	5	84	36

Table A.2

Where the Typical White Head of Household Lives

Public Housing Project Design	(% Within Each Row)					(% Within Each Row)					
	% Head of Households in HUD Developments That Are					% of Households in the Census Tracts					
	White	African American	Hispanic	Employed	SFWC ¹	Poverty	White	African American	Hispanic	Employed	Poverty
All Projects ⁴	72	19	6	15	21	52	79	13	5	90	24
Family ²	61	27	9	25	43	70	76	15	6	89	27
Elderly ³	80	14	4	8	8	41	82	10	5	91	21

¹SFWC stands for single female (head of household) with children.

²Tracts with family developments only.

³Tracts with elderly developments only.

⁴All tracts (any type developments, including mixed family and elderly projects).

Table A.3
Where the Typical Hispanic Head of Household Lives

Public Housing Project Design	% Head of Households in HUD Developments That Are					% Within Each Row					
	White	African American	Hispanic	Employed	SFWC ¹	Poverty	White	African American	Hispanic	Employed	Poverty
All Projects ⁴	18	18	52	31	30	61	36	19	39	85	34
Family ²	12	27	56	36	33	64	32	20	41	85	35
Elderly ³	31	23	43	19	21	53	47	17	32	88	29

¹SFWC stands for single female (head of household) with children.

²Tracts with family developments only.

³Tracts with elderly developments only.

⁴All tracts (any type developments, including mixed family and elderly projects).

Appendix B

Table B.1
Average Household Income at the Project Level
(Public Housing)

Average Income	%	Cumulative %
\$0	2	2
\$1-\$4,000	1	3
\$4,001-\$6,000	17	20
\$6,001-\$8,000	32	52
\$8,001-\$10,000	22	74
\$10,001-\$12,000	15	89
\$12,001-\$15,000	7	96
> \$15,000	4	100

Median = \$7,950 Mean = \$8,450

Table B.2
Average Household Income
(Census Tract)

Average Income	%	Cumulative %
\$5,000-\$10,000	11	11
\$10,001-\$15,000	17	28
\$15,001-\$20,000	23	51
\$20,001-\$25,000	20	71
\$25,001-\$30,000	12	83
\$30,001-\$35,000	8	91
\$35,001-\$40,000	5	95
\$40,001-\$45,000	3	98
\$45,001-\$50,000	1	99
> \$50,000	1	100

Median = \$20,000 Mean = \$21,100

Table B.3

**Average Household Earned Wages
(Public Housing)**

Average Household Wages at the Project Level	% of Projects	Household Earned Wages	% of House- holds
\$0	6	\$0	79
\$1-\$2,000	39	\$1-\$5,000	4
\$2,001-\$4,000	26	\$5,001-\$10,000	8
\$4,001-\$6,000	12	\$10,001-\$15,000	5
\$6,001-\$8,000	10	\$15,001-\$20,000	2
\$8,001-\$10,000	3	\$20,001-\$25,000	1
\$10,001-\$12,000	2	\$25,001-\$30,000	0.5
> \$12,000	2	> \$30,000	0.5
Total	100%	Total	100%

Median = \$2,360

Table B.4

**Sources of Income
(Public Housing)**

Source of Income	% Households Receive	% Households Not Receive	Average Income For Recipients
Wages	21	79	\$11,780
Social Security	43	57	\$5,800
Public Assistance	44	56	\$4,950
Asset Income	12	88	\$540
Other Income	13	87	\$120

Table B.5

**Number of Children Per Household
(Public Housing)**

Average Number of Children at the Project Level	%	Number of Children	Number of Households	%
Less than 1.00	40	0	565,929	52.02
1.00 to 1.50	21	1	169,565	15.59
1.51 to 2.00	19	2	163,042	14.99
2.01 to 3.00	17	3	106,230	9.77
3.01 to 7.00	3	4	49,909	4.59
Total	100%	5 or more	33,120	3.04
		Total	1,087,795	100%

Table B.6
Average Age of Head of Household
(Public Housing)

Average Age	Elderly Projects		Family Projects	
	%	Cumulative	%	Cumulative
20-30	0	0	2	2
31-40	6	6	55	57
41-50	25	31	33	90
51-60	21	52	7	97
61-70	22	74	2	99
71-75	19	93	1	100
> 75	7	100	0	100

Median = 59 Mean = 40

Table B.7
Median Housing Price
(Census Tracts with Public Housing)

Median Housing Price	% Tracts With Public Housing	Cumulative %
Missing Cases	3	3
\$15,000-\$30,000	12	15
\$30,000-\$40,000	18	33
\$40,000-\$50,000	16	49
\$50,000-\$60,000	12	61
\$60,000-\$70,000	9	70
\$70,000-\$80,000	6	76
\$80,000-\$90,000	4	80
\$90,000-\$100,000	3	83
\$100,000-\$150,000	9	92
\$150,000-\$200,000	5	97
> \$200,000	3	100

Table B.8

**Household Size
(Public Housing)**

Average Household Size at the Project Level (Persons)	% of Projects	% of Household Members	Number of Households	% of Households
1.01-1.50	25	1	452,279	41.64
1.51-2.00	8	2	204,257	18.81
2.01-2.50	14	3	172,843	15.91
2.51-3.00	18	4	127,281	11.72
3.01-3.50	14	5	70,199	6.46
3.51-4.00	10	6 or more	59,305	5.46
4.01-4.50	5	Total	1,086,164	100%
4.51-5.00	3	Mean = 2.7		
5.01-9.00	3			

Table B.9

**Household Size
(Family Projects)**

Average Household Size at the Project Level (Persons)	% of Projects	Number of Household Members	Number of Households	% of Households
1.01-1.50	2.6	1	136,820	22.47
1.51-2.00	2.4	2	139,817	22.97
2.01-2.50	10.8	3	133,174	21.87
2.51-3.00	23.1	4	98,626	16.20
3.01-3.50	29.6	5	54,492	8.95
3.51-4.00	16.7	6 or more	45,894	7.54
4.01-4.50	10.1	Total	608,823	100%
4.51-5.00	2.3	Mean = 2.9		
5.01-9.00	2.4			

Table B.10

**Household Size
(Elderly Projects)**

Average Household Size At the Project Level (Persons)	% of Projects	Number of Household Members	Number of Households	% of House- holds
1.01-1.50	52.3	1	315,459	66.09
1.51-2.00	10.4	2	64,440	13.50
2.01-2.50	14.6	3	39,669	8.31
2.51-3.00	9.7	4	28,665	6.00
3.01-3.50	5.0	5	15,707	3.29
3.51-4.00	6.2	6 or more	13,411	2.81
4.01-4.50	1.8	Total	1,086,164	100%
4.51-5.00	0	Mean = 1.75		
5.01-9.00	0			

Table B.11

Total Tenant Payment (Monthly)

Average TTP at the Project Level	% of Projects	TTP	Number of Households	% of Households
\$0-\$50	1.5	\$0	52,030	4.8
\$51-\$100	9.5	\$1-\$99	263,380	24.2
\$101-\$150	39.0	\$100-\$199	509,331	46.8
\$151-\$200	29.0	\$200-\$299	156,135	14.4
\$201-\$250	11.0	\$300-\$399	58,107	5.3
\$251-\$300	4.5	\$400-\$499	25,588	2.4
\$301-\$350	1.5	\$500-\$599	9,533	0.9
\$351-\$400	1.5	\$600-\$699	4,474	0.4
\$401 & OVER	2.5	\$699 & OVER	9,217	0.8
Total	100%	Total	1,087,795	100%

Median TTP = \$151 Mean TTP = \$177

Source: MTCS Data-File, June 1993

Table B.12

**Number of Bedrooms per Unit
(Public Housing)**

Average Number of Bedrooms at the Project Level	%	Number of Bedrooms	Number of Units	%
Less than 1.00	13	0	114,050	10.48
1.01 to 1.50	17	1	353,454	32.49
1.51 to 2.00	14	2	295,823	27.20
2.01 to 2.50	26	3	243,748	22.41
2.51 to 3.00	17	4	66,938	6.15
3.01 to 3.50	9	5 or more	13,782	1.27
3.51 to 5.00	4	Total	1,087,975	100%

Mean = 2.00

Table B.13

Distribution of PHAs, Public Housing Projects, and Their Units by States

STATE	# OF PHAS	# OF PROJ.	P.H. UNITS	STATE	# OF PHAS	# OF PROJ.	P.H. UNITS
Alabama	147	603	4,243	Montana	14	166	5,690
Alaska	13	273	5,366	Nebraska	98	163	8,127
Arizona	29	379	15,281	Nevada	14	107	5,616
Arkansas	108	259	15,291	New Hamp.	15	62	4,325
California	72	771	45,719	New Jersey	77	328	45,479
Colorado	46	174	9,726	New Mexico	37	257	7,378
Connecticut	32	176	20,730	New York	83	536	154,417
Delaware	5	34	3,285	N. Carolina	100	474	45,318
D.C.	1	64	11,281	N. Dakota	20	92	4,181
Florida	79	466	33,724	Ohio	53	547	59,511
Georgia	195	849	42,013	Oklahoma	119	577	25,126
Hawaii	1	60	5,008	Oregon	20	132	6,159
Idaho	13	39	1,366	Pennsylvania	82	674	80,808
Illinois	98	769	73,880	R. Island	24	101	9,207
Indiana	40	207	19,962	S. Carolina	41	248	16,886
Iowa	46	90	4,517	S. Dakota	35	151	6,399
Kansas	95	171	9,245	Tennessee	86	473	41,244
Kentucky	104	314	25,168	Texas	318	956	66,200
Louisiana	95	347	34,306	Utah	13	82	2,439
Maine	23	94	4,502	Vermont	8	33	1,840
Maryland	23	146	24,684	Virginia	29	183	22,941
Mass.	62	271	36,230	Washington	42	314	19,305
Michigan	123	326	30,136	W. Virginia	32	85	7,352
Minnesota	121	331	22,672	Wisconsin	103	277	17,021
Mississippi	54	263	16,163	Wyoming	10	40	1,377
Missouri	106	280	21,646	Total	3,204	14,814	1,238,490

Table B.14

States Located in Each HUD Region

Region 1: New England

Connecticut
Massachusetts
New Hampshire
Rhode Island
Vermont

Region 2: New York/New Jersey

New Jersey
New York

Region 3: Mid-Atlantic

Delaware
Maryland
Pennsylvania
Virginia
West Virginia

Region 4: Southeast

Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee

Region 5: Midwest

Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

Region 6: Southwest

Louisiana
New Mexico
Oklahoma
Texas

Region 7: Great Plains

Iowa
Kansas
Missouri
Nebraska

Region 8: Rocky Mountain

Colorado
Montana
North Dakota
South Dakota
Utah
Wyoming

Region 9: Pacific/Hawaii

Arizona
California
Hawaii
Nevada

Region 10: Northwest/Alaska

Alaska
Idaho
Oregon
Washington

Table B.15

African American and White Dissimilarity Among Public Housing Projects
(For PHAs With Less Than 500 Units)

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA HOUSE-HOLDS	SEGREGATION INDEX	REPLACEMENT INDEX	% PHA BLACK	% SMSA BLACK
LA	KENNER	2	23.00	1.00	.18	70	36
TX	TAFT	2	28.00	1.00	.22	7	NA
GA	GLENNVILLE HA	7	175.00	.95	.14	81	24
NJ	EDISON HA	2	149.00	.94	.23	58	6
GA	FT VALLEY HA	2	105.00	.92	.17	75	39
NY	LACKAWANNA HA	3	490.00	.92	.16	72	11
NY	NEPTUNE HA	6	333.00	.91	.23	50	5
NY	NORTH HEMPSTEAD HA	2	15.00	.91	.18	73	6
GA	CORDELE HA	6	56.00	.91	.03	95	24
AL	EUFAULA HA	5	349.00	.90	.20	67	22
GA	WASHINGTON HA	5	136.00	.88	.04	96	24
GA	MANCHESTER HA	2	78.00	.88	.19	68	24
GA	ELBERTON HA	6	195.00	.88	.18	71	24
AZ	PEORIA	2	71.00	.88	.10	8	3
NJ	HIGHLAND PARK HA	2	136.00	.88	.04	5	6
GA	COCHRAN HA	3	76.00	.87	.22	50	24
MA	TAUNTON HA	5	363.00	.86	.12	13	4
NC	MOORESVILLE	3	127.00	.86	.19	65	20
FL	TITUSVILLE HA	6	298.00	.84	.21	47	6
MS	AMORY HA	2	122.00	.84	.16	74	31
CT	ANSONIA HA	5	100.00	.83	.19	58	12
AL	ONEONTA HA	5	205.00	.83	.05	6	31
GA	FITZGERALD HA	6	237.00	.82	.18	66	24
TX	KINGSVILLE	5	102.00	.82	.20	10	11
GA	STEWART COUNTY HA	5	79.00	.81	.10	85	24
GA	COMMERCE HA	2	69.00	.81	.19	38	25
GA	HAWKINSVILLE HA	3	71.00	.80	.05	93	24
MS	GREENWOOD HA	6	384.00	.80	.06	92	31
GA	COMER HA	2	33.00	.80	.19	39	25

PHAs are rank ordered by the degree of dissimilarity or the segregation index.
Source: Data from MTCSS 1993 and Census 1990 have been used to calculate all indexes.

Table B.16

Hispanic and White Dissimilarity Among Public Housing Projects
(For PHAs With Less Than 500 Units)

STATE CODE	PHA NAME	TOTAL PROJECTS	PHA HOUSE- HOLDS	SEGRE- GATION INDEX	REPLACE- MENT INDEX	% PHA BLACK	% SMSA BLACK
TN	SHELBYVILLE HA	7	18.00	.91	.07	6	0
WA	SUNNYSIDE HA	3	94.00	.91	.20	66	9
TX	ARANSAS PASS	2	13.00	.86	.21	38	20
MA	TAUNTON HA	5	363.00	.86	.18	26	4
NY	LACKAWANNA HA	3	490.00	.83	.16	7	2
MA	NORTHAMPTON HA	2	101.00	.83	.18	30	4
MN	WILLMAR	3	179.00	.82	.12	18	1
NY	WATERVLIET HA	5	327.00	.82	.20	42	2
TX	BAIRD	3	41.00	.82	.06	7	20
TX	WAXAHACHIE	2	145.00	.81	.16	40	11
CT	NEW LONDON HA	2	156.00	.81	.18	26	5
WA	KITTITAS COUNTY HA	3	31.00	.80	.02	3	3
NM	WAGON MOUND	2	23.00	.79	.11	83	33
TX	SAVOY	3	20.00	.79	.04	5	20
TX	PADUCAH	2	29.00	.79	.19	31	20
NY	MONTICELLO HA	2	93.00	.78	.19	26	10
PA	BERKS CO HA	8	219.00	.76	.04	5	3
TX	MOODY	3	67.00	.75	.04	4	12
TX	HOWE	2	13.00	.75	.05	8	2
TX	PHARR	5	33.00	.75	.02	97	77
WI	DANE COUNTY HA	4	91.00	.75	.03	3	1
GA	LEE COUNTY HA	7	122.00	.74	.06	4	1
WI	BELOIT CDA	4	139.00	.74	.06	4	1
NJ	PENNS GROVE HA	2	121.00	.73	.12	12	NA
OR	POLK COUNTY HA	6	393.00	.73	.04	6	4
CT	GREENWICH HA	3	287.00	.72	.08	9	11
CT	WILLIMANTIC HA	3	280.00	.72	.16	31	5

PHAs are rank ordered by the degree of dissimilarity or the segregation index.

Source: Data from MTCS 1993 and Census 1990 have been used to calculate all indexes.

Table B.17

**Comparison of Hispanic and White Segregation Indexes
Among Public Housing Projects
by Project Design: Selected PHAs (1977 vs. 1993)**

PHA Name	State	Segregation Index in 1977 ¹⁹		Segregation Index in 1993	
		All Family	Total	All Family	Total
Chicago HA	IL	.30	.78	.46	.57
Dallas HA	TX	.38	.58	.33	.63
Ft. Worth HA	TX	.38	.58	.59	.60
Houston HA	TX	.64	.68	.28	.48
Los Angeles HA	CA	.73	.69	.39	.42
New York HA ²⁰	NY	.47	.55	.69	.69
San Francisco	CA	.51	.44	.25	.49
Average		.49	.61	.43	.55

Indexes for 1993 calculated using data from MTCS Data File 1993.

Table B.18

Tract Poverty Rate and Hispanics

Classification of Hispanics	Correlation	R ²	Standard Error	Sig. Level
% Tract Hispanic	.165	.027	16.2	.000
% P.H. Project Hispanic	.021	.000	16.4	.000
% Elderly Project Hispanic	.158	.025	15.3	.000
% Family Project Hispanic	-.048	.002	16.7	.000

Table B.19

A Sample of Low Reporting Rate into MTCs by New York Housing Authority

Project Code	1977				1993		
	Total Households	% White	% African American	Total Households	% White	% African American	
NY005001	2522	5.43	75.52	89	1.12	62.92	
NY005003	1525	40.85	13.31	82	18.29	17.07	
NY005004	444	1.58	96.85	18	5.56	88.89	
NY005005	1163	6.88	53.48	86	0.0	41.86	
NY005006	1155	4.59	92.29	393	0.76	94.40	
NY005007	401	35.16	35.91	137	13.14	37.23	
NY005008	1188	11.62	19.95	150	4.0	16.00	
NY005009	357	21.29	75.07	122	10.66	69.67	
NY005010	1524	0.13	96.52	343	0.87	92.13	

Table B.20
Public Housing Projects and Percentage Tract Households in Projects
(All Units)

% Tract Households in Project	% Head of Households in HUD Projects That Are (% Within Each Row)								% of Public Housing Units	% of Tract Households
	White	Black	Hispanic	Employed	SFWC ¹	Elderly	Poverty			
< 5	45	36	16	30	38	28	62	19	62	
5-10	42	41	14	23	32	37	59	19	19	
10-20	37	50	10	22	32	34	64	22	11	
20-30	20	70	8	23	39	27	68	12	4	
30-40	17	73	7	23	38	26	69	7	2	
40-50	8	81	9	21	40	22	76	5	1	
50-60	33	52	14	22	34	25	70	3	*	
60-70	19	66	9	17	36	23	77	3	*	
> 70	14	80	5	16	41	19	82	10	1	

¹SFWC stands for single female (head of household) with children.

*Less than .5 percent.

Table B.21

Public Housing Projects and Percentage of Tract Households in Projects
(Family Units¹)

% Tract Households in Project	% Head of Households in Family Projects That Are (% Within Each Row)							% of Family Units	% of Tract Households
	White	Black	Hispanic	Employed	SFWC ²	Elderly	Poverty		
< 5	35	42	19	38	50	12	69	20	68
5-10	21	56	20	32	47	15	71	16	15
10-20	24	61	13	29	42	19	71	20	9
20-30	11	80	7	27	48	16	75	14	4
30-40	10	79	8	27	44	20	70	8	2
40-50	5	81	13	24	49	17	77	5	1
50-60	23	60	16	29	45	20	72	3	*
60-70	16	68	10	17	44	12	82	3	*
>70	11	82	7	19	45	13	83	11	1

¹Census tracts with family projects only.

²SFWC stands for single female (head of household) with children.

*Less than .5 percent.

Table B.22
Public Housing Projects and Percentage Tract Households in Projects
(Elderly Units¹)

% Tract Households in Project	% Within Each Row							% of Elderly Units	% of Tract Households
	% Head of Households in Elderly Projects That Are				% Within Each Row				
	White	Black	Hispanic	Employed	SFWC ²	Elderly	Poverty		
<5	63	23	12	15	17	57	50	21	60
5-10	67	24	7	12	12	65	44	25	24
10-20	58	32	6	11	16	58	53	23	11
20-30	44	45	10	12	18	51	54	11	3
30-40	40	49	6	15	19	36	65	6	1
40-50	20	77	2	15	13	38	71	3	*
50-60	52	46	2	12	24	42	64	3	*
60-70	23	62	8	17	23	39	68	3	*
>70	26	70	3	6	28	32	79	5	*

¹Census tracts with elderly projects only.

²SFWC stands for single female (head of household) with children.

*Less than .5 of one percent.

Endnotes

1. Copies of the MTCS and HUD Form 951 data described herein are available from HUD USER, which can be reached by calling 1-800-245-2691.
2. Most research on public housing racial isolation is limited by the absence of data covering multiple time periods that can be matched to comparable information for the entire market to detect causal differences and to rule out simultaneous causal influences. This defect is not corrected herein because of this report's reliance on 1993 MTCS and 1990 Census data.
3. Data for Indian housing agencies have been excluded from this analysis as have data on large clusters of Native Americans living outside Indian housing agencies.
4. For a discussion of the limitations of HUD's data systems see "Availability and Applicability of Information and Data Relating to Housing and Local Markets." Hearing before the Housing Subcommittee on Policy Research and Insurance, Committee on Banking, Finance and Urban Affairs. (May 22, 1990). Serial No. 101-125. Washington, DC: GPO. See also "HUD Information Resources: Strategic Focus and Improved Management Controls Needed." GAO/AIMD-94-34. (April 1994). Washington, DC: GAO.
5. Source: *U.S. Housing Market Condition*, Office of Policy Development and Research, U.S. Department of Housing and Urban Development, page 45, 4th Quarter, 1993 ed.
6. "Percent employed" refers to percent heads of households in public housing projects who are wage earners (either full-time or part-time).
7. "Percent poverty" is defined as percentage of households in public housing projects with an income that falls below poverty-level income. A poverty-level income varies from household to household, depending on the number of members and the number of dependents in each household.
8. "Percent elderly" is defined as percentage of heads of households in public housing developments who are 62 or older.
9. There are only .6 percent American-Indian heads of households in the database, which are mostly located in the States of Arizona, California, Oklahoma, Washington, and Wisconsin.
10. Elderly projects do not necessarily house elderly households within all the units.
11. The index of dissimilarity is not influenced by the relative sizes of the African-American population or white population or the presence of other races (Zoloth 1976). For further details regarding the index of dissimilarity, see Duncan and Duncan 1955; Jakubs 1979; Massey and Denton 1988; and White 1986.

12. A complete list of segregation indexes for all PHAs (in 1993) is available upon request.
13. Not all 50058 forms have been returned from PHAs.
14. Source: Bickford, Adam and Massey, Douglas S. (1991). "Segregation in the Second Ghetto: Racial and Ethnic Segregation in American Public Housing, 1977." *Social Forces*. 69:4, (1,011-1,036).
15. Source: Bickford, Adam and Massey, Douglas S. (1991). "Segregation in the Second Ghetto: Racial and Ethnic Segregation in American Public Housing, 1977." *Social Forces*. 69:4, (1,011-1,036).
16. Each PHA includes at least 3-percent African-American and at least 3-percent white households.
17. The white versus African-American indexes of dissimilarity for 313 SMSAs in 1980 and 1990 were calculated by Professor Reynolds Farley using census block data and provided to the authors. We are extremely grateful to Dr. Farley for providing this valuable data set.
18. Regional location was again tried but found to be nonsignificant. Other variables that failed to prove to be significant were the level of vacancies within the PHA, the level of Fair Market Rents (FMRs) in the metropolitan area, the median income of the SMSA, and whether or not the PHA contained a multi-ethnic composition, including other than whites and African Americans in tenancy.
19. Source: Bickford, Adam and Massey, Douglas S. (1991). "Segregation in the Second Ghetto: Racial and Ethnic Segregation in American Public Housing, 1977." *Social Forces*. 69:4, (1,011-1,036).
20. New York Housing Authority has reported only about 17 percent of its occupancy data to MTCS as of June 1993. Therefore, segregation indexes for 1993 do not reflect the entire PHA.

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