**Small Area Data Quality: A Comparison of Estimates
2000 Census and the 1999-2001 ACS
Bronx, New York Test Site**

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Section One: Introduction

The decennial census long form, which is sent to approximately one-in-six households, has been the primary source of small area social and economic data used by local policy makers, program planners, and service providers. However, given the increasing pace of change in many communities, the provision of data once every ten years has become a serious handicap for local officials. This has led the Census Bureau to pilot test a continuous measurement program, known as the American Community Survey (ACS), that will provide socioeconomic data throughout the decade using a census-style long form (Alexander, 2000; Prewitt, 2000; National Research Council, 2001). The ACS is being currently tested in 36 counties across the nation and is expected to be fully operational in 2004, when it will have a monthly sample of 250,000 addresses and cover every county in the U.S. Data from the 12 monthly samples would be averaged to derive annual estimates, compared to the single point-in-time (April 1) snapshot provided by the decennial census. The ACS would provide more timely data, with slightly higher levels of sampling variability (Alexander, 2002). As plans currently stand, 2010 would be a short form only census that would obtain basic demographic information for the purposes of reapportionment and redistricting. Socioeconomic data for small areas would be available exclusively from the ACS.

Given the proposed elimination of the census long form, data users have called on the Census Bureau to better demonstrate the effectiveness of ACS data collection methods at the small area level, which would attest to the overall quality of the program (Hernandez, 2001). In response, the Census Bureau has reached out to researchers familiar with the socioeconomic profile of neighborhoods in test sites, to help evaluate the ACS. The purpose of these studies is to evaluate whether the ACS can produce estimates for sub-county areas that are on par with those generated from the census long form. In this study, we ask whether estimates from the 1999-2001 ACS surveys produce a socioeconomic picture like that from the 2000 census in Bronx County, New York.

The Bronx Study Area

The Bronx is one of five counties (also known as boroughs) that comprise the City of New York and the only county of the city to be geographically connected to the mainland U.S. It is the 27th largest county in the U.S., in terms of population, with 1.3 million residents and 491,000 housing units enumerated in the 2000 census. If it were a city unto itself, it would be among the top ten cities in the U.S.

Originally part of Westchester County, the Bronx was incorporated as one of the five boroughs of New York City in 1898; two years later, the census recorded a population of 201,000 in the borough. Starting in 1904, with the development of subways lines out of Manhattan into what were then farm and estate areas north of the city, the Bronx opened to new housing development at a frantic pace. Immigrants, predominantly from Europe, were now finding their way into the borough as an alternative to densely populated Manhattan and Brooklyn. In just thirty years since

its incorporation into New York City, the population in the Bronx had soared to 1.3 million. In the following decades, the borough's population continued to increase due to the influx of African Americans and Puerto Ricans, reaching its peak of 1.5 million in 1970.

The 1970s saw the City of New York on the verge of fiscal insolvency, with the Bronx falling victim to large-scale housing abandonment and increasing crime. As a result, the pace of out-migration increased substantially: Between 1970 and 1980, the borough suffered a net loss of almost 300,000 residents, or about 20 percent of its population. In the 1980s, however, housing initiatives sponsored by not-for-profit community organizations and gut rehabilitation of abandoned buildings brought much of the housing stock back. As new housing opportunities greeted prospective residents, the borough began to gain population, especially through immigration. In the 1980s the population of the Bronx increased by 3 percent, to 1.2 million in 1990. The population growth gained momentum through the 1990s, increasing by 11 percent, to 1.3 million in 2000. Current estimates show the Bronx population continuing to increase on the heels of continued immigration, a youthful Hispanic population with high levels of natural increase, and new housing development.

While the large population and housing unit counts conjure up images of densely populated neighborhoods with an abundance of poor residents, such a characterization does not do justice to the level of demographic and socioeconomic diversity in Bronx neighborhoods. Sub-county analysis at the census tract level was not possible due to sample size constraints in the ACS, so data for 88 neighborhoods were aggregated from the borough's 355 census tracts. Neighborhood boundaries were based on the characteristics of areas and local knowledge of community boundaries (Map 1-1).While about two-thirds of Bronx housing is in buildings with more than five units that are occupied mostly by renters, there are many lower density areas with relatively high levels of owner-occupancy. As Map 1-2 shows, the borough's neighborhoods vary dramatically in population density, with areas to the south and west being especially dense, while many neighborhoods to the north and east are characterized by low density. As a percentage of total land area, the Bronx has more park land than any of the five boroughs of New York City. And, while it is true that the Bronx has neighborhoods that are among the poorest in the nation, with high levels of public assistance recipiency (Map 1-3)[1], there are many middle- and upper-income neighborhoods as well.

From a demographic stance, the Bronx is heavily Hispanic (48 percent) and black nonhispanic (31 percent), and both groups continue to increase at high rates. The white nonhispanic population has declined over the last decade, and makes up about 15 percent of the county's population. The median age of the Bronx is 31.2 years, three years lower than the city-wide median. There has been a considerable increase in younger age groups, particularly among Hispanic residents, while (white) elderly age groups are in decline. Eighty percent of the borough's occupied housing units are renter-occupied. In the past two decades, the Bronx has experienced a surge of immigrants, most notably from the Dominican Republic, Mexico, Jamaica and a plethora of other nations from South America, Africa, Asia and the Caribbean.

There is considerable variation in demographic characteristics across the Bronx. Neighborhoods in the south Bronx have very young populations that are heavily Hispanic. Conversely, there are many neighborhoods to the north and west that are distinctly older, a result an aging white population. Some neighborhoods contain populations with relatively low educational attainment, low levels of English language proficiency and high levels of poverty. In other places, higher levels of education and income are the norm. Given its demographic and socioeconomic diversity, the Bronx provides a challenge to even the most tried-and-true data collection systems.

Objectives of the Study

Despite its limitations and problems, the decennial census long form sample is still regarded by most as the "gold standard" for data at the county and sub-county levels. No other survey has the sample size, scope or breadth of material that the decennial census long form possesses. These data, provided every 10 years, are representative and comprehensive. With the advent of the ACS, we now have the opportunity to obtain a comprehensive view of county and sub-county areas more than once a decade -- if the American Community Survey's rolling sample can deliver on its promise to provide a picture at least as good as that provided by the decennial census long form.

With this in mind, the objectives of this analysis are:

1) To compare the quality of data for the two surveys, including measures of initial cooperation, overall unit nonresponse, and item-specific imputation.

2) To determine whether the socioeconomic and long form housing information on the ACS is similar to that provided by the decennial census (for roughly equivalent time points) at the county and sub-county levels. The focus is on meaningful differences between the two surveys, defined as statistically significant differences of over two percentage points at the county level. While tiny differences may be statistically significant, they often do not have a substantive impact in a "real world" setting. On the other hand, when a meaningful difference exists between a variable measured in the ACS and census, a planning study could come up with a dissimilar framework, depending on whether the variable used was from the ACS or census.

3) To examine the geographic pattern of differences by neighborhood and by other variables, including quality measures, that could shed light on the reasons for differences

4) To determine how the use of the ACS versus the decennial census sample affects real-life applications of neighborhood data related to City Planning. A case study of a City Planning-related application is used to determine whether use of the ACS instead of the census would result in substantive differences in program planning and targeting.

Following the introduction, this paper is divided into three sections: Section Two examines measures of data quality for the 1999-2001 ACS and the 2000 decennial census. The data quality measures used focus on nonresponse, which is a form of non-sampling error. These measures include the *mail return rate*, the *unit nonresponse rate*, and the *sample completeness ratio*. The mail return rate is an excellent measure of initial cooperation and refers to the percent of occupied housing units that mail back their questionnaires. The second indicator of data quality, the unit nonresponse rate, is a measure of the loss of housing units in the sample because households either failed to respond, or returned questionnaires with so little information that they were akin to blank questionnaires. The population sample completeness ratio measures the degree to which the sample represents the larger universe from which it was chosen. Finally, the level of *allocation* is examined for selected items. Allocation gauges the reliance of each survey on imputation procedures, a result of respondents failing to answer individual questions. Together, these measures indicate how effective each survey was at gathering data.

In Section Three, we turn to a comparison of the actual ACS and census estimates. A total of 235 data items, as well as 16 summary statistics, are divided into eight sections, each dealing with a major subject area. Each data item is percentaged on its given universe -- for example, the number of persons who speak a language other than English percentaged on the total population, ages 5 and over, or those driving to work percentaged on workers 16 years and over. The differences in the ACS and census percentages, and in the summary statistics, provide the basis for the overall borough analysis. In addition, percentages were calculated by neighborhood for the 235 data items, and where meaningful differences existed between the ACS and census, maps were created to better illustrate these neighborhood differentials. To help focus on the most egregious differences among the 235 data items, a matrix was developed that took into account both meaningful borough differences, as well as those at the neighborhood level.

Finally, in Section Four, a planning case study that requires the use of long form data is analyzed. We examine whether the use of ACS data in such a study would result in substantively different conclusions, compared to the use of 2000 census long form data.

This analysis uses a nine percent ACS sample for 1999-2001, yielding a total of about 24,000 households in the sample. These data are then compared to estimates derived from the more than 55,000 households in the 2000 census sample. Much of the focus is on how variables differ at the subcounty level in the ACS and census, since these differences are often masked when aggregated to the county level. While the sample size was not large enough for tract-level estimates, the ACS sample did permit us to divide the Bronx into 88 neighborhoods, capturing those critical differences in race, ethnicity, age and socioeconomic status that make it an ideal setting for comparing the two surveys.

Section Two: Measures of Data Quality in the Bronx Test Site

Borough

This section focuses on the evaluation of data quality in the ACS versus the decennial census. Measures pertaining to non-sampling error are the focus, in the form of error resulting from missing units or persons, or incomplete information from responding households. Four measures are used, with each yardstick providing a different perspective on how the surveys performed.

The mail return rate is expressed as the percent of occupied housing units that mailed back questionnaires. Table 2-1 shows that the average ACS mail return rate for the 1999-2001 period (36 percent) was much lower compared to the 2000 census (53 percent).[2] Further, the ACS rate in the Bronx dropped between 1999 and 2001, from 38 percent to 34 percent.

Unlike the mail return rate, which focuses on initial cooperation, the unit nonresponse rate is a measure of final cooperation. It is the percentage of households that failed to respond after repeated efforts at contact, or failed to provide enough information to be deemed eligible for inclusion in the sample from which estimates were derived.[3] The unit nonresponse rate for occupied housing units was far smaller in the ACS (11 percent) than in the decennial census (21 percent). Moreover, the unit nonresponse rate in the ACS did not waver in any meaningful way for each of the three survey years.

While mail return and unit nonresponse rates are useful measures of survey compliance, the population sample completeness ratio measures how well persons in the interview survey sample represent the updated decennial census population. While sample estimates of total population are controlled to the decennial census benchmark, if persons missed in a survey have different characteristics compared to those who respond, this can bias estimates of characteristics for subgroups. Sample completeness is gauged by dividing the ACS weighted population estimates (the weight being the inverse of the probability of sample selection) by the population counts from the 2000 census. A ratio of 1 indicates that the sample was representative of the population. (For the 2000 census, estimates from the sample were compared to the 100 percent population totals.) Table 2-1, which lists the sample completeness ratios for total population, shows that the ACS had a slightly higher level of sample completeness than the 2000 census, .83 versus .80. Moreover, the pattern for successive ACS surveys was inconclusive, with sample completeness rising significantly, then falling. It will be important for the Census Bureau to evaluate whether part of this effect may be a result of the implementation of new controls for population estimates or changes in methodology in how the estimates are created from year-to-year.

If sufficient information was collected from a household for it to be considered viably interviewed, it is included in the sample from which estimates are derived. But this tells us little about how complete responses were to specific items. Items that are incomplete are subject to imputation, which refers to the content edit process that takes known values from completed item responses and uses them to impute values for items that are missing or inconsistent.[4] The level of

imputation made to individual items is an excellent measure of data quality. Both the census and ACS refer to these imputations as allocations.

Table 2-2 provides allocation rates for major variables from the 1999-2001 ACS and the 2000 census. In general, allocation levels were lower in the ACS than in the 2000 census. In many cases, large differences were apparent. Ignoring differences for variables that constitute "rare events," it is apparent that the census had a harder time eliciting response to most items. For housing cost items, the differences between the two surveys were very large. For example; more than 30 percent of responses on *gas cost* and *water/sewer cost* were allocated in the 2000 census compared to just five percent in the 1999-2001 ACS. A similar picture emerged for *electricity costs* and *property taxes*, where the gap between census and ACS was in the range of 20 percentage points.

The big differences in allocation rates were not restricted to housing items. *Weeks worked last year*, *class of worker*, *industry*, *occupation*, and the all important *employment status recode*, each had levels of allocation that were at least 10 percentage points higher in the census than in the ACS. This does not mean that the ACS did not also have trouble eliciting information from respondents; high levels of allocation in the ACS were apparent on *yearly real estate taxes* (37 percent); *property insurance* (36 percent); *all income* (24 percent); and *wage and salary income* (17 percent). In each of these cases, however, the level of allocation was significantly higher in the census, and these differences were large and meaningful.

Neighborhoods

The large and statistically significant borough differences in mail return and unit nonresponse rates also appear at the neighborhood level. In 79 of the Bronx's 88 neighborhoods, the census had significantly higher mail return compared to the ACS, with a majority of differences in the double-digits (Map 2-1). Mail return rates in the census were only modestly correlated (.42) with those in the ACS, testimony to different patterns of response by geographic area in the two surveys. The largest differences – those in the third and fourth quartiles – were concentrated in the south and west Bronx, which had some of the poorest households in the nation. Despite this, the 2000 census's aggressive outreach campaign significantly increased mail return levels in these areas (Salvo and Lobo, 2003a). Such was not the case in the ACS, where mail return levels in these areas were among the lowest in the borough. The ACS did best in the upper-income areas of the north and east Bronx, though even in these areas, the ACS mail return rates were not as high as those in the census.

The lower ACS unit nonresponse rate for occupied housing units in the Bronx (11 percent), compared to the census (21 percent), was reflected across neighborhoods (Map 2-2). This ACS advantage was evident in 77 of the borough's 88 neighborhoods; in most cases the difference between the two surveys was in the double-digits. Further, there was a low correlation (.23) between the ACS unit nonresponse rates and those in the census. Unlike differences in mail return, the largest differences in unit nonresponse rates were not clustered, but spread out across

neighborhoods in the borough. Neighborhood differences in the upper two quartiles were distributed throughout the borough, in both high and low income areas. Clearly, the capacity of each survey to capture households was not related to socioeconomic status. The only neighborhood cluster that stood out was in a portion of the deep southwest Bronx, in the communities surrounding the Bronx Civic Center near Yankee Stadium. In these neighborhoods, differences between the two surveys were either small or insignificant, the result of generally low unit nonresponse in both surveys. Earlier research found that while ACS mail return rates were low in these areas, a good nonresponse follow-up (NRFU) operation made up for this deficit (Salvo and Lobo, 2003b). The 2000 census, on the other hand, with its extended outreach, had relatively high mail return rates in these places, yielding a smaller deficit for NRFU to close. In the end, both surveys ended-up with low unit nonresponse rates in these neighborhoods.

Section Three: Comparison of ACS with Census Estimates

Overall Approach: Framework and Comparisons

This section of the analysis examines whether the portrait of the Bronx provided by the ACS is similar to that provided by the 2000 census. While it is necessary to examine borough-level differences in estimates, it is crucial to look at these differences at a neighborhood level. We examined a total of 235 ACS and census long form data items, as well as 16 summary statistics, all of which were divided into 8 subject areas. For each data item in the ACS and census, we computed the percentage that item comprised of its universe, at the borough and neighborhood levels. We then examined whether there were significant differences between the ACS and census percentages, and in the summary statistics from the two surveys.

Of the 235 data item percentages in the ACS and census, 124 or 53 percent had statistically significant differences (p < .10), at the borough level. The seeming abundance of statistically significant differences, in our judgment, had more to do with the large size of the samples used by each survey, rather than any substantive difference in the estimates from each survey. Our focus, however, is on **meaningful** differences, defined as statistically significant differences of two percentage points or more -- a difference that could lead to a substantive difference in interpretation of a variable used in City Planning data applications. When a threshold of significant differences of at least two percentage points was used, just 38, or 16 percent, of the data items were designated as being meaningfully different (Table 3-1). Therefore, differences for 197 data items, or 84 percent of the total, were too small to generate concern in substantive applications at the borough level, especially in light of the level of non-sampling error discussed in Section Two.

By themselves, meaningful borough differences tell us little about differences at the neighborhood level. While zero-order correlations showed promise initially as a means of assessing neighborhood variability, further work revealed that the magnitude of a correlation was of little use in the absence of statistically significant differences between neighborhoods. So, a rule-of-thumb was developed to identify data items that had **substantial** differences by neighborhood. If a data item displayed statistically significant differences in more than one-fifth of the Bronx's 88 neighborhoods (18 areas), it was labeled as having substantial differences by neighborhood. Since sample sizes were considerably smaller at the neighborhood level, virtually

all of the statistically significant differences were at least several percentage points. A total of 32 data items, or 14 percent of the total, displayed significant differences in more than 20 percent of the neighborhoods (Table 3-1). Accounting for both meaningful borough differences, as well as substantial differences by neighborhood, the matrix in Table 3-1 shows the following: 190 data items were similar in both surveys (marked cell A); 13 items had meaningful differences at the borough level only (cell B); 7 items had substantial differences by neighborhood only (cell C); and 25 items had meaningful borough differences as well as substantial differences by neighborhood (cell D).

ACS and Census Content: Similarities and Contrasts

The 8 subject areas, with a total of 235 data items, plus 32 universes and 16 summary statistics, are listed A through H in Table 3-2. The criteria used to divide these sections is admittedly subjective, but was done to simultaneously follow the general outline of the Census Bureau profiles and to group items logically, based on similar universes and concepts.

A: Education/Marital Status/Disability

This subject area includes information on School Enrollment, Educational Attainment, Marital Status, Grandparents as Caregivers, Veteran Status, and Disability. Eighteen of the 25 data items in this subject had neither meaningful borough differences nor substantial differences by neighborhood. To a large extent, the ACS picture for the Bronx on School Enrollment, Marital Status, Grandparents as Caregivers and Veteran Status is similar to that from the 2000 census. Two sets of data items stood out in this first subject area: Educational Attainment and Disability.

      Educational Attainment

While most of the Educational Attainment categories portrayed the residents of the Bronx in similar fashion, such was not the case for persons who were in the *high school graduate only* category and to a lesser extent, those with *9th to 12th grade, no diploma*. There were 216,000 persons who were in the *high school graduate only* category in the 1999-2001 ACS compared to 196,000 in the 2000 census. The ACS had a higher percentage of *high school graduate only* (28 percent), compared to the census (26 percent). Interestingly, this deficit is almost entirely offset by a lower percentage of persons in the ACS reporting in the *9th to 12th grade, no diploma* group, 20 percent in the ACS versus 22 percent in the census. In almost one-quarter of the neighborhoods, the differences between the surveys were statistically significant with correlations showing a strong relationship for the *9th to 12th grade, no diploma* category (.85), and a moderately strong one for the *high school graduate only* group – .64 (data not shown).

The higher level of *high school graduate only* in the ACS is maintained in 18 of the 21 neighborhoods where significant differences were found (Map 3-1). While some clustering of these areas occurred in the west Bronx, the geographic distribution of areas was almost random in appearance. The neighborhoods run the gamut, from European areas of the north and east Bronx, to the Hispanic and black areas of the south and west Bronx.

<u>Disability</u>

Differences in the percent disabled were among the most important in the entire study. The most serious difference was in the percentage of *persons 21 to 64 years of age with a disability* – 32 percent in the census versus 19 percent in the ACS, a difference of 13 percentage points. Statistically significant differences were found in 83 of the 88 neighborhoods, with the correlation coefficient indicating a fairly strong relationship between the two surveys at the neighborhood level, .70 (data not shown). Map 3-2 shows that the ACS had a significantly lower percentage of *persons 21 to 64 with a disability* in all 83 neighborhoods.

While not conclusive, a recent Census Bureau paper suggests that differences between the 2000 census and the national feasibility test of the ACS (Census 2000 Supplementary Survey) may be related to misinterpretation of the disability question in the 2000 census (Stern, 2003). Specifically, a preliminary examination of disability data by mode reveals confusion over the age thresholds that may have resulted in an overstatement of disability among census respondents on the paper questionnaires (as opposed to the greater using of CATI and CAPI methods in the ACS). While it might be reasonable to expect that such a problem would affect all age groups, Table 3-2 shows that it does not. Differences for *persons 5 to 20 with a disability* and those *65 and over with a disability* were meaningful but were not nearly as large as those for the 21 to 64 age group; moreover, statistically significant differences at the neighborhood level were not nearly as pervasive for the youngest and oldest age groups.

B: Place of Birth/Ancestry/Language

This subject area includes Nativity and Place of Birth, Region of Birth of the Foreign-Born, Language Spoken at Home and Level of English Proficiency, and Ancestry. Of the 51 data items included in this subject area, 47 were essentially the same – no meaningful difference at the borough level, and no substantial differences by neighborhood. The items where notable differences were apparent included *naturalized citizen, speaks English less than "very well,"* and persons who reported their ancestry as *United States or American.*

<u>Nativity and Place of Birth</u>

There was no meaningful borough difference between the two surveys in the percentage of the population that was *naturalized*. However, at the neighborhood level, 26 of the 88 areas had a statistically significant differences. Map 3-3, however, reveals an almost random pattern to the spatial distribution of neighborhood differences, with an almost even split in the direction of differences.

<u>Language Spoken at Home/Level of English Proficiency</u>

Meaningful differences were present for *persons who spoke a language other than English at home and who spoke English less than "very well."* Given the abundance of Spanish speakers in the Bronx, it is no surprise that this observation extends to those who spoke Spanish at home. Overall, the ACS had a 34,000 fewer persons who reported English proficiency problems. As a consequence, the percent with English proficiency problems was three percentage points lower in

the ACS. More important, in 26 Bronx neighborhoods, the ACS was significantly different from the census.

Map 3-4 shows the spatial distribution of neighborhoods with significant differences in the percent of *persons who spoke Spanish at home and spoke English less than very well*. For all of these neighborhoods, the ACS estimates were consistently lower than those from the census. The neighborhoods were disproportionately found in the southern and western portions of the borough, areas of very dense Hispanic concentration.

Ancestry

Given the ambiguity of ancestry as a concept in the ACS and census, it is difficult to make any judgements on what differences in the reporting of these categories mean. While the difference between persons reporting *United States or American* was not meaningful at the borough level, there were 23 neighborhoods where the reporting of this category differed significantly, with most (18) having differences in excess of two percentage points.

C. Labor Force/Employment/Commuting

This subject area covers: Employment Status, with detail for females and for the parents of own children under 6 years; and Commuting to Work by mode of travel. There were 16 items in this group, ten of which displayed meaningful differences at the borough level. These included *persons in the labor force*, *employed*, *children with all parents in the labor force*, *car, truck or van - carpooled* and *public transportation (including taxicab)*.

Labor Force

The number of *employed* persons enumerated in the ACS was 44,000 higher than in the census. As a result, the percent of the population 16 years and over who were employed was 50 percent in the ACS, compared to 46 percent in the census. This carries over into higher ACS percentages for the total and females *in civilian labor force* and the total and females *in labor force*. For the percent *employed*, not only are the differences meaningful at the borough level, but differences are statistically significant for 34 of the 88 neighborhoods in the Bronx. In each of the 34 neighborhoods, Map 3-5 shows that the ACS had a higher percentage of *employed* persons, with a larger number of areas in the southern and southwestern parts of the borough, where the poorest households are located.

Commuting to Work

The majority of workers in the Bronx used *public transportation (including taxicab)* to commute to work, with the ACS showing a higher percentage than the census, 57 versus 54 percent. At the neighborhood level, however, only 16 of the 88 neighborhoods had statistically significant differences.

Despite the ACS having enumerated 40,000 more workers than the census, the number reporting that they commuted to work in a carpool, using either a car, truck or van, was lower in the ACS.

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About seven percent of workers were in *car, truck or van - carpooled* compared to more than nine percent in the census. Although the difference at the borough level was meaningful, just 15 neighborhoods had significant differences.

D. Occupation/Industry/Class of Worker

There were 23 data items on Occupation, Industry and Class of Worker. None of the percentages from the ACS differed in any meaningful way from those in the census, both at the borough and neighborhood levels. Bear in mind, however, that these tabulations are based on the number of workers, which was higher in the ACS than in the census. The absence of meaningful differences between the two surveys is an indication that the increased number of workers reported in the ACS was not disproportionately concentrated in selected categories of these distributions.

E. Income and Poverty

This subject area includes Household Income, Summary Statistics for Income Sources, Family Income, and the Poverty Status of families and individuals. There were 32 data items under this subject heading and an additional 10 summary statistics for *median household income, median family income, mean income by source*, and *median earnings*. But for percent of *persons 18 years and over below poverty* and the *poverty level for unrelated individuals 15 years and over*, data items were similar at the borough and neighborhood levels. Among the summary statistics, most did have statistically significant differences. It is important to note that the 2000 census income data are for calendar year 1999; the ACS data were collected each month during the years 1999-2001, and income data are for the 12 month period prior to the date the data were collected.[5] While this difference is likely to affect other data items, income may be especially susceptible to problems associated with different reference points.

Poverty Status

The percent of *persons 18 years and over below poverty* was significantly higher in the census than in the ACS, 59 versus 57 percent, exactly at the threshold of being a meaningful difference. However, the almost complete absence of statistically significant differences at the neighborhood level tempers any concerns about the importance of this difference. Conversely, for *unrelated individuals 15 years and over below poverty*, there is almost no borough difference; however, for 18 of the borough's 88 neighborhoods, there were statistically significant differences.

Summary Statistics for Income Sources

Of the ten summary statistics in this section, *median household income* and *median family income* were significantly lower in the ACS compared with the 2000 census, a difference of more than $1,000. While the gap was much smaller, the difference in *per capita income* was also significant, with the ACS being slightly lower than the census. For earnings, the same pattern holds, although the gap among *male full-time, year-round workers* was much larger than for their female counterparts.

Among income sources, two stood out: *mean earnings* and *mean retirement income*. In both cases, the ACS was lower than the census. The gap was large in both cases, more than $2,500 for *mean earnings* and almost $3,500 for *mean retirement income*. *Mean earnings* in the 2000 census was $44,100 compared to $41,500 in the ACS. Since the absolute dollar figure for *mean retirement income* was relatively low (just $16,200 in the census), the ACS estimate of $12,800 was more than 20 percent lower than the figure from the census.

F. Housing: Structural Characteristics

The subject area on the structural characteristics of housing had 26 items, including Units in Structure, Year Structure Built, and Number of Rooms. Distributions are created for all housing units in Table 3-2. Of the 26 differences examined, 17 were considered negligible. However, unlike many of the differences discussed thus far, there were differences that seem to affect key parts of the distribution that are especially important for the Bronx.

Units in Structure

Given the abundance of large apartment buildings in the Bronx, the most important building size class is *20 or more units*. This data item represented 66 percent of all units in the ACS, compared to 63 percent in the census. More important, however, is the fact that in 20 neighborhoods, the difference was statistically significant. In all but three areas, the ACS figure was higher than that from the census (Map 3-6). The higher ACS figures were generally in areas with an abundance of large buildings.

Year Structure Built

The ACS showed a higher percentage of housing units in the oldest category, those *built in 1939 or earlier* (37 percent), compared to 28 percent in the decennial census. This nine percentage point difference carries over into 50 of the 88 neighborhoods, with just one showing a high census estimate. Map 3-7 shows that this effect is most pronounced in the poorer areas of the west Bronx, where large structures dominate the housing stock. At the same time, the percent of units built between 1940 and 1959 and between 1960 and 1969 were lower in the ACS than in the census, but the magnitude of these differences combined do not fully offset the difference in the oldest building category. Still, there was an abundance of neighborhoods where differences were statistically significant, indicating that a shift in the age of the housing stock may occur depending upon which survey is used to create estimates (more on this in Section Four).

Number of Rooms

In general, the ACS counted fewer smaller apartments, those with one or two rooms, than the census, with the margins being substantial given the size of the estimates. For example, the ACS estimated that six percent of Bronx housing had *2 rooms*, compared to more than 10 percent in the census, a pattern that was repeated in 49 neighborhoods, most in poorer areas of the borough (Map 3-8). In contrast, the census reported lower percentages of the housing stock with 3 or 4 rooms.

G. Housing: Year Moved/Vehicles/Fuel

This subject area includes Year Householder Moved into Unit, Households by Vehicles Available, House Heating Fuel, Occupants Per Room (a measure of housing overcrowding), and Other Selected Characteristics which includes *lacking complete plumbing facilities*, *lacking complete kitchen facilities,* and *no telephone service available*. Overall, there were 24 data items in this section, 17 of which had estimates that were similar in the ACS and census. Like the Structural Characteristics above, however, there were several marked discrepancies, the most important of which related to House Heating Fuel and Occupants Per Room.

House Heating Fuel

The picture regarding the types of fuel used to provide heating in the home varied substantially between the ACS and the census. According to the census, 43 percent of occupied housing units in the Bronx relied on *utility gas* for fuel, 40 percent used *fuel oil, kerosene, etc.* and 10 percent used *electricity*. In the ACS, only 29 percent said they used *utility gas*, while 61 percent reported using *fuel oil, kerosene, etc.* and seven percent used *electricity*. The ACS was more than 21 percentage points higher than the census for the *fuel oil, kerosene, etc.* data item.

These huge differences at the borough level were reflected at the neighborhood level. There were 73 neighborhoods that had significant differences between the surveys for *utility gas*. In *fuel oil, kerosene, etc.*, virtually all the neighborhoods – 78 of 88 – had significant differences (Map 3-9). For *electricity*, 36 neighborhoods were different. Obviously, the ubiquitous nature of this problem raises serious concerns about the interpretation of this question in each survey (more on this in Section Four).

Occupants Per Room

The 2000 census recorded more overcrowded households than the ACS, with 10 percent in the highest category, *1.51 persons or more* occupants per room, compared to just four percent in the ACS. Conversely, the ACS estimated that 88 percent of the households had *1.00 or less* persons per room, compared to 80 percent in the census. According to the census, more than 46,300 households had *1.51 or more* persons per room, compared to just 18,100 in the ACS. More important, however, is the fact that there were many neighborhoods where differences in these data items were statistically significant, 51 for the highest overcrowding category. Map 3-10 reveals one of the most spatially concentrated pattern of differences in the study. All of the neighborhoods with significant differences had lower percentages of *1.51 persons or more* units in the ACS, and these neighborhoods covered almost the entire west Bronx, the most densely populated area of the borough.

Other Characteristics

In comparison to House Heating Fuel and Occupants per Room, other data items in this section have a much smaller degree of variability. Year Householder Moved into Unit contains no data item with either a meaningful difference at the borough level or substantial differences by neighborhood.

There was little difference at the borough level in the reporting of Vehicles Available, but one data item, *1 vehicle*, had statistically significant differences across 22 neighborhoods. While many of these were scattered throughout the Bronx, a cluster of eight neighborhoods encompassing the Soundview section of the borough all had significant differences in which the ACS was considerably higher than the census (Map 3-11).

While there was a meaningful difference regarding *no telephone service available*, with the ACS more than two percentage points higher than the census borough wide, there were only 13 neighborhoods reporting significant differences. The remaining Selected Characteristics, including items regarding *lacking complete plumbing facilities*, and *lacking complete kitchen facilities* were very similar in each survey.

H. Housing: Financial Characteristics

The financial characteristics of housing units is a broad subject area that includes: Value of One-Family Housing Units; Mortgage Status and Monthly Owner Costs; Owner Costs as a Percentage of Household Income; Gross Rent for Renter-occupied Units; and Gross Rent as a Percentage of Household Income. There are 42 data items in this section, including four median values, and while 21 of them have statistically significant differences at the borough level, only five items have meaningful differences in excess of two percentage points. Of these five, three relate to the value of owner-occupied housing units and show almost no variation across neighborhoods. Since over 80 percent of occupied housing units in the Bronx are renter-occupied units, special attention should be paid to the two remaining data items that pertain to Gross Rent as a Percentage of Household Income.

Gross Rent as a Percentage of Household Income

The two most interesting items in this section describe opposite ends of the rental spectrum. Households where *35 percent or more* of household income is spent on rent account for 36 percent of households in the census count, but 40 percent in the ACS. On the other hand, households with a gross rent *less than 15 percent* of their income, are 19 percent of the census total, but only 15 percent of the ACS total. The census found a considerably higher percentage of units that have a very favorable income-to-rent ratio, while the ACS recorded many more units where a very high percentage of income was spent on rent.

There were 17 neighborhoods with significant differences in the *35 percent or more* data item, and they were scattered across the borough. The *less than 15 percent* data item had differences in 25 neighborhoods, again scattered throughout the Bronx, with one particular concentration in the Mott Haven section of the south Bronx (Map 3-12). These neighborhoods were generally different from those with significant differences in the *35 percent or more* category, though there were five neighborhoods in the western and southern sections of the borough that had significant differences in both categories.

<u>Housing Value</u>

Housing values are presented only for owner-occupied, single family homes, which are less than 10 percent of the housing stock. Three housing value data items, *$150,000 to $199,999*, *$200,000 to $299,999* and *$300,000 to $499,999,* exhibit large differences between surveys. The categories *$150,000 to $199,999* and *$200,000 to $299,999* account for the majority of owner-occupied, single family units. Units in the category *$150,000 to $199,999* are 3.6 percentage points higher in the ACS, while the percentage of units in the category *$200,000 to $299,999* is three points higher in the census. In addition, the census has a higher percentage of units valued *$300,000 to $499,999*, although the overall number of these units is very small. Owner-occupied, single family units are concentrated in the northern and eastern sections of the borough; differences between the census and ACS are likely to be most important in only these areas. This is why, despite considerable differences in the borough percentages, there are relatively few neighborhoods with significant differences. Moreover, when placed in the context of other considerations, like the differences in reference periods between the surveys, these differences seem like only a minor point of concern.

Section Four: Can the ACS Replace the Census Long Form Sample?

Summary

The key objective of this analysis was to determine whether ACS data for the Bronx, at both the county and neighborhood levels, were comparable to that from the census long form. In this section, we first summarize our findings, distilling the major similarities and differences between the surveys. We then focus on data items that are substantially different at the neighborhood level, and examine the effects of these differences for some of the work done by the Population Division of the New York City Department of City Planning. The Population Division provides data and analysis for a variety of local and citywide planning studies, environmental review analyses, and capital planning strategies. In addition, much time is spent on providing other city agencies with data analysis to address questions of concern involving needs assessment, program planning and targeting, and policy formulation. This allows us to examine the "real life" implications of differences between the ACS and census.

The ACS largely mirrored the census. Of the 235 data items that were examined, 13 data items had meaningful differences at the borough level only, 7 data items had substantial differences by neighborhood only, and 25 data items had both meaningful borough differences and substantial differences by neighborhood. It is important to acknowledge that some of these differences can affect applications of the data, especially at the neighborhood level. Data items with substantial differences by neighborhood are presented below.

1. Disability - As discussed earlier, preliminary research has shown that disability rates from the 2000 census may have been inflated, at least in part because of misinterpretation of the disability question on the paper census forms (Stern, 2003). Certainly, the greater use of CATI and CAPI in the ACS may partly explain differences between the two surveys. Meaningful differences in the percent disabled are present for all three age groups (5 to 20, 21 to 64, and 65 and over); however, the difference is greatest for those ages 21 to 64. For this age group, the ACS showed

19 percent of the population with a disability, compared to 32 percent in the census. Moreover, the disabled in this age group alone showed substantial differences by neighborhood (Table 3-2). Further reinforcing the view that the ACS disability estimates had a higher level of validity than their census counterparts, is the fact that the ACS estimates are based on proportionately more actual responses than was the case with the census; allocation rates for all of the disability-related items ran in the range of 11 to 14 percent in the 2000 census, compared to five percent in the ACS (Table 2-2).

Knowledge of where the disabled live is important for the optimal allocation of resources by local agencies seeking to serve this population. Deciding on which public housing structures or mass transit stations should be made disabled-accessible, for example, is in part based on an evaluation of where persons with disabilities live. Generally, such strategies employ maps that show the number of disabled by neighborhood, with selected infrastructure overlays, such as the New York City subways or housing authority projects. The outcome of such an analysis, however, would depend on whether data from the ACS or census were used. The ACS and the census lists of 10 neighborhoods with the largest number of *persons 21 to 64 years of age with a disability* had only five neighborhoods common to both lists; the list of top 20 neighborhoods had only 11 neighborhoods common to the ACS and census lists. Extreme differences in rankings included Concourse/Melrose, which ranked 4th in the ACS, but 57th in the census; Soundview-South ranked 7th in the ACS, but 37th in the census; Mott Haven/Melrose, which had the 13th largest disabled population in the ACS, but ranked 70th in the census, while Edenwald was ranked 15th and 80th in the ACS and census, respectively.

The ACS and census differ not only in the rankings of neighborhoods with the largest concentrations of disabled persons, but also in the estimates of this population at both the borough and neighborhood levels. At the borough level, the ACS showed that among those ages 21 to 64, there were 136,200 people with a disability, compared to 226,700 in the census. When it comes to serving this population, the absolute number of disabled persons matters, and differing neighborhood estimates can have a major impact on planning for the needs of this community. Moreover, these numbers vary dramatically by neighborhood. This can be clearly seen in Map 4-1, which shows disabled persons in this age group by neighborhood, as measured in the ACS (on the left) and the census (right). These differences make planning for this population at the neighborhood level a precarious exercise.

2. House Heating Fuel - This is another item where differences between the ACS and census were very large, in excess of 21 points for *fuel oil, kerosene, etc.* and 14 points for *utility gas*. The ACS reported far larger numbers of households using *fuel oil, kerosene, etc*, 61 percent versus 40 percent in the census. Conversely, the 2000 census reported more with *utility gas* (43 percent) and *electricity* (10 percent) than the ACS (29 and 7 percent, respectively). While it is difficult to quantify the effect of allocation, it important to bear in mind that home heating fuel had a much higher allocation level in the census (16 percent), compared to the ACS (six percent).

Given the large differences in the census and ACS distributions, other data sources were mined in an effort to evaluate which data series was more accurate. Two sources of information turned out to be useful: administrative data from Consolidated Edison of New York (Con Edison) on the number of customers that purchase gas for heating; and data from the 2002 New York City

Housing and Vacancy Survey (NYCHVS), a triennial interviewer-administered survey of 16,000 occupied housing units.

Con Edison data on gas heat were available for residential *structures* in the Bronx. The primary limitation of these data involved the translation of structures into housing units.[6] Using a conservative approach, Con Edison data show that 32 percent of residential units in the Bronx use gas heat, well under the census estimate of 43 percent and closer to the 29 percent estimate from the ACS.

The NYCHVS is done by the Census Bureau, under contract with the New York City Department of Preservation and Development for the purpose of creating vacancy rates that are used to evaluate the status of rent control laws in the city. The accuracy of NYCHVS interviews is considered to be of the utmost importance, since these data are considered to be the best source of information about New York City's housing stock, at the city and borough levels. We compared the census and ACS results for home heating fuel to estimates from the 2002 NYCHVS. Fully three-quarters of all occupied housing units in the 2002 NYCHVS used oil for heating, with just 20 percent reporting gas as their heating fuel. (This is similar to the 1999 NYCHVS estimate.) As with the administrative data from Con Edison, the use of gas for heating falls in a range that is well under the percentage reported in Census 2000.

3. Year Structure Built - The ACS reported far greater numbers of housing units that were built *1939 or earlier* (37 percent) than the census (28 percent), a difference of some 45,000 units; further, there were statistically significant differences in 51 neighborhoods. As we next show, this divergence in estimates could affect the flow of federal dollars to the city.

The Housing and Community Development Act of 1974 (Department of Housing and Urban Development) requires the use of data on units in structures built *1939 or earlier* as one part of a formula used to determine Community Development Block Grant Funds (CDBG) awarded to New York. A change in the percent of the Bronx housing stock built *1939 or earlier*, from 28 percent (census) to 37 percent (ACS) could have a sizable impact on the funds awarded via this program. If the ACS three-year average were used instead of the 2000 census, the number of pre-1940 housing units in the Bronx would be 180,000 instead of the 135,000 reported in the census, potentially bringing in more money to New York. The impact of the ACS on such HUD grant formulas was the subject of a 2002 national report (ORC Macro[sm], 2002).

Data on some housing characteristics can be notoriously unreliable, especially data on the year structures were built, with older housing being the most difficult to correctly tabulate (Becker, 2000). Allocation rates, for example, for Year Structure Built were high in both the ACS (29 percent) and the census (27 percent). Given the potential impact of the ACS on this program, we thought it important to corroborate this variable with local administrative data, which often provides a more accurate picture of the age of the housing stock. Toward this end, administrative data from the New York City Department of Finance was compiled for the 88 neighborhoods in the borough. The year a structure was built is recorded by the Finance Department as part of the property tax record. These administrative data are considered to be of high quality because they are at least in part checked in the field. These records were coded to census tracts and then summed to the 88 Bronx neighborhoods.

The total number of housing units derived via administrative records was 475,000, which was in the range of the total number of housing units used in the ACS and census. Using the latest available administrative data, 56 percent of all units were in buildings built prior to 1940 in the Bronx. This estimate is much higher than that from the ACS (37 percent) or the 2000 census (28 percent). While the ACS was closer to the administrative records figure, it was still lower by 19 percentage points.

Map 4-2 shows the percent of units in buildings built prior to 1940 from all three sources: ACS, Census and administrative data. While the absolute levels were considerably different, it looks like all three have similarities in the concentration of older units in the central, southeastern and western parts of the borough. The ACS map, however, more closely resembles the administrative records map, especially in the central and west Bronx neighborhoods. Nonetheless, the correlation coefficients were high between the administrative data and both the ACS (.82) and the census (.72).

4. Units in Structure - Housing variables, including Year Structure Built (above), Units in Structure, Rooms, and Occupants per Room (see below) are used to draw a picture of neighborhoods for the purposes of zoning, the provision of services and projections of population. Knowledge of the housing stock is key to understanding the context for planning decisions, including estimating the need for new housing. This knowledge can be brought to bear on the decisions that are made to alter existing land use for residential development purposes.

Since Bronx housing is heavily concentrated in buildings with 20 or more units, the statistically significant differences in the borough estimates (63 percent in the census versus 66 percent in the ACS) and in the estimates for 20 neighborhoods is noteworthy.

Following the tenet that local administrative data can be used as a source of verification for survey information, a comparison was made between local data on Units in Structures by building size to gauge the veracity of data from the ACS and census. New York City Department of Finance administrative files allowed us to estimate the number of Bronx residential units in buildings with 20 or more units. These administrative data show that 70 percent of all units in the Bronx were in buildings with 20 or more units, closer to the ACS estimate of 66 percent. Given the differences in the sources of data, it is reassuring that the estimates from the surveys are in the same range as that from administrative records.

5. Occupants Per Room - Since this variable is widely used as a measure of overcrowding, there is special concern about the comparability of this data item. Overcrowding is often defined as more than one person per room, while extreme overcrowding is defined as more than 1.5 persons per room. The large majority of households in the Bronx had 1.00 or fewer persons per room, but the ACS estimate (88 percent) was significantly higher than the census (80 percent); moreover, there were 71 neighborhoods with statistically significant differences. On the other end of the spectrum, there was a significant difference in households classified as having *1.51 or more* persons per room; 10 percent in the census and just four percent in the ACS. Fifty-one neighborhoods showed statistically significant differences on this data item.

Perhaps related to the significantly lower overcrowding in the ACS, is the fact that the ACS shows more apartments with 3 rooms, 4 rooms and 5 rooms than the census, which had more 1 room and 2 room units.

6. Gross Rent as a Percentage of Household Income **-** Confusion over the percentage rent constitutes of household income can easily result in shifts among adjacent categories. However, a meaningful compensating difference of 4 percentage points between the highest (*less than 15 percent*) and lowest categories (*35 percent or more*) of the distribution may be indicative of a deeper seated problem with the data collection. Further, the number of significant differences at the neighborhood level was not trivial, 25 for the *less than 15 percent* category and 17 for the 35 percent or more group.

7. Employed Persons - The employed number was more than 44,000 greater in the ACS, compared with the census. Work here at the Department of City Planning strongly suggests that the 2000 census under-reported employed persons. A comparison of 1990 and 2000 censuses, for example, shows that the 2000 census employment number was 3 percent lower, at a time when the city was booming economically, and when the total population had increased by nearly 11 percent over 1990. Census data are also inconsistent with data from the New York State Department ES-202 series, which showed an increase in each of the five boroughs of New York, and a greater than three percent increase in jobs in the city overall. Bureau of Economic Analysis (BEA) data on the self-employed also showed increases during the period. These are only some of the data that strongly indicate an under-reported employed persons in the 2000 census.[7] Moreover, allocation levels for the employment status recode item was nearly three times higher in the census, compared to the ACS, 18 versus 7 percent. Given the larger number of employed persons in the ACS, the percent employed was higher, 50 versus 46 percent in the census. The higher number of employed persons affects the total number of persons in the labor force and those in the civilian labor force.

8. Related Income Items **-** *Median household income* and *median family income* were both about $1,300 lower in the ACS compared to the census. More persons at the lower end of the income distribution were apparent, with the *$15,000 to $24,999* category having the largest difference (but still not at the two percentage point level). The absence of a large number of statistically significant neighborhood differences tempers the impacts of the borough differences. There was also a substantially lower level of mean earnings among ACS households, $41,500 versus $44,100 in the census. Even the median earnings of full-time year-round workers was lower in the ACS, both for males and females. The allocation levels in Table 2-2 show that the percent of households with at least one income item allocated was high in both surveys; however, 38 percent of households had at least one item allocated in the census compared to 24 percent in the ACS. For *wages and salaries* and *self-employment income*, the two components of earnings, allocation was much higher in the census than in the ACS. For example, 25 percent of wages and salaries were allocated, compared to 17 percent in the ACS.

Neighborhoods with the Most Differences between the ACS and Census

In addition to the subject-specific comparisons above, it is also useful to focus on which neighborhoods show the most differences between the ACS and census. Map 4-3 addresses this

issue, showing how many of the 235 data items were significantly different between the two surveys, for each of the 88 neighborhoods in the study.

Neighborhoods with the largest number of data items that were statistically significant were in the west and southwest Bronx. (The only big exception to this pattern was in Co-op City, the large housing development in the northeast Bronx. This neighborhood is unusually large, making it more likely that even small differences will be statistically significant.) It is not possible to determine why the largest number of disparities occur in the west and southwest Bronx. Differences in estimates between the ACS and census could be a result of differentials in mail return, nonresponse follow-up, and allocation, but their impact on the estimates is impossible to quantify. Nevertheless, it is likely that differences between the two surveys in the west and southwest Bronx are not related to population size, but are related to socioeconomic status. The zero-order correlation coefficient was weak between the number of data items that registered statistically significant differences and population size (.24; it was .18 when the Co-op City neighborhood was excluded), but was moderate with the administrative measure of public assistance recipiency (.51).

Final Statement

The results of this research indicate that for most data items, the ACS is a suitable replacement for the census long form sample in Bronx County. For the large majority of long form items, the ACS estimates were not meaningfully different from those created from the census long form sample. While many items displayed statistically significant differences at the borough level, only a few were different in a way that could be considered meaningful in real-world data applications and in the context of the panoply of nonsampling issues that affect these data. Even more important, differences at the neighborhood level were not pronounced for most items, meaning that most program planning and targeting would be unaffected by the move to the ACS.

There were, however, a few marked differences between the two surveys. These included: House Heating Fuel; Disability among 21 to 64 year-olds; selected structural and financial characteristics of housing units (i.e., Year Structure Built, Rooms, Occupants per Room and Gross Rent as a Percentage of Household Income), and Employment Status, among others. For each of these items, using one survey over another could affect the outcome of local level data applications.

For four data items with meaningful differences between the ACS and census, we were able to use administrative data to examine which survey was more accurate. For housing units by Year Structure Built and Units in Structure, the corroborating evidence used was NYC Department of Finance records. In the case of Year Structure Built, both survey estimates for structures built *1939 or earlier* were much lower than the estimate from the local administrative data, but the ACS was closer to the administrative numbers. In the case of units in buildings with 20 or more units, both the ACS and census estimates were in the range of the administrative numbers, with the ACS being slightly closer to the administrative data. On the question of fuel used for home heating, local utility data and the New York City's Housing and Vacancy Survey are much closer to the ACS estimate. Finally, while the Census Bureau has noted that administrative data on jobs are different from information on employment in the census, the fact is that in previous periods

these administrative data have generally tracked well with changes in employment across censuses. Such was not the case in the 1990s, where the two series went in different directions. The ACS data were more in line with employment as indicated in the administrative data on jobs.

Having determined from a **content** standpoint that the ACS was an acceptable substitute for the census in the Bronx, there are concerns pertaining to data quality measures that arise from this analysis, and from some of our earlier research, that need to be emphasized. Foremost among these is that mail return rates in the ACS were substantially lower than for the census long form, with the return rates deteriorating over time. We have lauded the merits of what appears to be better nonresponse follow-up in the ACS, but it is important to keep in mind that the ACS, like the census, is a mail survey. The much higher reliance on what is a superior nonresponse follow-up operation is far from optimal, especially given the high costs of this operation. We recognize that the Bronx has just about the lowest mail return rate of any ACS test site; however, it is likely that similar situations will appear when the ACS is rolled-out nationally in other hard-to-enumerate urban places.

Another concern, again related to the heavy dependence in the ACS on nonresponse follow-up, is that five years of data may not be enough to generate reliable estimates at the census tract level if mail return rates do not improve. To its credit, the Census Bureau has recognized this potential problem and has developed a plan to employ different rates of nonresponse follow-up in areas with very low mail return rates. Some small areas may require more than a one-in-three follow-up of nonresponding households to achieve sufficient sample sizes; however, since costs are a key consideration, more nonresponse follow-up in one area means fewer follow-up interviews in other places. While we urge the Census Bureau to pursue this strategy, great care must be taken to ensure reliable estimates for all small areas. Only when reliability is assured, will these estimates be useful for local data applications

Also, it bears repeating that any cut in the size of the ACS sample must be considered a severe threat to the quality of ACS estimates. This study provides a good illustration of what limits a nine versus 15 percent sample placed on our ability to derive reliable estimates, namely the use of 88 neighborhood tract aggregates in lieu of estimates for the actual 355 census tracts.

Finally, our comments thus far have not taken issue with the conceptual differences between data items in the ACS and those in the census. Given the use of a rolling sample for the ACS and the single point-in-time estimates from the census, we find it remarkable that the ACS and census are not more different in this analysis. This is especially true for economic items, such as income, where reference periods produce important differences in income levels by source and related items, such as poverty levels. Expecting estimates that are within sampling limits is unrealistic in our opinion, given the shifts in concept that occur as a result of differences in data collection periods. The same kind of argument can be constructed for any of the items related to the financial characteristics of housing units. The point is that local area data users, in close cooperation with the Census Bureau, need to figure out what these new measuring sticks mean and what effect these have on the uses of the data. This makes local data users more important than ever in assessing what the ACS means for the future applications of its content.

References

Alexander, C. H. (2000). American Community Survey. In Encyclopedia of the U.S. Census, ed. M. J. Anderson, Washington D.C.: Congressional Quarterly Press, 26-28.

Alexander, C. H. (2002). A Discussion of the Quality Estimates from the American Community Survey for Small Population Groups. Draft presented at the Fall 2002 Census Advisory Committees Meetings. Alexandria, VA: Census Advisory Committees Meetings.

Becker, P.C. (2000). American Community Survey. In Encyclopedia of the U.S. Census, ed. M. J. Anderson, Washington D.C.: Congressional Quarterly Press, 250.

Hernandez, D. (2001). Testimony of the Population Association of America and the Association of Population Centers on the American Community Survey. Hearings before the U.S. House of Representatives Subcommittee on the Census. 107th Congress. July 13.

National Research Council (2001). The 2000 Census: Interim Assessment. Panel to Review the 2000 Census. Washington, DC: National Academy Press.

ORC Macro[sm]. (2002). The American Community Survey: Challenges and Opportunities for HUD. Report Submitted to Department of Housing and Urban Development (C-OPC-21762).

Prewitt, K. (2000). Testimony on the Census. Hearings before the U.S. House of Representatives Subcommittee on the Census. 106th Congress. July 20.

Salvo, J. J. and A. P. Lobo. (2003a). Evaluating Continuous Measurement: Data Quality in the Bronx Test Site of the American Community Survey. Journal of Economic and Social Measurement., 28 (4): 263-277.

Salvo, J. J. and A. P. Lobo. (2003b). The Effect of Neighborhood Characteristics on Nonresponse in the Bronx Test Site of the American Community Survey. Proceedings of the American Statistical Association, Government Statistics & Social Statistics Sections [CD-ROM], Alexandria, VA: American Statistical Association.

Stern, S.M. (2003). Counting People with Disabilities: How Survey Methodology Influences Estimates in Census 2000 and the Census 2000 Supplementary Survey. Report Submitted to the U.S. Census Bureau. Washington, D.C.

Endnotes

[1] Data on public assistance are from New York City's Human Resources Administration and are as of October 2000. This is the broadest measure available and includes persons who received public assistance, were Medicaid-eligible, or who received Supplemental Security Income (SSI) benefits.

[2] The census and the ACS mail return rates are computed from initially weighted records in both data sets (weighted by the reciprocals of their sampling rates) and reflect the percent of enumerations/interviews of households that were generated through self-response modes of data collection. This definition of a mail return rate is not the same definition used by other Census Bureau decennial programs, which sometime base their rates on housing units assumed to be present on the census address file on specific dates in the census process.

[3] The criteria for designating a household as an interview were different in the 1999-2001 ACS and the 2000 census. The ACS utilizes an "acceptabilty index," which is created by dividing the number of responses to the 100 percent data items by the number of persons in a household (with age receiving a greater weight than other items). Households that have an index of at least 2.5 are considered interviews and used to create estimates. In the 2000 census, households must have had one person who responded to at least two "sample" items for the household to be included in the sample from which estimates are derived. Unlike the ACS, where non-interviews are adjusted for in the weighting, the census drops these cases from the sample entirely.

[4] Responses used in the imputation process are from viably interviewed households only.

[5] All dollar income amounts are adjusted to 1999 dollars for the ACS, while census income is for 1999.

[6] Data on gas heating customers provided by Con Ed showed that there were 41,538 one-family residential structures and 1,920 multi-dwelling structures. We adopted a conservative approach to come up with the number of Con Ed residential *units* that had gas heat. Given illegal conversions in the Bronx, we first inflated the number of one-family structures by 50 percent, to come up with 62,307 residential units. We then looked at New York City administrative data (PLUTO files) to come up with the average number of residential units in lots that had 5 or more residential units (multifamily structures). On average, there were 46.4 housing units in lots with multifamily structures. We applied this average to the 1,920 multi-dwelling structures to come up with an additional 89,166 residential units, for a total of 151,473 residential units with gas heat. These residential units with gas heat accounted for 32 percent of the 474,885 residential units in our administrative data.

[7] Data from the New York State Department of Labor (ES-202), which tracked the change in the census from 1980 to 1990, did not track well from 1990 to 2000. See www.nyc.gov/planning

Table 2 - 1
Quality Measures - Mail Return Rates[1], Unit Nonresponse[2] Levels
and Sample Completeness Ratios[3]
2000 Census and the 1999-2001 American Community Survey
Bronx, New York

	ACS	Census
Mail Return Rates		
Overall	36.0	52.9
1999	37.7	-
2000	36.3	-
2001	34.2	-
Unit Nonresponse Rates - Total Housing Units		
Overall	9.7	22.2
1999	9.3	-
2000	9.4	-
2001	10.3	-
Unit Nonresponse Rates - Occupied Housing Units		
Overall	10.5	21.0
1999	10.2	-
2000	10.2	-
2001	11.1	-
Sample Completeness Ratios - Housing Units[3]		
Overall	0.92	0.78
1999	0.88	-
2000	0.94	-
2001	0.93	-
Sample Completeness Ratios - Population		
Overall	0.83	0.80
1999	0.78	-
2000	0.88	-
2001	0.85	-

[1] Percent of Occupied Housing Units that returned questionnaires via mail and
a very small number of interviews conducted over the telephone as a
result of respondent inquiries.
[2] Percent of Housing Units that were sample-data defined in the census and
"acceptable" by the standards of the ACS. (For more information, see text.)
[3] The percentage that "data-defined" housing units constitute of the 100 percent
count of housing units and population in the census and ACS.

Sources: 1999-2001 American Community Survey (ACS) and 2000 Decennial Census

Population Division
New York City Department of City Planning

Table 3 - 1
Difference in Percentages for the Borough by Significant Differences among Neighborhoods
Socioeconomic Data Items
1999-2001 ACS and 2000 Census
Bronx County

Percentage Point Difference at the County Level:	Less than one fifth (18) of all neighborhoods showing a statistically significant difference between Census and ACS percentages	One fifth or more (18) of all neighborhoods showing a statistically significant difference between Census and ACS percentages	Total	
Under 2.0 points	**(A) Similar** 190 items	**(C) Different** 7 items	197	83.8%
2.0 points or more	**(B) Different** 13 items	**(D) Most Different** 25 items	38	16.2%
Total	203	32	235	
	86.4%	13.6%		100.0%

Table 2 - 2
Total Item Nonresponse (Allocation)
1991-2001 ACS and 2000 Decennial Census
Bronx, New York

Description	Overall ACS Allocation Rate	Census Allocation Rate	Difference (ACS Rate - Census Rate)
Population Items			
Weeks worked last year	10.9	27.6	-16.6
Class of worker	10.7	26.9	-16.2
Supplemental security income	10.7	25.6	-14.8
Interest, dividend, etc. income	12.2	26.5	-14.3
All income allocated	23.9	38.1	-14.2
Public assistance	11.2	25.3	-14.1
Retirement income	11.3	25.3	-14.0
Social security/railroad retirement	11.9	25.9	-14.0
Other income	10.7	24.5	-13.8
Hours worked each week	11.0	24.3	-13.3
When last worked	7.6	19.4	-11.8
Industry	12.5	24.2	-11.6
Occupation	12.5	24.0	-11.5
Employment status recode	6.8	18.1	-11.3
Months responsible for grandchildren	13.0	24.0	-11.0
Difficulty working at a job	5.5	15.7	-10.2
Carpool size	8.6	17.5	-8.9
Place of work - county	9.8	18.5	-8.7
Place of work - place	9.5	18.2	-8.7
Difficulty going out	5.3	14.0	-8.7
Year of entry	9.1	17.8	-8.7
Transportation to work	6.5	15.2	-8.6
Years of active duty	8.0	16.3	-8.3
Place of work - state	8.5	16.7	-8.2
Wages & salary income	16.9	25.0	-8.1
Self-employment income	6.7	14.5	-7.8
Place of birth	6.8	14.4	-7.6
Time of departure	13.6	21.1	-7.6
Self-care difficulty	4.7	12.1	-7.5
Served in armed forces	5.0	12.3	-7.3
Race	4.7	11.4	-6.7
Mental difficulty	4.5	11.2	-6.7
Grade attending	6.8	13.4	-6.6
Physical difficulty	4.9	11.4	-6.5
School enrollment	4.8	11.2	-6.5
Mobility status	4.5	10.6	-6.1
Vision or hearing difficulty	4.9	10.9	-6.0
Educational attainment	6.9	12.9	-6.0
Language spoken	4.9	10.3	-5.4
Commuting time	12.6	17.6	-5.1
Grandchildren living in home	3.8	7.6	-3.7
English ability	4.2	7.4	-3.2
Hispanic	3.0	6.1	-3.2
Non-English speaking	4.0	7.0	-3.0
Migration - county	14.8	17.8	-2.9
Marital status	2.1	4.8	-2.8
Relationship	1.7	4.2	-2.6
Migration - place	14.2	16.7	-2.4
Age	2.2	4.1	-2.0
Migration - state	13.7	15.5	-1.8

Description	Total Item Nonresponse		
	Overall ACS Allocation Rate	Census Allocation Rate	Difference (ACS Rate - Census Rate)
Citizenship	1.1	2.6	-1.5
Sex	0.4	1.8	-1.4
Periods of military service	15.5	16.3	-0.8
Responsible for grandchildren	19.9	19.4	0.5
Housing Items			
Total cost on mobile home	57.9	100.0	-42.1
Meals in rent - Vacant	5.9	47.0	-41.1
Other fuel cost	5.8	34.5	-28.8
Agricultural sales	14.5	41.8	-27.3
Gas cost	5.0	31.3	-26.3
Water and sewer cost	5.6	31.1	-25.5
Lot size	7.3	30.3	-23.0
Electricity cost	6.1	26.5	-20.3
Payment incls property taxes	8.1	26.7	-18.6
Monthly rent	4.9	23.5	-18.6
Yearly property insurance	36.3	54.8	-18.5
Monthly rent - Vacant	56.8	73.5	-16.7
Business on property	2.9	19.2	-16.3
Mortage payment	15.5	31.7	-16.2
Yearly real estate taxes	37.3	53.2	-15.9
Lot size - Vacant	5.7	19.2	-13.6
Bedrooms - Vacant	24.6	35.0	-10.4
Heating fuel	6.3	15.5	-9.3
Rooms - Vacant	24.7	33.6	-8.9
Bedrooms	5.2	13.9	-8.8
Value	14.4	22.6	-8.2
Number of vehicles	2.0	10.1	-8.1
Mortage	3.1	10.6	-7.5
Rooms	2.6	9.6	-7.0
Meals in rent	4.4	11.3	-6.9
Second mortage payment	27.8	34.4	-6.6
Payment incls insurance	20.8	27.1	-6.3
Units in structure	2.3	8.2	-5.8
Year moved in	4.1	9.5	-5.5
Complete plumbing	0.9	5.9	-5.0
Telephone	1.7	6.6	-4.9
Complete kitchen	0.9	5.8	-4.9
Tenure	1.3	6.1	-4.9
Complete plumbing - Vacant	8.2	12.1	-3.9
Units in structure - Vacant	1.6	4.1	-2.5
Complete kitchen - Vacant	8.7	9.7	-1.0
Value - Vacant	47.9	47.6	0.3
Vacancy Status - Vacant	4.1	2.3	1.9
Year built	29.2	26.9	2.3
Year built - Vacant	40.1	28.3	11.8
Business on property - Vacant	91.2	11.6	79.7

Sources: 1999-2001 American Community Survey (ACS) and 2000 Decennial Census

Population Division
New York City Department of City Planning

Table 3 - 2
Comparison of Socioeconomic Characteristics
Borough Level Differences and Significant Differences for Neighborhoods
1991-2001 ACS and 2000 Decennial Census
Bronx, New York

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
TOTAL POPULATION	1,286,945	1,285,510	.	.	.	.	--	-	-
A. General Social Characteristics									
School Enrollment									
Population 3 years and over enrolled in school	393,940	407,760	.	.	.	0.000	yes	11	-
Nursery school, preschool	19,807	22,500	5.0	5.5	-0.5	0.023	yes	1	A
Kindergarten	21,837	24,650	5.5	6.0	-0.5	0.036	yes	2	A
Elementary school (grades 1-8)	186,709	189,860	47.4	46.6	0.8	0.003	yes	6	A
High school grade (grades 9-12)	86,959	91,440	22.1	22.4	-0.4	0.304	no	6	A
College or graduate school	78,629	79,310	20.0	19.5	0.5	0.227	no	12	A
Educational Attainment									
Population 25 years and over	764,997	762,480	.	.	.	0.122	no	12	-
Less than 9th grade	115,505	119,140	15.1	15.6	-0.5	0.047	yes	11	A
9th to 12th grade, no diploma	149,288	163,870	19.5	21.5	-2.0	0.000	yes	21	C
High school graduate (only)	216,267	196,260	28.3	25.7	2.5	0.000	yes	21	D
Some college, no degree	127,888	126,900	16.7	16.6	0.1	0.786	no	14	A
Associate degree	39,328	42,860	5.1	5.6	-0.5	0.002	yes	5	A
Bachelor's degree	73,930	68,550	9.7	9.0	0.7	0.001	yes	4	A
Graduate or professional degree	42,791	44,910	5.6	5.9	-0.3	0.059	yes	5	A
Percent high school graduate or higher	65.4	62.9	.	.	.	0.000	yes	1	-
Percent bachelor's degree or higher	15.3	14.9	.	.	.	0.121	no	4	-
Marital Status									
Population 15 years and over	954,922	951,250	.	.	.	0.012	yes	30	-
Never married	398,637	380,750	41.7	40.0	1.7	0.000	yes	16	A
Now married, except separated	343,069	356,300	35.9	37.5	-1.5	0.000	yes	12	A
Separated	63,127	62,350	6.6	6.6	0.1	0.734	no	15	A
Widowed	67,340	66,460	7.1	7.0	0.1	0.660	no	19	C
Female	54,953	54,980	5.8	5.8	0.0	0.845	no	6	A
Divorced	82,748	85,390	8.7	9.0	-0.3	0.084	yes	17	A
Female	54,085	55,430	5.7	5.8	-0.2	0.249	no	9	A
Grandparents with own Grandchildren									
under 18 years in households	40,078	43,830	.	.	.	0.002	yes	10	-
Responsible for grandchildren	17,799	18,970	44.4	43.3	1.1	0.495	no	3	A
Veteran Status									
Civilian population 18 years and over	896,754	894,110	.	.	.	0.065	yes	10	-
Civilian veterans	48,702	52,040	5.4	5.8	-0.4	0.003	yes	11	A
Disability									
Population 5 to 20 years	338,433	341,430	.	.	.	0.075	yes	11	-
With a disability	33,356	44,290	9.9	13.0	-3.1	0.000	yes	16	B
Population 21 to 64 years	717,931	713,820	.	.	.	0.026	yes	12	-
With a disability	136,228	226,680	19.0	31.8	-12.8	0.000	yes	83	D

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
Percent employed	33.5	44.6	.	.	.	0.000	yes	22	-
No disability	581,703	487,140	81.0	68.2	12.8	0.000	yes	81	D
Percent employed	67.9	60.2	.	.	.	0.000	yes	6	-
Population 65 years and over	122,284	123,790	.	.	.	0.120	no	14	-
With a disability	59,763	64,140	48.9	51.8	-2.9	0.001	yes	12	B
B. Place of Birth/Ancestry/Language									
Nativity and Place of Birth									
Total population	1,286,945	1,285,510	.	.	.	.	--	14	-
Native	920,185	902,350	71.5	70.2	1.3	0.000	yes	11	A
Born in United States	791,375	766,640	61.5	59.6	1.9	0.000	yes	9	A
State of residence	704,452	682,650	54.7	53.1	1.6	0.000	yes	5	A
Different state	86,923	83,990	6.8	6.5	0.2	0.130	no	8	A
born abroad outside the United States to American parent(s)	128,809	135,710	10.0	10.6	-0.5	0.003	yes	13	A
Foreign born	366,761	383,150	28.5	29.8	-1.3	0.000	yes	8	A
Entered 1990 or later	158,560	167,120	43.2	43.6	-0.4	0.596	no	5	A
Naturalized citizen	145,290	150,630	39.6	39.3	0.3	0.606	no	26	C
Not a citizen	221,471	232,520	60.4	60.7	-0.3	0.653	no	4	A
Region of Birth of Foreign-born									
Foreign-born population with region of birth reported	366,735	383,150	.	.	.	0.000	yes	13	-
Europe	39,136	39,660	10.7	10.4	0.3	0.330	no	5	A
Asia	26,709	28,110	7.3	7.3	-0.1	0.835	no	4	A
Africa	24,946	25,700	6.8	6.7	0.1	0.812	no	2	A
Oceania	115	100	0.0	0.0	0.0	0.948	no	0	A
Latin America	274,889	288,690	75.0	75.3	-0.4	0.592	no	5	A
Northern America	940	900	0.3	0.2	0.0	0.819	no	0	A
Language Spoken at Home									
Population 5 years and over	1,178,848	1,179,400	.	.	.	0.544	no	13	-
English only	545,708	546,600	46.3	46.3	-0.1	0.846	no	10	A
Language other than English	633,141	632,800	53.7	53.7	0.1	0.846	no	6	A
Speak English less than 'very well'	270,621	304,640	23.0	25.8	-2.9	0.000	yes	26	D
Spanish	531,652	524,250	45.1	44.5	0.6	0.003	yes	8	A
Speak English less than 'very well'	225,832	256,480	19.2	21.7	-2.6	0.000	yes	23	D
Other Indo-European languages	60,487	64,460	5.1	5.5	-0.3	0.036	yes	7	A
Speak English less than 'very well'	26,221	28,460	2.2	2.4	-0.2	0.060	yes	4	A
Asian and Pacific Islander languages	19,142	18,950	1.6	1.6	0.0	0.846	no	1	A
Speak English less than 'very well'	10,749	10,730	0.9	0.9	0.0	0.975	no	0	A
Ancestry									
Total Population	1,286,945	1,285,510	.	.	.	.	--	14	-
Arab	2,553	3,060	0.2	0.2	0.0	0.552	no	0	A
Czech	609	930	0.0	0.1	0.0	0.627	no	0	A
Danish	409	380	0.0	0.0	0.0	0.966	no	0	A
Dutch	1,167	990	0.1	0.1	0.0	0.803	no	0	A
English	6,006	4,910	0.5	0.4	0.1	0.175	no	0	A
French (except Basque)	3,687	3,250	0.3	0.3	0.0	0.563	no	0	A
French Canadian	675	710	0.1	0.1	0.0	0.959	no	0	A
German	15,637	16,720	1.2	1.3	-0.1	0.246	no	2	A

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
Greek	4,352	4,260	0.3	0.3	0.0	0.918	no	1	A
Hungarian	2,831	2,910	0.2	0.2	0.0	0.906	no	0	A
Irish	40,478	39,480	3.1	3.1	0.1	0.549	no	3	A
Italian	69,177	67,100	5.4	5.2	0.2	0.305	no	5	A
Lithuanian	563	470	0.0	0.0	0.0	0.889	no	0	A
Norwegian	630	780	0.0	0.1	0.0	0.821	no	0	A
Polish	9,787	8,860	0.8	0.7	0.1	0.317	no	0	A
Portuguese	1,229	730	0.1	0.1	0.0	0.474	no	0	A
Russian	10,786	9,430	0.8	0.7	0.1	0.144	no	0	A
Scotch-Irish	1,016	940	0.1	0.1	0.0	0.913	no	0	A
Scottish	1,705	1,260	0.1	0.1	0.0	0.534	no	0	A
Slovak	334	300	0.0	0.0	0.0	0.960	no	0	A
Subsaharan African	36,475	36,030	2.8	2.8	0.0	0.835	no	6	A
Swedish	919	760	0.1	0.1	0.0	0.819	no	0	A
Swiss	347	280	0.0	0.0	0.0	0.919	no	0	A
Ukrainian	1,761	2,250	0.1	0.2	0.0	0.488	no	0	A
United States or American	15,683	31,940	1.2	2.5	-1.3	0.000	yes	23	C
Welsh	317	220	0.0	0.0	0.0	0.884	no	0	A
West Indian (excluding Hispanic origin groups)	90,843	95,240	7.1	7.4	-0.3	0.136	no	10	A
C. Labor Force/Employment/Commuting									
Employment Status									
Population 16 years and over	935,969	932,150	.	.	.	0.017	yes	9	-
In labor force	530,099	492,880	56.6	52.9	3.8	0.000	yes	28	D
Civilian labor force	529,898	492,530	56.6	52.8	3.8	0.000	yes	27	D
Employed	470,741	426,290	50.3	45.7	4.6	0.000	yes	34	D
Unemployed	59,158	66,240	6.3	7.1	-0.8	0.000	yes	15	A
Percent unemployed	11.2	13.4	.	.	.	0.000	yes	18	-
Armed Forces	201	350	0.0	0.0	0.0	0.696	no	0	A
Not in labor force	405,870	439,270	43.4	47.1	-3.8	0.000	yes	35	D
Females 16 years and over	521,292	522,160	.	.	.	0.605	no	8	-
In labor force	262,482	249,820	50.4	47.8	2.5	0.000	yes	21	D
Civilian labor force	262,446	249,780	50.3	47.8	2.5	0.000	yes	21	D
Employed	230,412	214,560	44.2	41.1	3.1	0.000	yes	23	D
Own children under 6 years	120,005	117,480	.	.	.	0.061	yes	7	-
All parents in family in labor force	62,207	56,750	51.8	48.3	3.5	0.002	yes	12	B
Commuting to Work									
Workers 16 years and over	452,873	412,830	.	.	.	0.000	yes	18	-
Car, truck, or van -- drove alone	116,774	111,800	25.8	27.1	-1.3	0.002	yes	16	A
Car, truck, or van -- carpooled	31,596	38,550	7.0	9.3	-2.4	0.000	yes	15	B
Public transportation (including taxicab)	258,314	222,420	57.0	53.9	3.2	0.000	yes	16	B
Walked	32,367	29,010	7.1	7.0	0.1	0.668	no	5	A
Other means	3,373	3,460	0.7	0.8	-0.1	0.357	no	0	A
Worked at home	10,448	7,600	2.3	1.8	0.5	0.002	yes	0	A
Mean travel time to work (minutes)	40.4	43.1	.	.	.	0.000	yes	n.a.	-
D. Occupation/Industry/Class of Worker									

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
EMPLOYED CIVILIAN POPULATION 16 YEARS AND OVER	470,741	426,290	.	.	.	0.000	yes	19	-
Occupation									
Management, professional, and related occupations	119,354	113,040	25.4	26.5	-1.2	0.004	yes	7	A
Service occupations	121,193	104,620	25.7	24.5	1.2	0.006	yes	8	A
Sales and office occupations	133,096	122,960	28.3	28.8	-0.6	0.168	no	12	A
Farming, fishing, and forestry occupations	468	330	0.1	0.1	0.0	0.746	no	0	A
Construction, extraction, and maintenance occupations	33,058	32,950	7.0	7.7	-0.7	0.010	yes	4	A
Production, transportation, and material moving occupations	63,571	52,390	13.5	12.3	1.2	0.000	yes	2	A
Industry									
Agriculture, forestry, fishing and hunting, and mining	322	460	0.1	0.1	0.0	0.562	no	0	A
Construction	19,338	19,040	4.1	4.5	-0.4	0.095	yes	2	A
Manufacturing	31,725	26,640	6.7	6.2	0.5	0.050	yes	5	A
Wholesale trade	12,632	12,320	2.7	2.9	-0.2	0.216	no	0	A
Retail trade	47,502	42,470	10.1	10.0	0.1	0.675	no	8	A
Transportation and warehousing, and utilities	35,453	29,000	7.5	6.8	0.7	0.005	yes	7	A
Information	17,410	15,270	3.7	3.6	0.1	0.536	no	2	A
Finance, insurance, real estate, and rental and leasing	42,447	37,120	9.0	8.7	0.3	0.249	no	7	A
Professional, scientific, management, administrative, and waste mana	40,487	36,670	8.6	8.6	0.0	0.996	no	7	A
Educational, health, and social services	136,376	128,340	29.0	30.1	-1.1	0.008	yes	13	A
Arts, entertainment, recreation, accommodation, and food services	36,241	30,880	7.7	7.2	0.5	0.083	yes	6	A
Other services (except public administration)	27,525	25,930	5.8	6.1	-0.2	0.350	no	4	A
Public administration	23,283	22,150	4.9	5.2	-0.2	0.219	no	3	A
Class of Worker									
Private wage and salary workers	361,230	322,100	76.7	75.6	1.2	0.004	yes	10	A
Government workers	90,126	86,660	19.1	20.3	-1.2	0.002	yes	16	A
Self-employed workers in own not incorporated business	18,686	16,540	4.0	3.9	0.1	0.648	no	3	A
Unpaid family workers	698	990	0.1	0.2	-0.1	0.246	no	0	A
E. Income and Poverty									
Income									
Total households	453,403	463,240	.	.	.	0.000	yes	18	-
Less than $10,000	105,177	109,175	23.2	23.6	-0.4	0.351	no	13	A
$10,000 to $14,999	42,822	40,000	9.4	8.6	0.8	0.002	yes	10	A
$15,000 to $24,999	71,191	63,875	15.7	13.8	1.9	0.000	yes	13	A
$25,000 to $34,999	58,675	60,960	12.9	13.2	-0.2	0.498	no	13	A
$35,000 to $49,999	62,569	65,030	13.8	14.0	-0.2	0.440	no	5	A
$50,000 to $74,999	62,433	65,910	13.8	14.2	-0.5	0.126	no	6	A
$75,000 to $99,999	28,353	30,030	6.3	6.5	-0.2	0.285	no	1	A
$100,000 to $149,999	16,519	19,620	3.6	4.2	-0.6	0.000	yes	1	A
$150,000 to $199,999	3,656	4,350	0.8	0.9	-0.1	0.116	no	0	A
$200,000 or more	2,009	4,295	0.4	0.9	-0.5	0.000	yes	0	A
Median household income (dollars)	26,185	27,611	.	.	.	0.000	yes	n.a.	-
With earnings	317,946	326,785	70.1	70.5	-0.4	0.251	no	13	A
Mean earnings (dollars)	41,552	44,116	.	.	.	0.000	yes	n.a.	-
With Social Security	104,116	103,430	23.0	22.3	0.6	0.040	yes	10	A
Mean Social Security income (dollars)	10,263	9,902	.	.	.	0.062	yes	n.a.	-
With retirement income	56,278	56,270	12.4	12.1	0.3	0.323	no	8	A

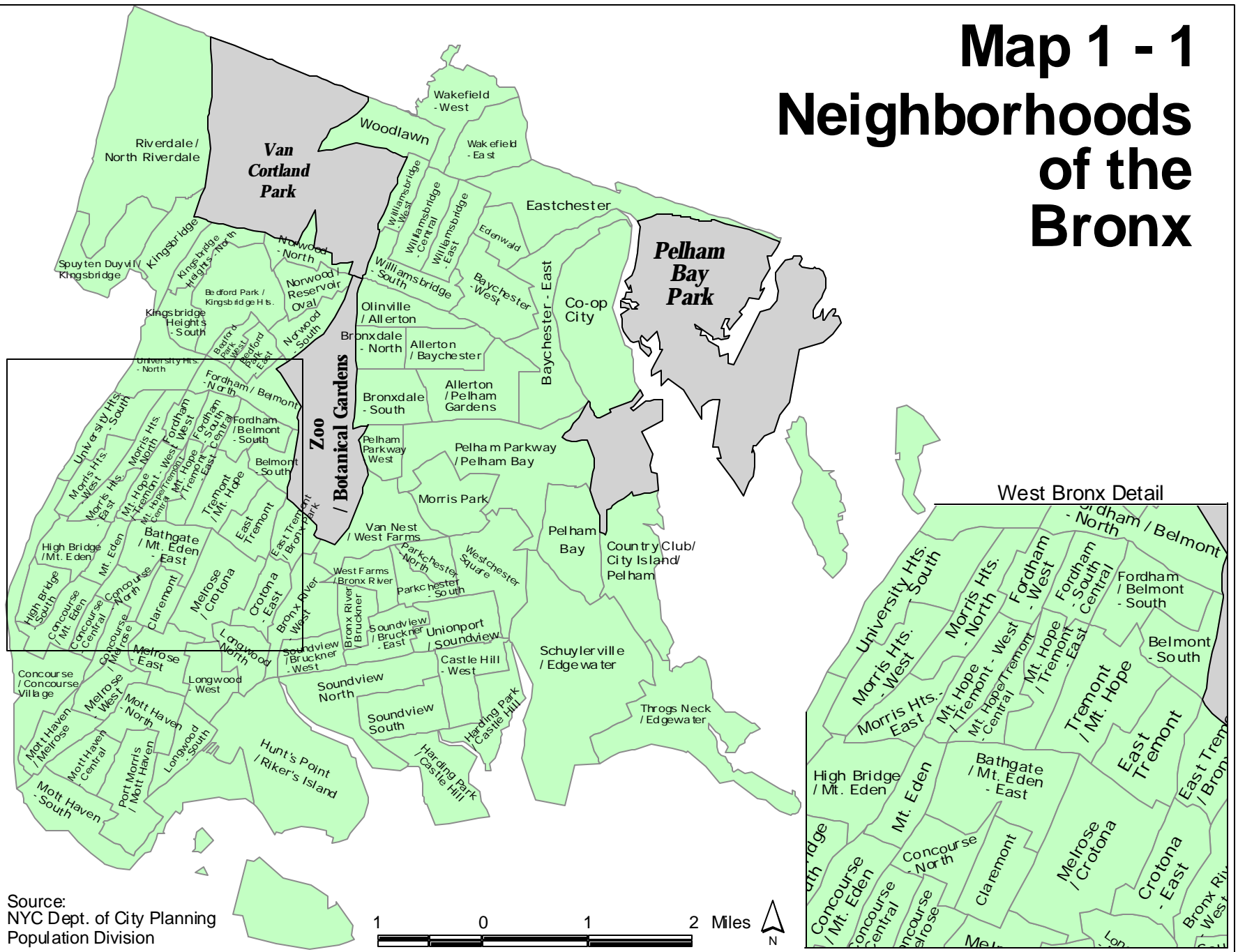| Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
Mean retirement income (dollars)	12,753	16,200	.	.	.	0.000	yes	n.a.	-
With Supplemental Security Income	43,222	46,925	9.5	10.1	-0.6	0.030	yes	9	A
Mean Supplemental Security Income (dollars)	6,594	6,295	.	.	.	0.317	no	n.a.	-
With cash public assistance income	64,349	67,740	14.2	14.6	-0.4	0.184	no	11	A
Mean cash public assistance income (dollars)	3,618	3,867	.	.	.	0.077	yes		
Families	299,393	317,250				0.000	yes	23	-
Less than $10,000	60,127	64,990	20.1	20.5	-0.4	0.363	no	7	A
$10,000 to $14,999	26,404	25,575	8.8	8.1	0.8	0.016	yes	4	A
$15,000 to $24,999	45,362	43,690	15.2	13.8	1.4	0.001	yes	11	A
$25,000 to $34,999	38,226	41,825	12.8	13.2	-0.4	0.276	no	7	A
$35,000 to $49,999	43,120	45,480	14.4	14.3	0.1	0.858	no	2	A
$50,000 to $74,999	45,350	48,425	15.1	15.3	-0.1	0.757	no	8	A
$75,000 to $99,999	22,531	23,955	7.5	7.6	0.0	0.931	no	0	A
$100,000 to $149,999	13,676	16,405	4.6	5.2	-0.6	0.004	yes	1	A
$150,000 to $199,999	2,986	3,545	1.0	1.1	-0.1	0.271	no	0	A
$200,000 or more	1,610	3,355	0.5	1.1	-0.5	0.000	yes	0	A
Median family income (dollars)	29,391	30,682	.	.	.	0.002	yes	n.a.	-
Per capita income (dollars)	13,900	14,192	.	.	.	0.005	yes	n.a.	-
Median Earnings:									
Male full-time, year-round workers (dollars)	29,795	31,324	.	.	.	0.000	yes	n.a.	-
Female full-time, year-round workers (dollars)	28,511	29,436	.	.	.	0.001	yes	n.a.	-
Poverty									
Families	83,972	88,850	.	.	.	0.001	yes	13	-
With related children under 18 years	71,684	74,405	85.4	83.7	1.6	0.044	yes	6	A
Families with female householder, no husband present	64,494	61,790	.	.	.	0.046	yes	7	-
With related children under 18 years	58,455	54,865	90.6	88.8	1.8	0.033	yes	6	A
Individuals	377,809	387,770	.	.	.	0.051	yes	21	-
18 years and over	214,538	227,990	56.8	58.8	-2.0	0.000	yes	5	B
65 years and over	24,810	26,080	6.6	6.7	-0.2	0.470	no	7	A
Related children under 18 years	161,602	158,360	42.8	40.8	1.9	0.000	yes	3	A
Related children 5 to 17 years	117,223	115,820	31.0	29.9	1.2	0.016	yes	4	A
Unrelated individuals 15 years and over	70,251	73,180	18.6	18.9	-0.3	0.477	no	18	C
F. Housing: Structural Characteristics									
TOTAL HOUSING UNITS	490,783	490,660	.	.	.	.	--	20	-
Units in Structure									
1-unit, detached	25,377	28,430	5.2	5.8	-0.6	0.000	yes	3	A
1-unit, attached	20,953	26,570	4.3	5.4	-1.1	0.000	yes	4	A
2 units	40,868	41,305	8.3	8.4	-0.1	0.674	no	8	A
3 or 4 units	35,089	36,345	7.1	7.4	-0.3	0.216	no	3	A
5 to 9 units	17,606	19,250	3.6	3.9	-0.3	0.019	yes	4	A
10 to 19 units	26,347	31,000	5.4	6.3	-0.9	0.000	yes	11	A
20 or more units	323,882	307,250	66.0	62.6	3.4	0.000	yes	20	D
Mobile home	287	335	0.1	0.1	0.0	0.849	no	0	A
Boat, RV, van, etc.	374	180	0.1	0.0	0.0	0.458	no	0	A
Year Structure Built									

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
1999 or later	1,617	2,570	0.3	0.5	-0.2	0.004	yes	0	A
1995 to 1998	5,683	8,605	1.2	1.8	-0.6	0.000	yes	0	A
1990 to 1994	9,537	12,670	1.9	2.6	-0.6	0.000	yes	5	A
1980 to 1989	17,083	21,575	3.5	4.4	-0.9	0.000	yes	10	A
1970 to 1979	45,501	51,740	9.3	10.5	-1.3	0.000	yes	9	A
1960 to 1969	78,272	90,950	15.9	18.5	-2.6	0.000	yes	32	D
1940 to 1959	153,298	167,675	31.2	34.2	-2.9	0.000	yes	46	D
1939 or earlier	179,792	134,870	36.6	27.5	9.1	0.000	yes	51	D
Rooms									
1 room	18,545	36,270	3.8	7.4	-3.6	0.000	yes	38	D
2 rooms	28,045	50,865	5.7	10.4	-4.7	0.000	yes	49	D
3 rooms	153,993	139,890	31.4	28.5	2.9	0.000	yes	16	B
4 rooms	147,876	125,615	30.1	25.6	4.5	0.000	yes	25	D
5 rooms	82,349	74,530	16.8	15.2	1.6	0.000	yes	19	C
6 rooms	33,070	32,450	6.7	6.6	0.1	0.546	no	3	A
7 rooms	10,162	11,325	2.1	2.3	-0.2	0.032	yes	0	A
8 rooms	5,728	6,635	1.2	1.4	-0.2	0.022	yes	0	A
9 rooms or more	11,016	13,080	2.2	2.7	-0.4	0.000	yes	1	A
Median (rooms)	3.8	3.6	.	.	.	0.157	no	n.a.	-
G. Housing: Year Moved/Vehicles/Fuel									
OCCUPIED HOUSING UNITS	453,403	463,210	.	.	.	0.000	yes	19	-
Year Householder Moved into Unit									
1995 or later	202,056	200,085	44.6	43.2	1.4	0.001	yes	15	A
1990 to 1994	79,107	80,380	17.4	17.4	0.1	0.772	no	7	A
1980 to 1989	80,530	80,535	17.8	17.4	0.4	0.265	no	7	A
1970 to 1979	59,065	62,755	13.0	13.5	-0.5	0.053	yes	11	A
1969 or earlier	32,645	39,460	7.2	8.5	-1.3	0.000	yes	5	A
Vehicles Available									
No vehicles available	275,745	285,310	60.8	61.6	-0.8	0.059	yes	12	A
1	136,354	133,330	30.1	28.8	1.3	0.002	yes	22	C
2	34,268	35,840	7.6	7.7	-0.2	0.414	no	4	A
3 or more	7,037	8,730	1.6	1.9	-0.3	0.001	yes	0	A
House Heating Fuel									
Utility gas	131,842	200,825	29.1	43.4	-14.3	0.000	yes	73	D
Bottled, tank, or LP gas	5,353	12,685	1.2	2.7	-1.6	0.000	yes	0	A
Electricity	30,090	48,310	6.6	10.4	-3.8	0.000	yes	36	D
Fuel oil, kerosene, etc.	276,296	182,855	60.9	39.5	21.5	0.000	yes	78	D
Coal or coke	376	680	0.1	0.1	-0.1	0.270	no	0	A
Wood	0	80	0.0	0.0	0.0	0.767	no	0	A
Solar energy	78	370	0.0	0.1	-0.1	0.251	no	0	A
Other fuel	5,055	10,285	1.1	2.2	-1.1	0.000	yes	1	A
No fuel used	4,312	7,125	1.0	1.5	-0.6	0.000	yes	2	A
Selected Characterisitics									
Lacking complete plumbing facilities	2,715	7,440	0.6	1.6	-1.0	0.000	yes	0	A
Lacking complete kitchen facilities	2,777	5,430	0.6	1.2	-0.6	0.000	yes	0	A
No telephone service available	33,064	21,615	7.3	4.7	2.6	0.000	yes	13	B

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
Occupants per Room									
1.00 or less	397,569	372,005	87.7	80.3	7.4	0.000	yes	71	D
1.01 to 1.50	37,702	44,905	8.3	9.7	-1.4	0.000	yes	9	A
1.51 or more	18,133	46,300	4.0	10.0	-6.0	0.000	yes	51	D
H. Housing: Financial Characteristics									
SPECIFIED OWNER-OCCUPIED UNITS	33,128	35,360	.	.	.	0.017	yes	0	-
Value									
Less than $50,000	555	535	1.7	1.5	0.2	0.679	no	0*	A
$50,000 to $99,999	1,493	1,950	4.5	5.5	-1.0	0.069	yes	0*	A
$100,000 to $149,999	3,841	4,345	11.6	12.3	-0.7	0.456	no	0*	A
$150,000 to $199,999	11,880	13,955	35.9	39.5	-3.6	0.007	yes	3	B
$200,000 to $299,999	11,963	11,725	36.1	33.2	3.0	0.035	yes	1	B
$300,000 to $499,999	2,760	1,985	8.3	5.6	2.7	0.000	yes	1	B
$500,000 to $999,999	566	505	1.7	1.4	0.3	0.365	no	0*	A
$1,000,000 or more	71	360	0.2	1.0	-0.8	0.000	yes	0*	A
Median (dollars)	195,446	190,400	.	.	.	0.001	yes	n.a.	-
Mortage Status and Selected Monthly Owner Costs									
Housing units with a mortgage	21,619	23,340	65.3	66.0	-0.7	0.021	yes	2	A
Less than $300	19	10	0.1	0.0	0.0	0.924	no	0*	A
$300 to $499	186	220	0.6	0.6	-0.1	0.822	no	0*	A
$500 to $699	827	920	2.5	2.6	-0.1	0.797	no	0*	A
$700 to $999	2,316	2,610	7.0	7.4	-0.4	0.583	no	0*	A
$1,000 to $1,499	6,440	6,565	19.4	18.6	0.9	0.455	no	1	A
$1,500 to $1,999	7,125	7,350	21.5	20.8	0.7	0.583	no	0*	A
$2,000 or more	4,707	5,665	14.2	16.0	-1.8	0.067	yes	0*	A
Median (dollars)	1,567	1,584	.	.	.	0.536	no	n.a.	-
Housing units without a mortgage	11,509	12,020	34.7	34.0	0.7	0.328	no	1	A
Median (dollars)	444	471	.	.	.	0.004	yes	n.a.	-
Selected Monthly Owner Costs as Percentage of Household Income									
Less than 20 percent	13,367	14,195	40.3	40.1	0.2	0.882	no	0*	A
20.0 to 24.9 percent	4,079	3,920	12.3	11.1	1.2	0.194	no	0*	A
25.0 to 29.9 percent	3,553	3,230	10.7	9.1	1.6	0.086	yes	0*	A
30.0 to 34.9 percent	2,215	2,660	6.7	7.5	-0.8	0.245	no	0*	A
35.0 percent or more	9,736	10,635	29.4	30.1	-0.7	0.597	no	0*	A
Not computed	178	725	0.5	2.1	-1.5	0.000	yes	0*	A
SPECIFIED RENTER-OCCUPIED UNITS	369,682	372,480	.	.	.	0.125	no	12	-
Gross Rent									
Less than $200	28,876	34,050	7.8	9.1	-1.3	0.000	yes	8	A
$200 to $299	24,990	24,530	6.8	6.6	0.2	0.434	no	3	A
$300 to $499	52,180	55,375	14.1	14.9	-0.8	0.023	yes	8	A
$500 to $749	153,004	151,890	41.4	40.8	0.6	0.181	no	13	A
$750 to $999	77,257	74,945	20.9	20.1	0.8	0.043	yes	11	A
$1,000 to $1,499	23,158	22,145	6.3	5.9	0.3	0.156	no	0	A
$1,500 or more	2,439	2,870	0.7	0.8	-0.1	0.225	no	0	A
No cash rent	7,778	6,680	2.1	1.8	0.3	0.027	yes	0	A

Stub	1999-2001 Average ACS	2000 Census	Percent ACS	Percent Census	Difference (% ACS - % Census)	pvalue of difference	Statistically Significant	Number of Neighborhoods with Significant Differences	Matrix Cell
Median (dollars)	635	620	.	.	.	0.000	yes	n.a.	-
Gross Rent as a Percentage of Household Income									
Less than 15 percent	56,016	71,645	15.2	19.2	-4.1	0.000	yes	25	D
15.0 to 19.9 percent	41,914	43,030	11.3	11.6	-0.2	0.513	no	7	A
20.0 to 24.9 percent	37,943	39,070	10.3	10.5	-0.2	0.440	no	6	A
25.0 to 29.9 percent	37,413	34,970	10.1	9.4	0.7	0.014	yes	3	A
30.0 to 34.9 percent	32,292	26,015	8.7	7.0	1.8	0.000	yes	6	A
35.0 percent or more	149,353	134,915	40.4	36.2	4.2	0.000	yes	17	B
Not computed	14,752	22,840	4.0	6.1	-2.1	0.000	yes	7	B

Sources: 1999-2001 American Community Survey (ACS) and 2000 Decennial Census

Population Division
New York City Department of City Planning

Map 1 - 1
Neighborhoods of the Bronx

Riverdale / North Riverdale

Van Cortland Park

Wakefield - West

Woodlawn

Wakefield - East

Eastchester

Kingsbridge

Spuyten Duyvil / Kingsbridge

Kingsbridge Hts. - North

Norwood - North

Williamsbridge - West

Williamsbridge - Central

Williamsbridge - East

Edenwald

Pelham Bay Park

Bedford Park / Kingsbridge Hts.

Norwood / Reservoir Oval

Williamsbridge - South

Baychester - West

Baychester - East

Kingsbridge Heights - South

Bedford Park - West

Bedford Park - East

Norwood - South

Olinville / Allerton

Bronxdale - North

Allerton / Baychester

Co-op City

University Hts. - North

Botanical Gardens

Allerton / Pelham Gardens

University Hts. - South

Fordham / Belmont - North

Bronxdale - South

Morris Hts. - West

Fordham / Belmont West

Fordham - South

Fordham / Belmont Central

Fordham / Belmont - South

Zoo / Botanical Gardens

Pelham Parkway West

Pelham Parkway / Pelham Bay

Morris Hts. - North

Mt. Hope - West / Tremont - West

Mt. Hope / Tremont - East Central

Belmont - South

Morris Hts. - East

Mt. Hope / Tremont - Central

Tremont / Mt. Hope

East Tremont / Bronx Park

Morris Park

High Bridge / Mt. Eden

Bathgate / Mt. Eden - East

East Tremont

Van Nest / West Farms

Pelham Bay

Mt. Eden

Concourse - North

Parkchester - North

Westchester Square

Country Club/ City Island/ Pelham

High Bridge - South

Concourse / Mt. Eden

Concourse Central

Claremont

Melrose / Crotona

Crotona - East

Bronx River - West

West Farms / Bronx River

Bronx River / Bruckner

Parkchester - South

Melrose East

Soundview / Bruckner - East

Unionport / Soundview

Schuylerville / Edgewater

Concourse / Concourse Village

Melrose - West

Mott Haven - North

Longwood - West

Longwood North

Soundview / Bruckner - West

Castle Hill - West

Throgs Neck / Edgewater

Mott Haven / Melrose

Mott Haven Central

Longwood South

Soundview North

Harding Park / Castle Hill

Soundview South

Harding Park / Castle Hill

Port Morris / Mott Haven

Hunt's Point / Riker's Island

Mott Haven - South

West Bronx Detail

Fordham / Belmont - North

University Hts. - South

Morris Hts. - North

Fordham West

Fordham / Belmont Central

Fordham / Belmont - South

Morris Hts. - West

Mt. Hope / Tremont - West

Mt. Hope / Tremont - Central

Mt. Hope / Tremont - East Central

Fordham / Belmont - South

Belmont - South

Morris Hts. East

Tremont / Mt. Hope

East Tremont

East Tremont / Bronx

High Bridge / Mt. Eden

Mt. Eden

Bathgate / Mt. Eden - East

Melrose / Crotona

Crotona - East

High Bridge - South

Concourse / Mt. Eden

Concourse Central

Concourse - North

Claremont

Concourse Melrose

Bronx River West

1   0   1   2   Miles

N

Map 1 - 2
Population Density in Bronx County, New York

Source: Census 2000, SF3

Population Density

■	**More than 200 Persons per Acre**
■	**150 to 200 Persons per Acre**
■	**100 to 150 Persons per Acre**
■	**50 to 100 Persons per Acre**
□	**Less than 50 Persons per Acre**
■	**Parks**

N

0   3 Miles
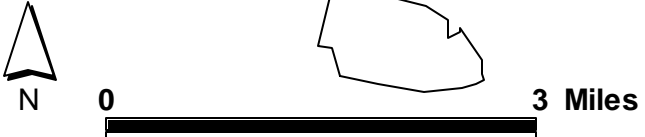
Map 1 - 3
Public Assistance
in Bronx County,
New York
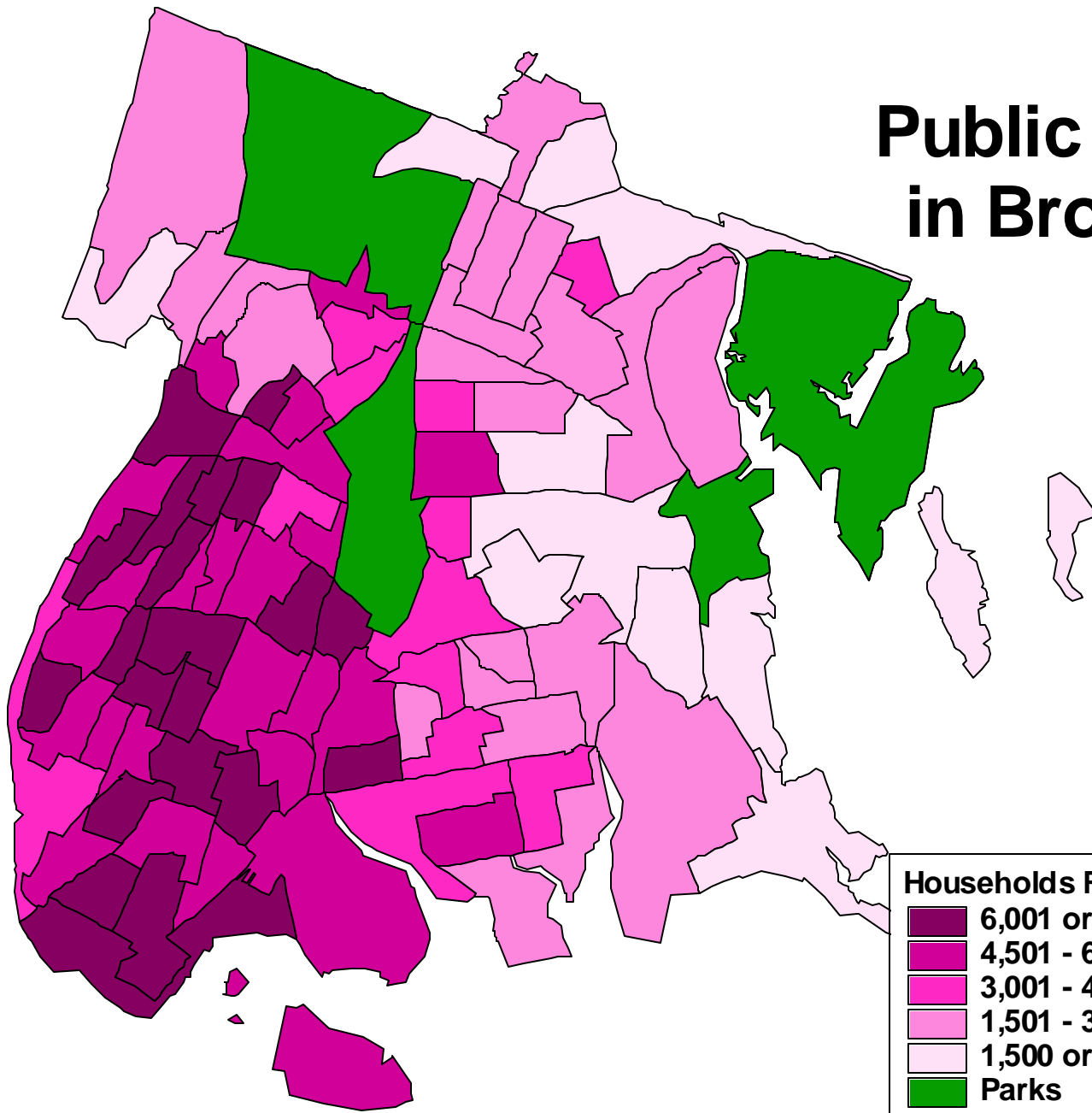
Source: NYC Human Resources
Administration, 2000

Households Receiving Public Assistance
- **6,001 or More**
- **4,501 - 6,000**
- **3,001 - 4,500**
- **1,501 - 3,000**
- **1,500 or Less**
- **Parks**

Map 2 - 1
Mail Return Rates
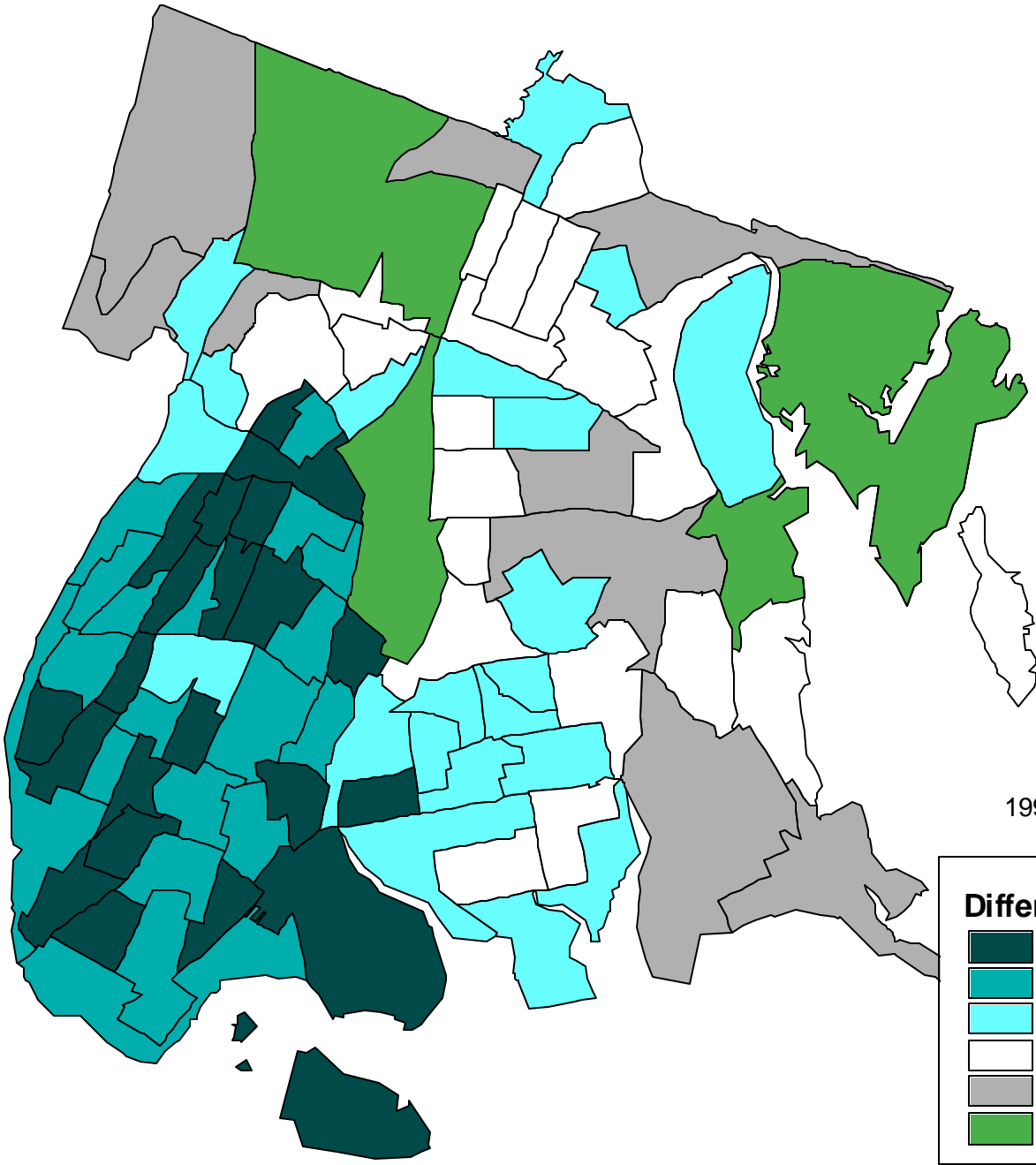
Average ACS:	34.2
Average Census:	51.9
Number of Neighborhoods with a Significant Difference:	79
Correlation Coefficient:	0.42

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

Difference: ACS - Census
- **-32.1 to -24.2 percentage points**
- **-24.2 to -19.8 percentage points**
- **-19.8 to -13.7 percentage points**
- **-13.7 to -5.7 percentage points**
- **No Significant Difference**
- **Parks**

Map 2 - 2
Occupied Sample Unit Nonresponse Rates
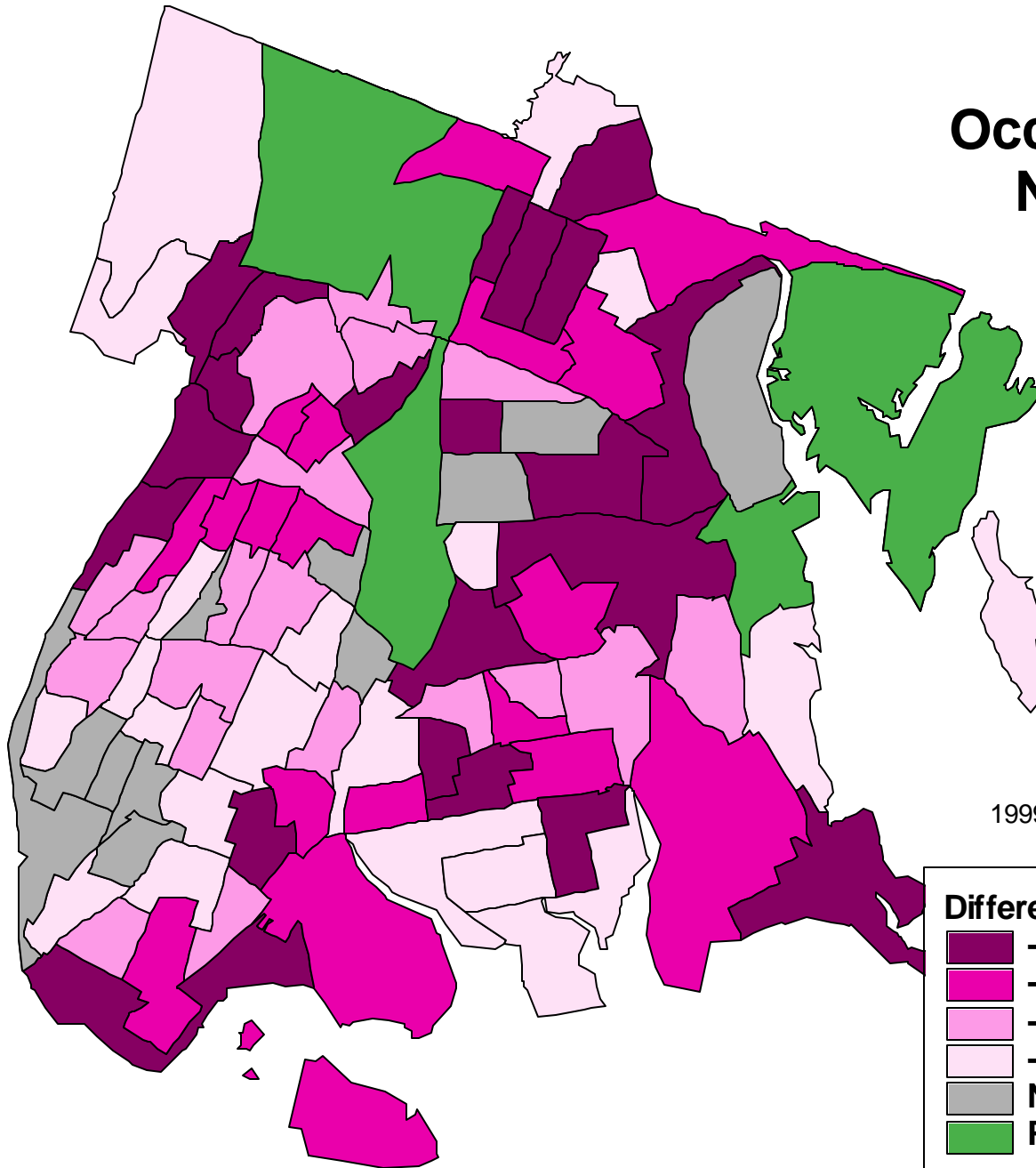
Average ACS:	10.5
Average Census:	21.3
Number of Neighborhoods with a Significant Difference:	77
Correlation Coefficient:	0.23

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

Difference: ACS - Census
- **-29.2 to -14.8 percentage points**
- **-14.8 to -11.1 percentage points**
- **-11.1 to -8.3 percentage points**
- **-8.3 to 5.9 percentage points**
- **No Significant Difference**
- **Parks**

Map 3 - 1
General Social Characteristics:
Educational Attainment:
High School Graduate (only)
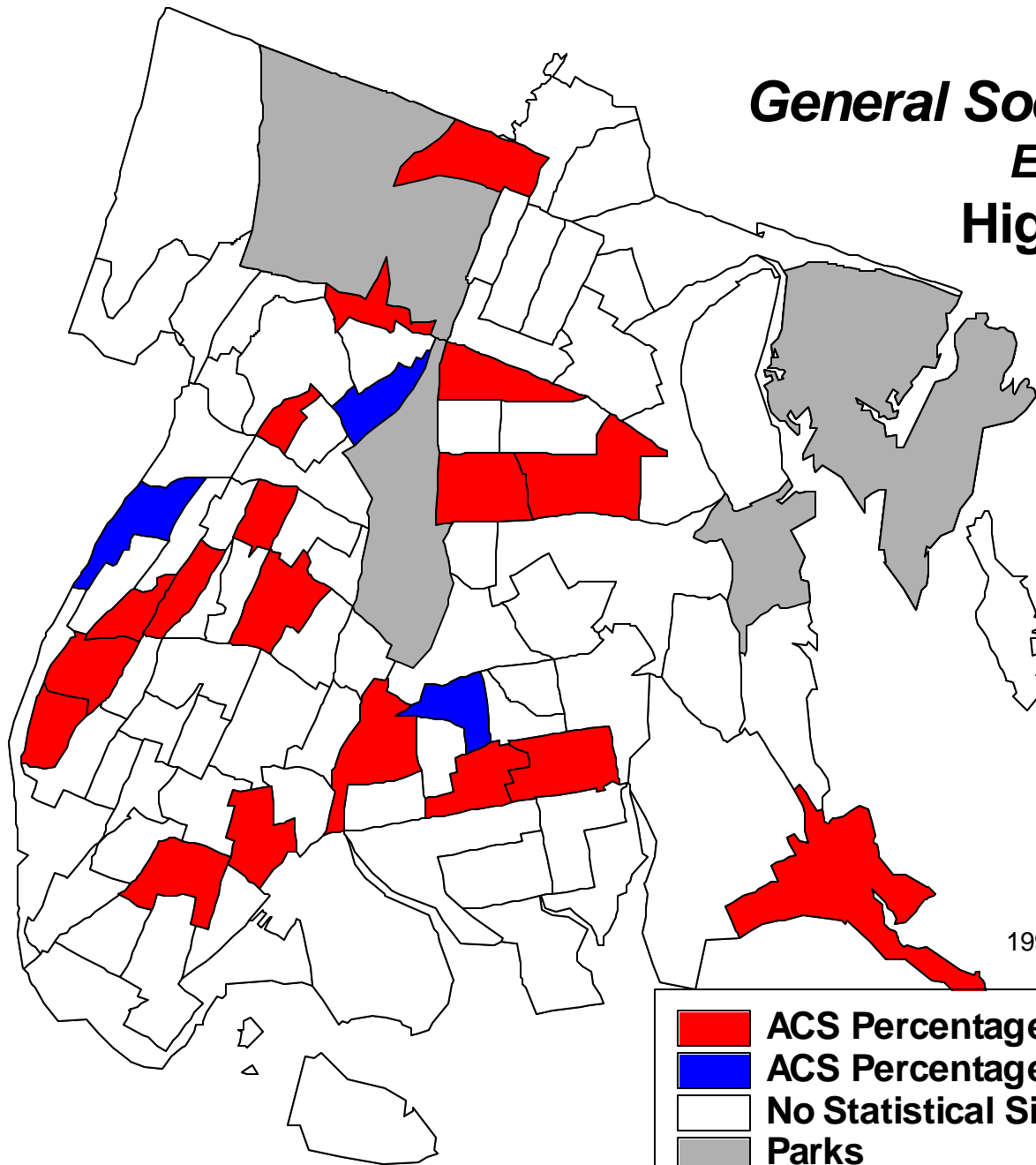
1999 - 2001	
Average ACS:	**216,267**
Percent ACS:	**28.3**
2000 Census:	**196,260**
Percent Census:	**25.7**
Difference (% ACS - % Census):	**2.5**
P Value:	**0.000**
Matrix Cell:	**D**

ACS Percentage Higher than the Census (18)
ACS Percentage Lower than the Census (3)
No Statistical Significance
Parks

Map 3 - 2
General Social Characteristics:
Disability:
Population 21 to 64 Years,
With a Disability
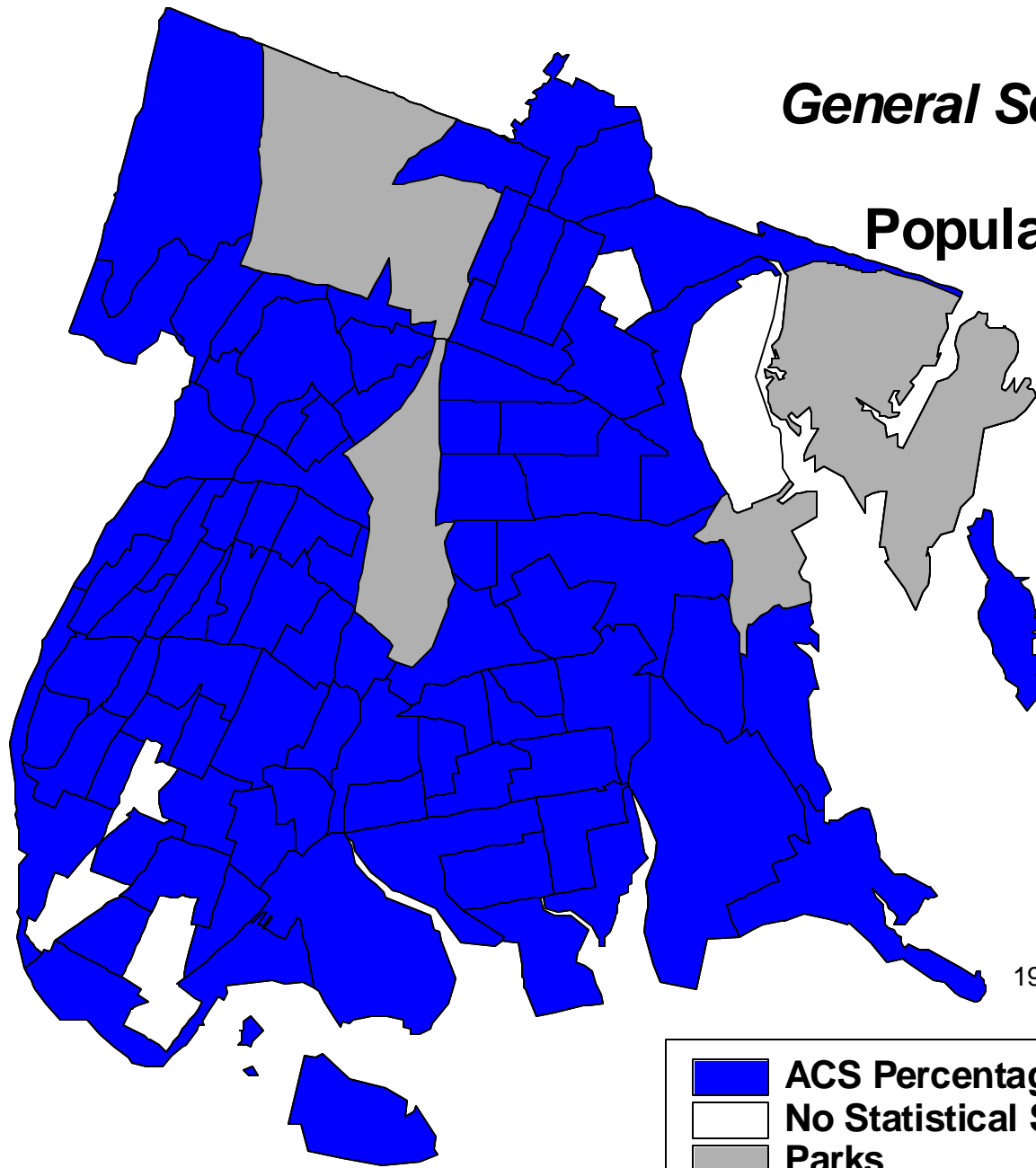
1999 - 2001 Average ACS:	**136,228**
Percent ACS:	**19.0**
2000 Census:	**226,680**
Percent Census:	**31.8**
Difference (% ACS - % Census):	**-12.8**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
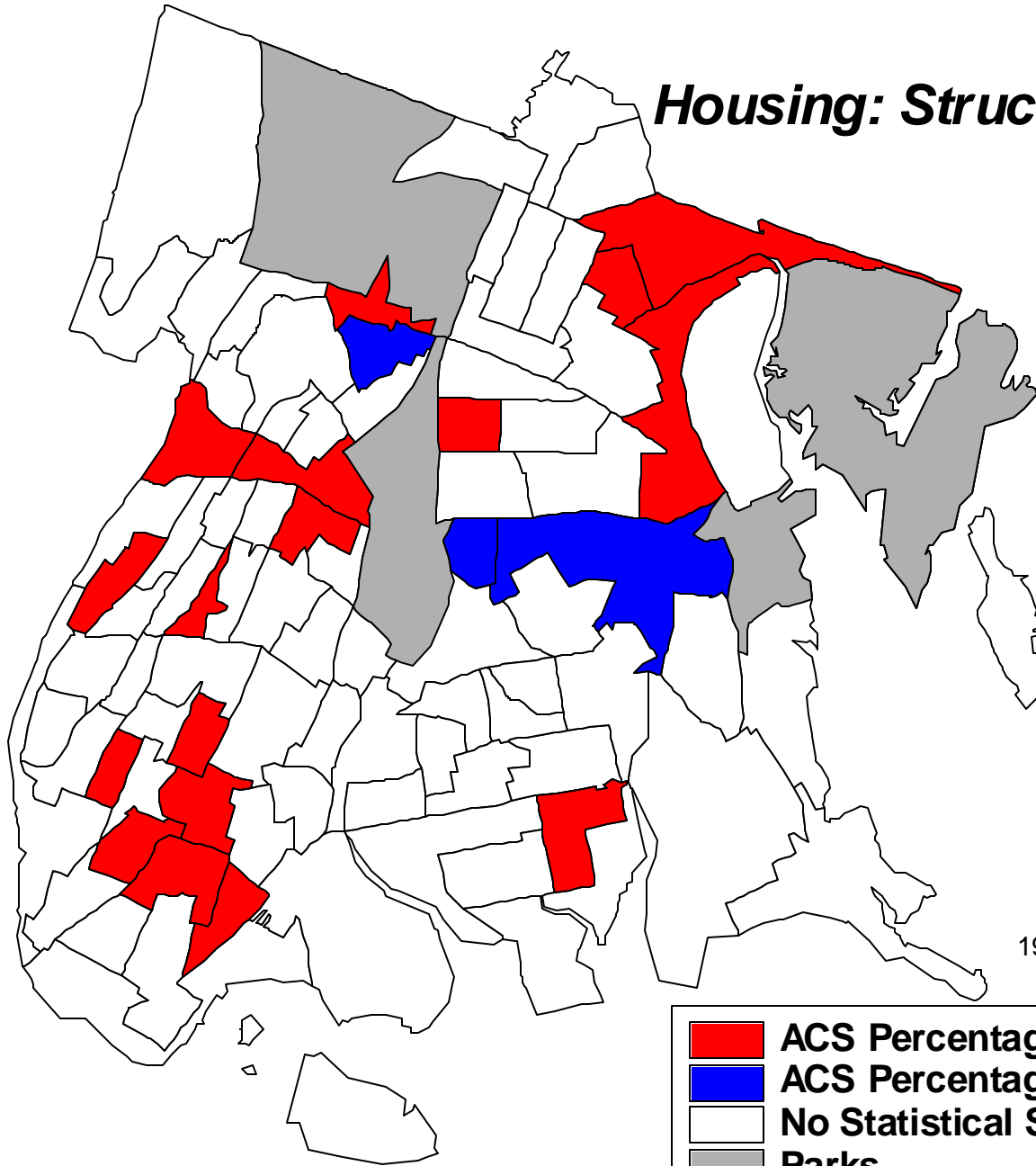1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

ACS Percentage Lower than the Census (83)
No Statistical Significance
Parks

Map 3 - 3
Place of Birth/Ancestry/Language:
Nativity and Place of Birth:
Naturalized Citizen
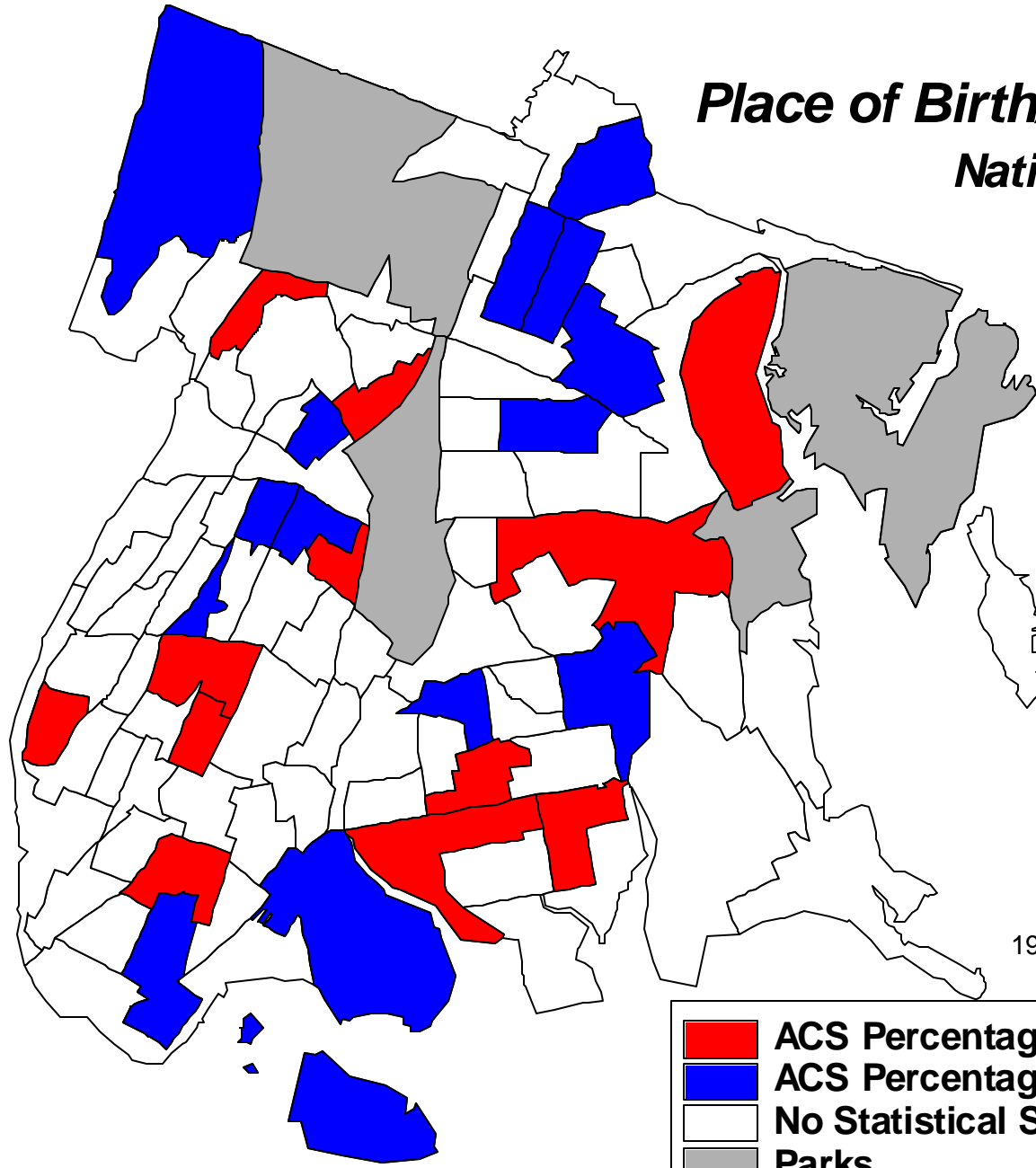
1999 - 2001 Average ACS:	**145,290**
Percent ACS:	**39.6**
2000 Census:	**150,630**
Percent Census:	**39.3**
Difference (% ACS - % Census):	**0.3**
P Value:	**0.61**
Matrix Cell:	**C**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

- ACS Percentage Higher than the Census (12)
- ACS Percentage Lower than the Census (14)
- No Statistical Significance
- Parks

Map 3 - 4
Place of Birth/Ancestry/Language:
Language Spoken at Home:
Spanish Speaking, Speaks English Less than "Very Well"
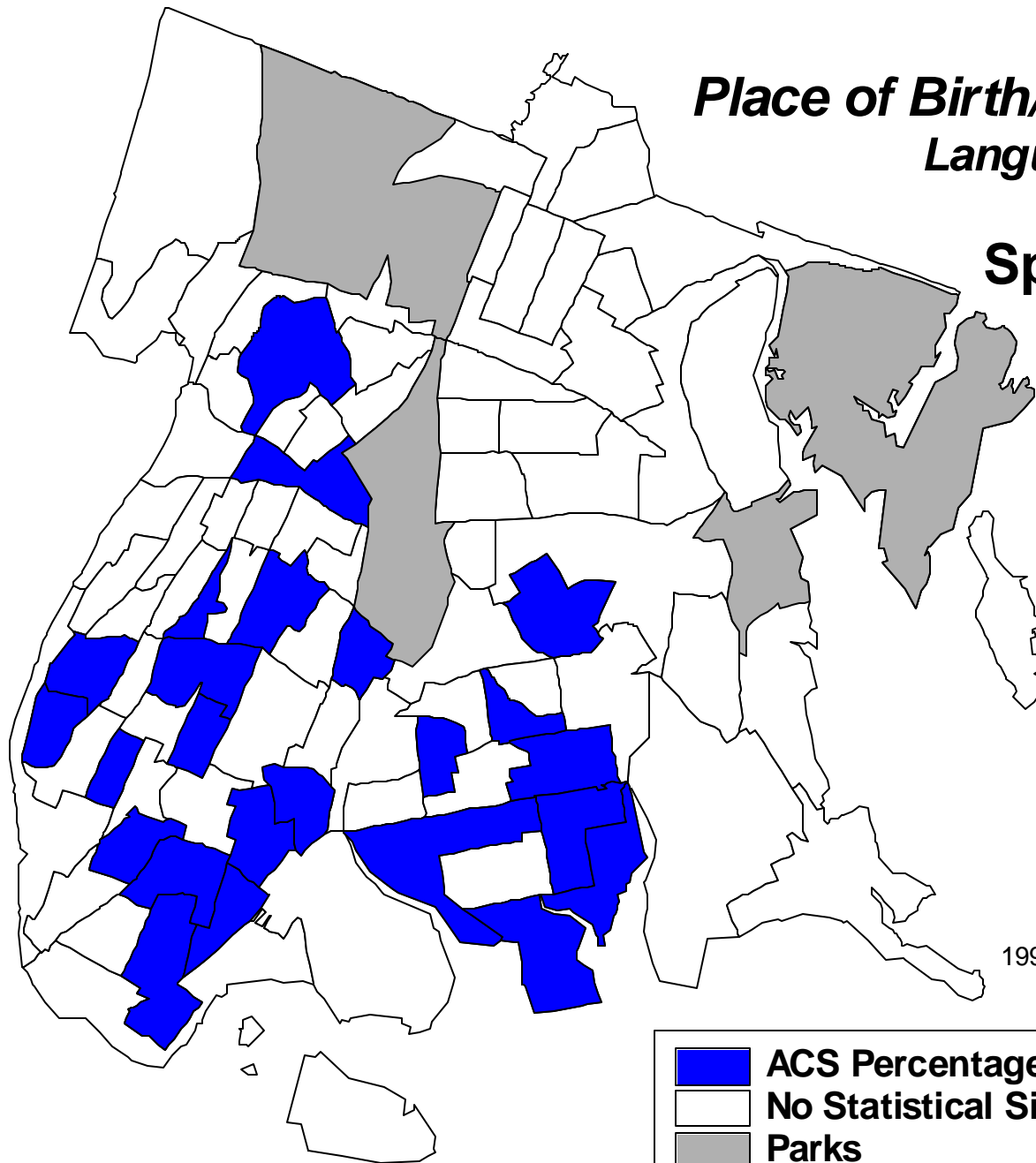
1999 - 2001
Average ACS: **225,832**

Percent ACS: **19.2**

2000 Census: **256,480**

Percent Census: **21.7**

Difference
(% ACS - % Census): **-2.6**

P Value: **0.00**

Matrix Cell: **D**

Sources:
1999-2001 American Community Survey (ACS)
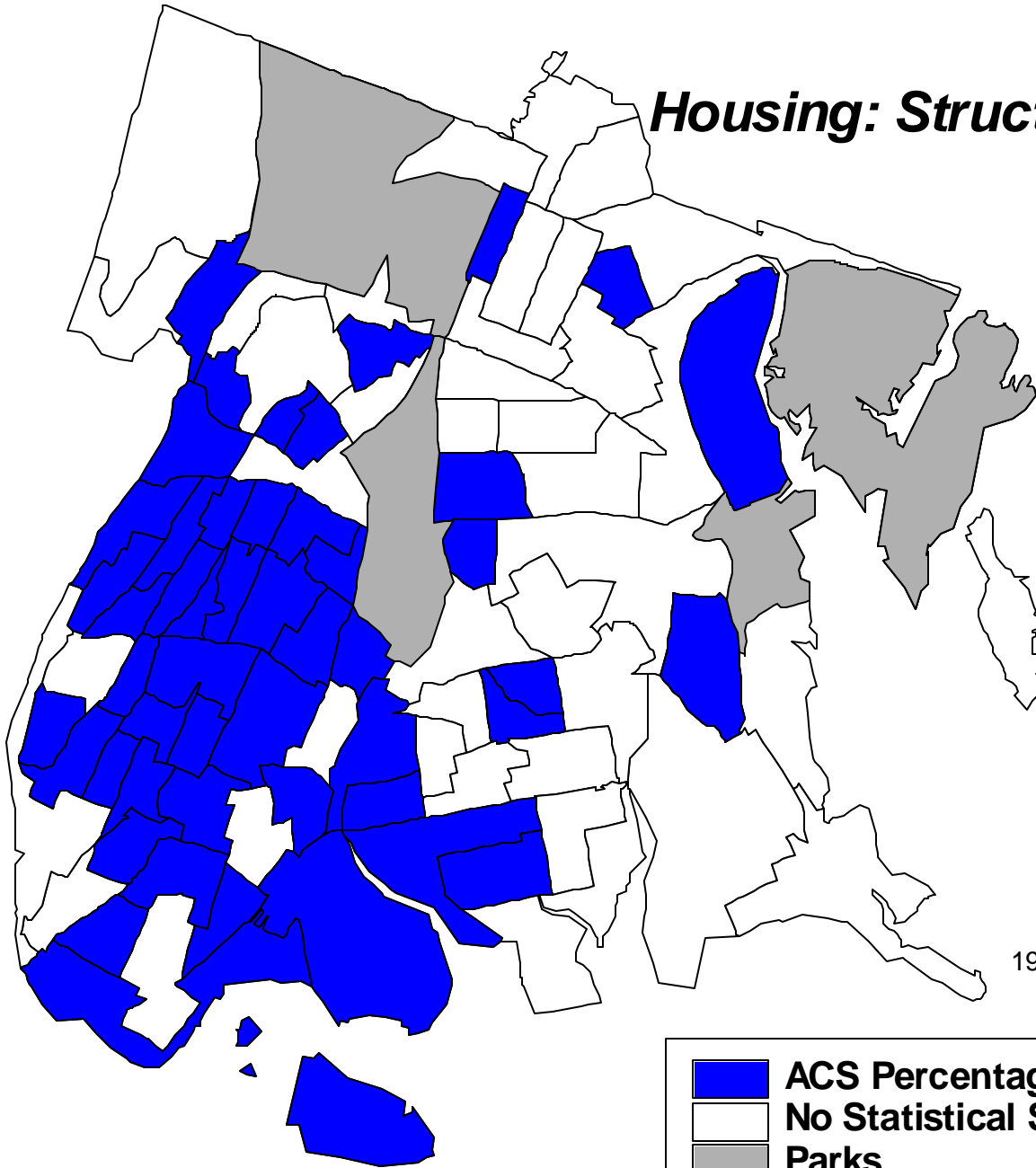and 2000 Decennial Census

ACS Percentage Lower than the Census (23)
No Statistical Significance
Parks

Map 3 - 5
Labor Force/Employment/Commuting:
Employment Status:
Population 16 Years and Over Employed in Civilian Labor Force
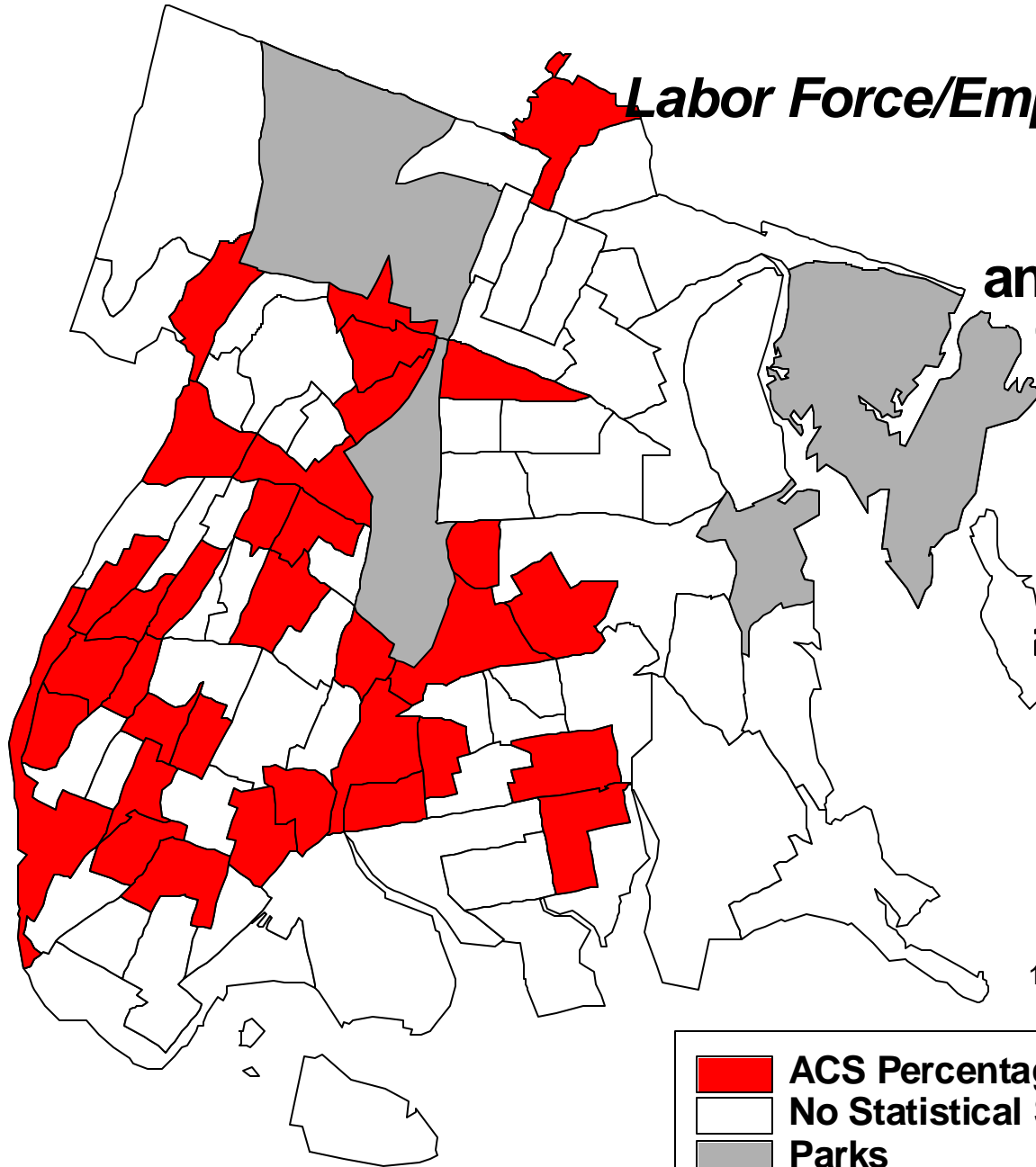
1999 - 2001 Average ACS:	**470,741**
Percent ACS:	**50.3**
2000 Census:	**426,290**
Percent Census:	**45.7**
Difference (% ACS - % Census):	**4.6**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

ACS Percentage Higher than the Census (34)
No Statistical Significance
Parks

Map 3 - 6
## Housing: Structural Characteristics:
Units in Structure:
20 or More Units

1999 - 2001	
Average ACS:	**323,882**
Percent ACS:	**66.0**
2000 Census:	**307,250**
Percent Census:	**62.6**
Difference (% ACS - % Census):	**3.4**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

ACS Percentage Higher than the Census (17)
ACS Percentage Lower than the Census (3)
No Statistical Significance
Parks

Map 3 - 7
Housing: Structural Characteristics:
Year Structure Built:
Built 1939 or Earlier
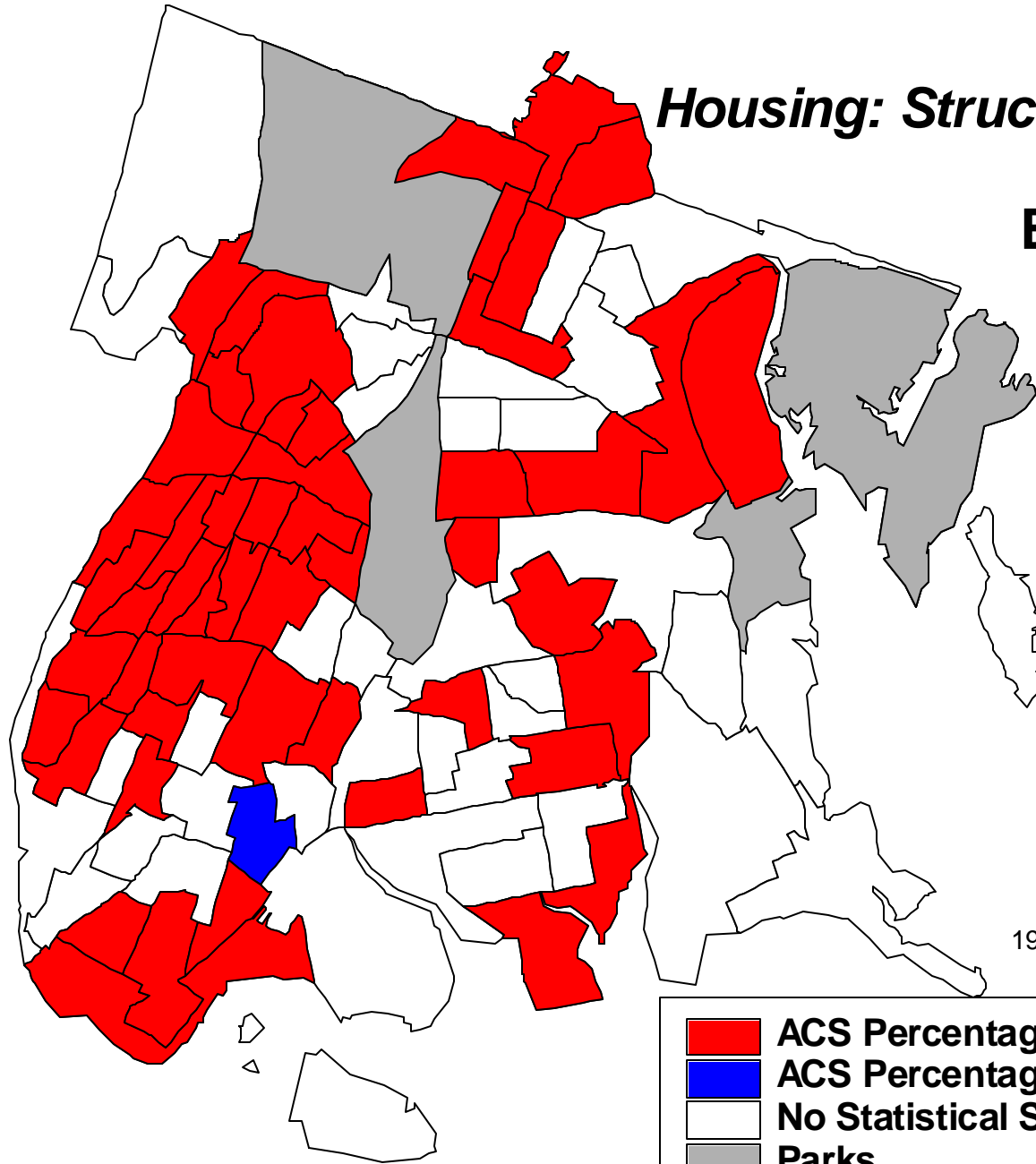
1999 - 2001 Average ACS:	**179,792**
Percent ACS:	**36.6**
2000 Census:	**134,870**
Percent Census:	**27.5**
Difference (% ACS - % Census):	**9.1**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

■ **ACS Percentage Higher than the Census (50)**
■ **ACS Percentage Lower than the Census (1)**
□ **No Statistical Significance**
■ **Parks**

Map 3 - 8
Housing: Structural Characteristics:
Rooms:
2 Rooms

1999 - 2001 Average ACS:	**28,045**
Percent ACS:	**5.7**
2000 Census:	**50,865**
Percent Census:	**10.4**
Difference (% ACS - % Census):	**-4.7**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

ACS Percentage Lower than the Census (49)
No Statistical Significance
Parks

Map 3 - 9
Housing: Year Moved/Vehicles/Fuel:
House Heating Fuel:
Fuel Oil, Kerosene, Etc.
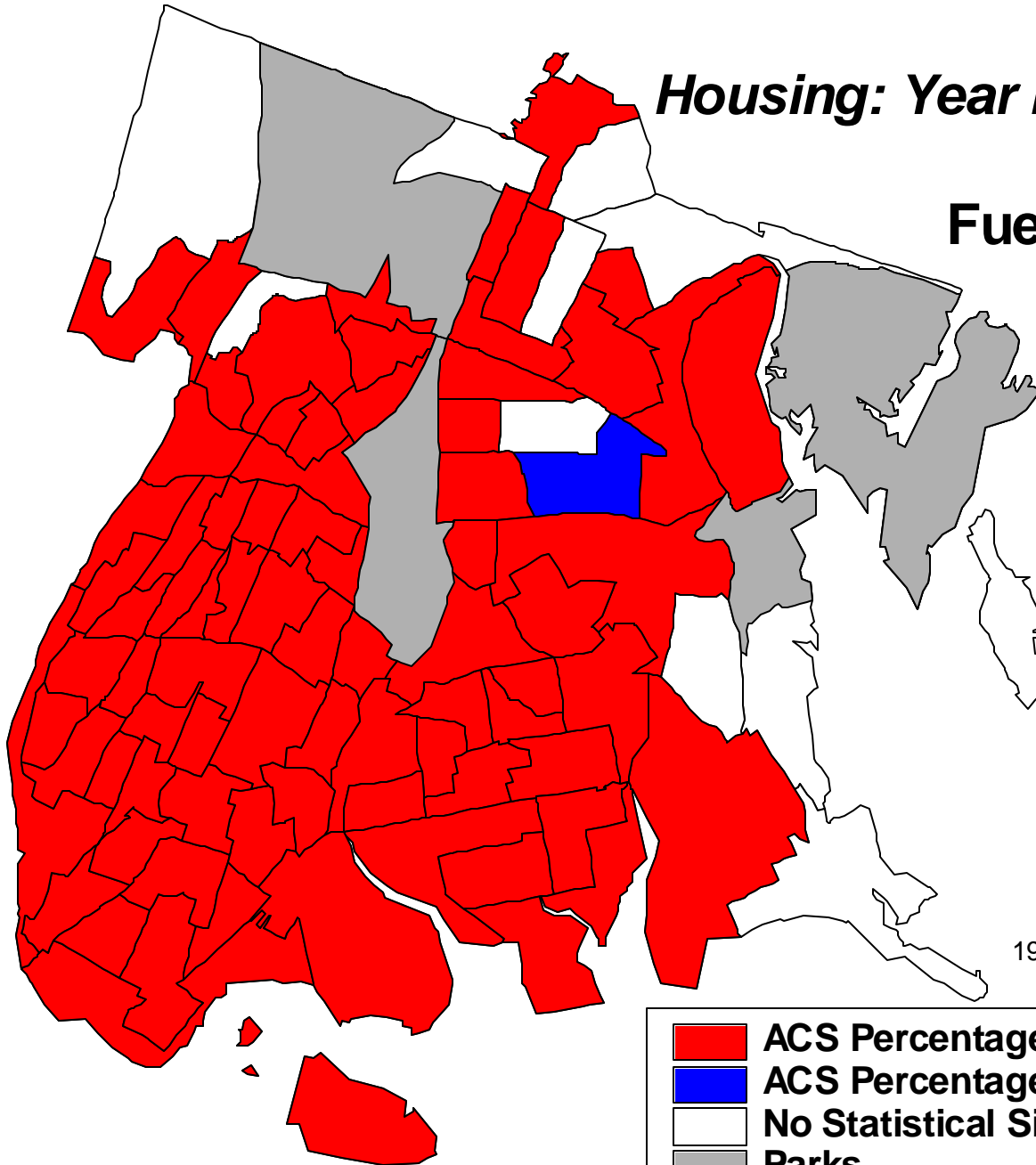
1999 - 2001	
Average ACS:	**276,296**
Percent ACS:	**60.9**
2000 Census:	**182,855**
Percent Census:	**39.5**
Difference (% ACS - % Census):	**21.4**
P Value:	**0.00**
Matrix Cell:	**D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

- **ACS Percentage Higher than the Census (77)**
- **ACS Percentage Lower than the Census (1)**
- **No Statistical Significance**
- **Parks**

Map 3 - 10
Housing: Year Moved/Vehicles/Fuel:
Occupants per Room:
1.51 Persons or More
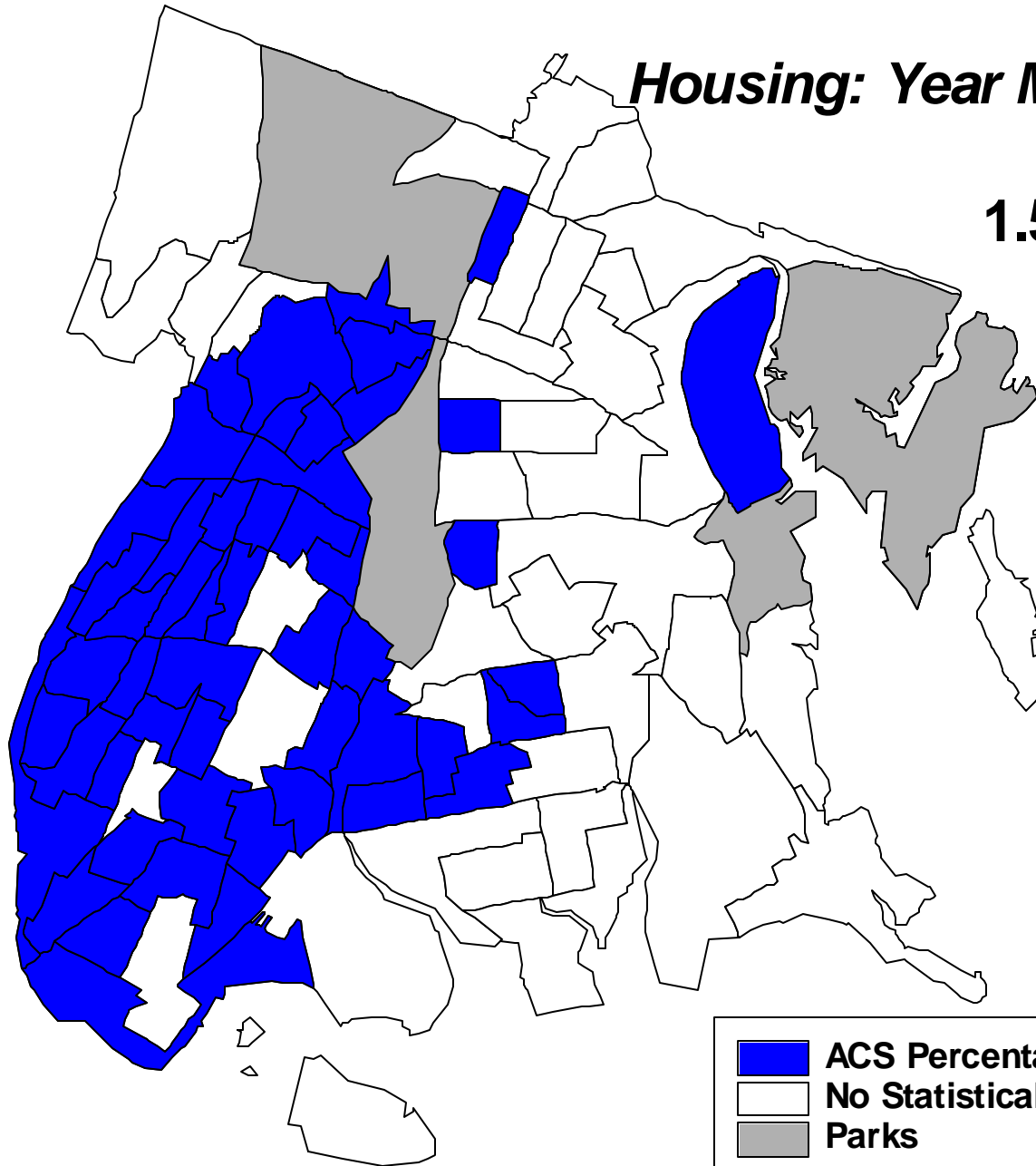
1999 - 2001
Average ACS: **18,133**

Percent ACS: **4.0**

2000 Census: **46,300**

Percent Census: **10.0**

Difference
(% ACS - % Census): **-6.0**

Significant
Difference: **Yes**

P Value: **0.000**

Matrix Cell: **D**

ACS Percentage Lower than the Census (51)
No Statistical Significance
Parks

Map 3 - 11
Housing: Year Moved/Vehicles/Fuel:
*Selected Characteristics:*
1 Vehicle Available
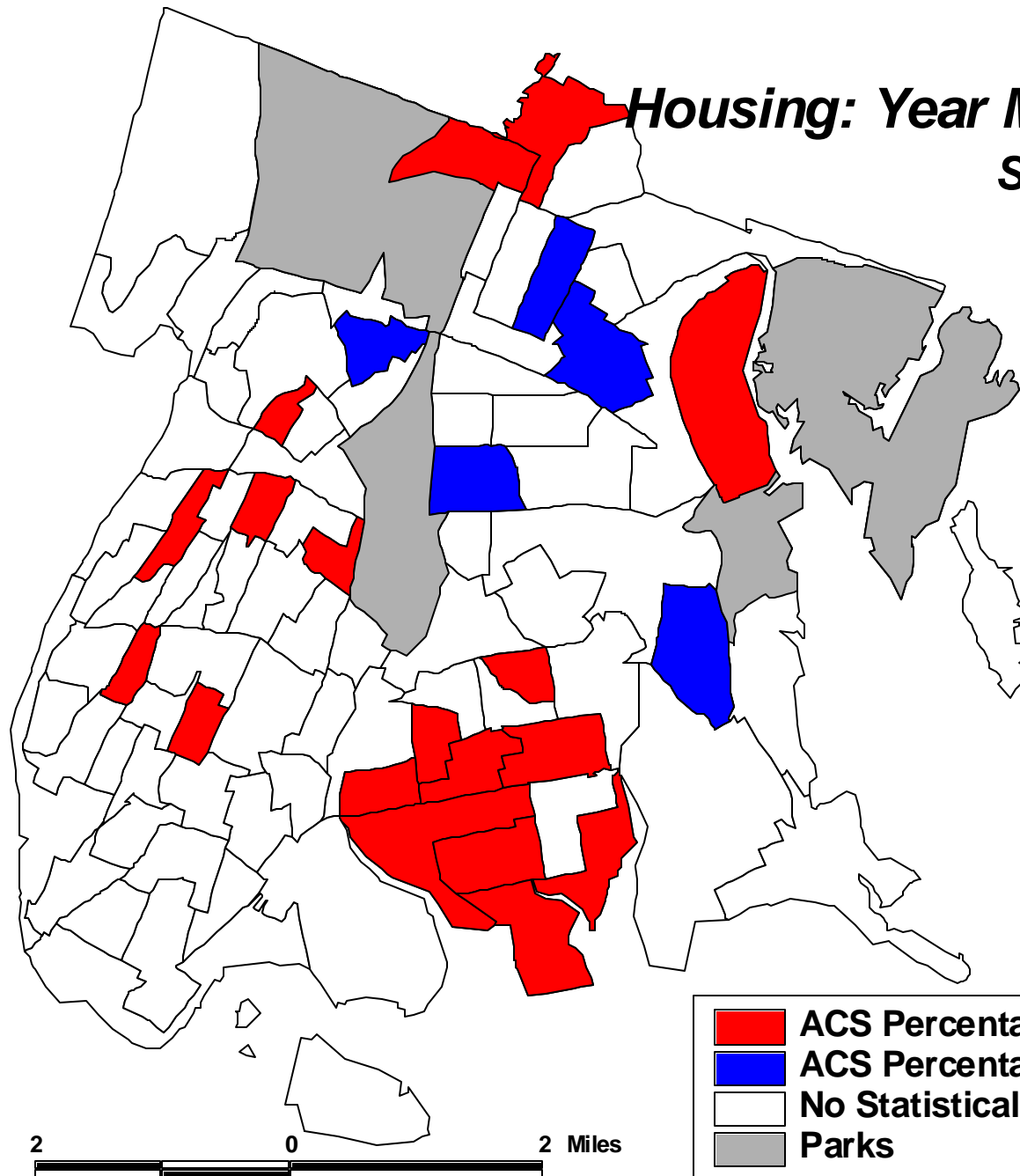
1999 - 2001 Average ACS:	**136,354**
Percent ACS:	**30.1**
2000 Census:	**133,330**
Percent Census:	**28.8**
Difference (% ACS - % Census):	**-1.3**
Significant Difference:	**Yes**
P Value:	**0.002**
Matrix Cell:	**C**

2   0   2 Miles

ACS Percentage Higher than the Census (17)
ACS Percentage Lower than the Census (5)
No Statistical Significance
Parks

Map 3 - 12
Housing: Financial Characteristics:
Gross Rent as a Percentage
### *of Household Income:*
Less than 15.0 Percent
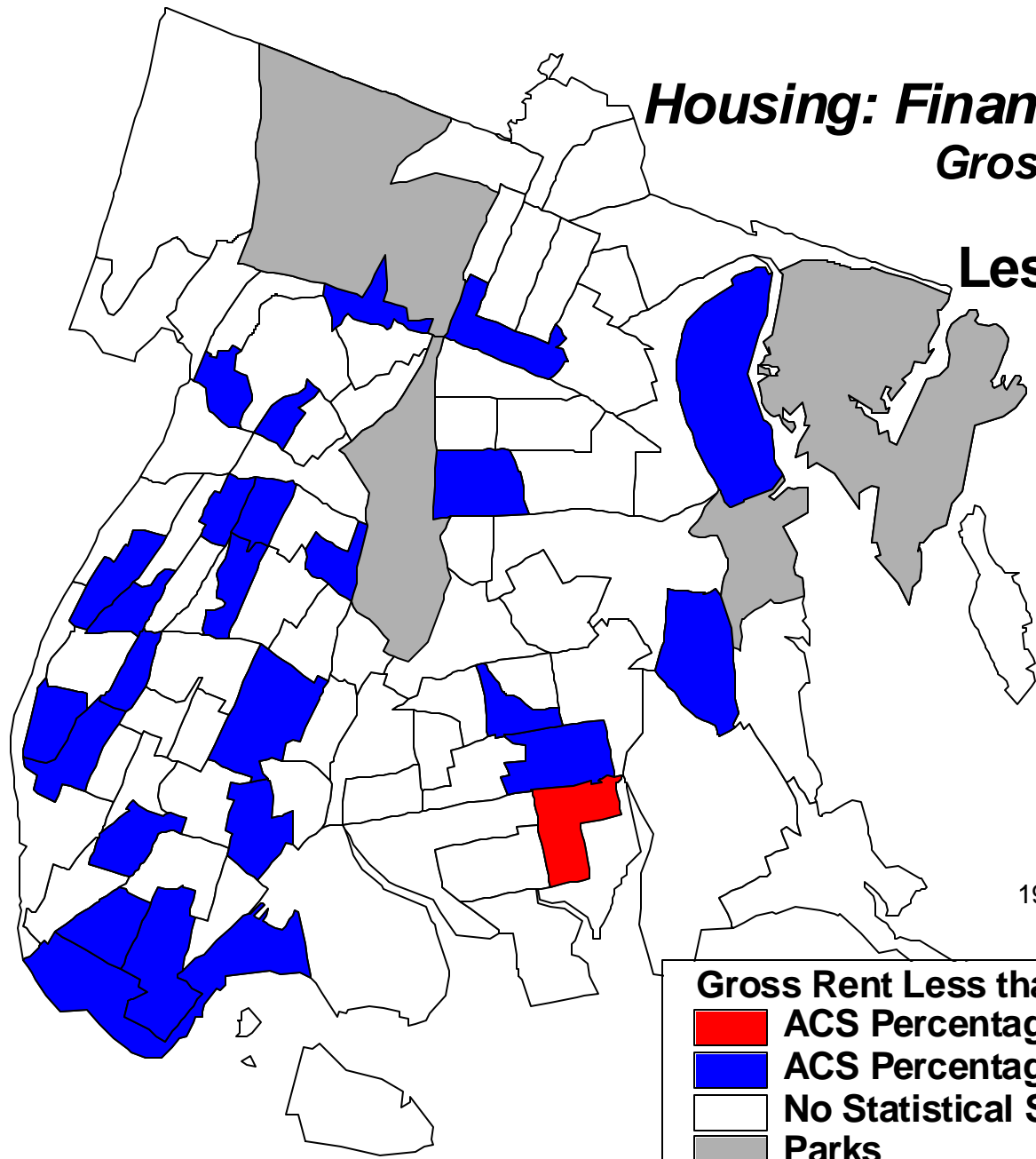
1999 - 2001
Average ACS: **56,016**

Percent ACS: **15.2**

2000 Census: **71,645**

Percent Census: **19.2**

Difference
(% ACS - % Census): **-4.1**

P Value: **0.00**

Matrix Cell: **D**

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

Gross Rent Less than 15.0 Percent of Income
- 🟥 **ACS Percentage Higher than the Census (1)**
- 🟦 **ACS Percentage Lower than the Census (24)**
- ⬜ **No Statistical Significance**
- ⬛ **Parks**
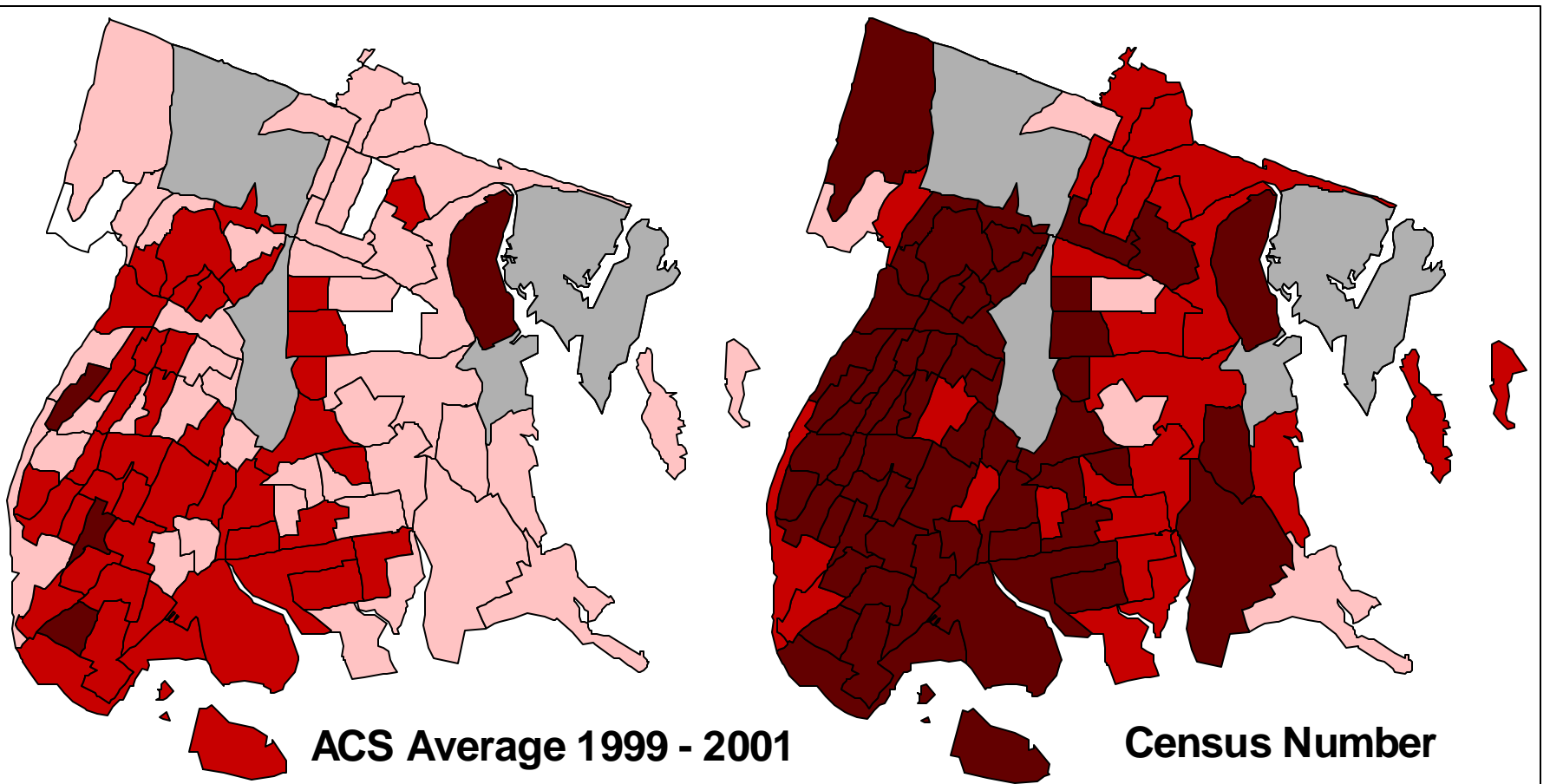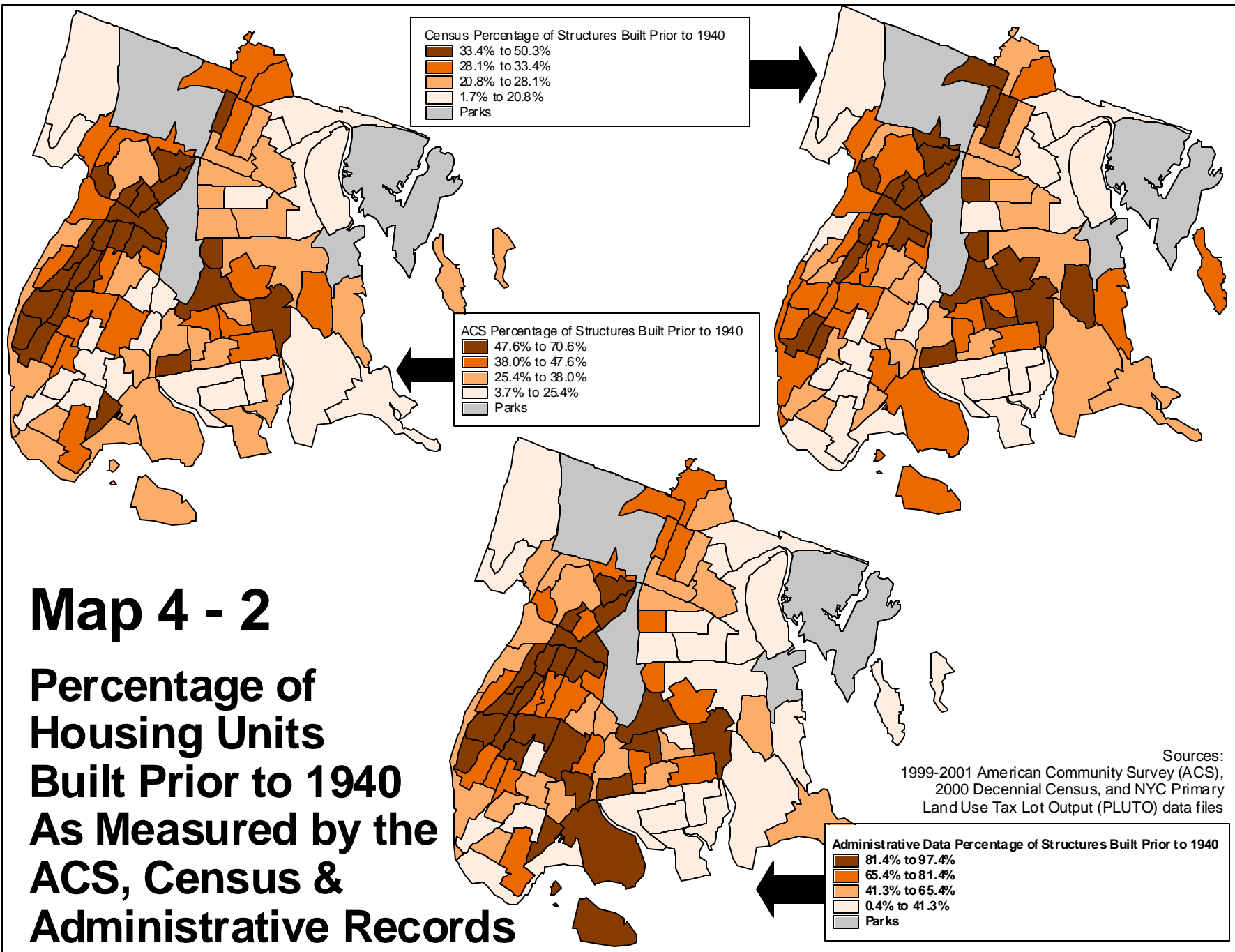
ACS Average 1999 - 2001

Census Number

Number:
Population 21 to 64, with a Disability

- 2,251 or More
- 1,501 - 2,250
- 751 - 1,500
- 750 or Less
- Parks

Sources:
1999-2001 American Community Survey (ACS)
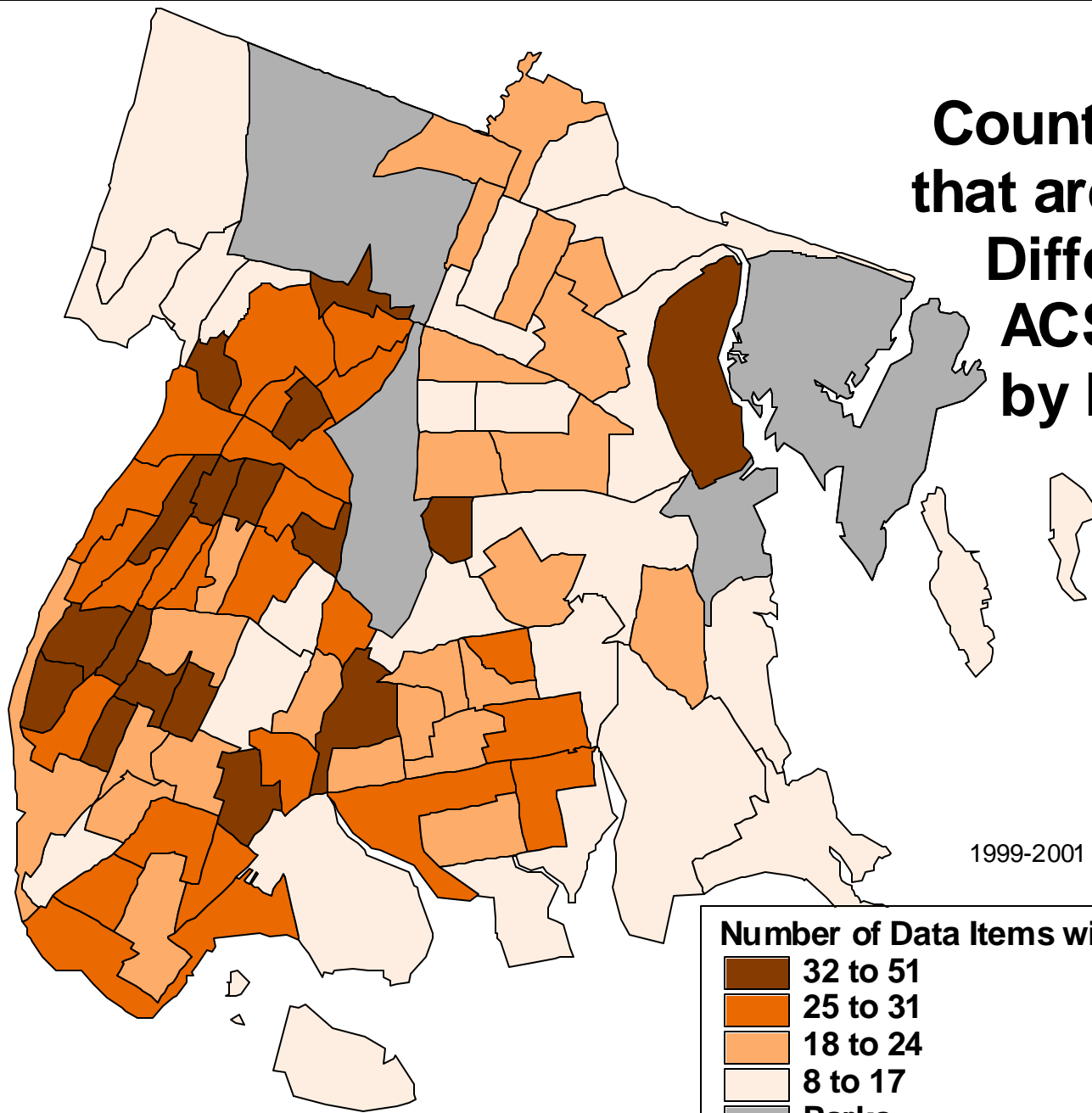and 2000 Decennial Census

Map 4 - 1

**Population 21 to 64 Years,
with a Disability
In the ACS and the Census**

Census Percentage of Structures Built Prior to 1940
- 33.4% to 50.3%
- 28.1% to 33.4%
- 20.8% to 28.1%
- 1.7% to 20.8%
- Parks

ACS Percentage of Structures Built Prior to 1940
- 47.6% to 70.6%
- 38.0% to 47.6%
- 25.4% to 38.0%
- 3.7% to 25.4%
- Parks

Map 4 - 2

Percentage of Housing Units Built Prior to 1940 As Measured by the ACS, Census & Administrative Records

Sources:
1999-2001 American Community Survey (ACS),
2000 Decennial Census, and NYC Primary
Land Use Tax Lot Output (PLUTO) data files

Administrative Data Percentage of Structures Built Prior to 1940
- 81.4% to 97.4%
- 65.4% to 81.4%
- 41.3% to 65.4%
- 0.4% to 41.3%
- Parks

Map 4 - 3

Count of Data Items that are Significantly Different Between ACS and Census, by Neighborhood

Sources:
1999-2001 American Community Survey (ACS)
and 2000 Decennial Census

Number of Data Items with Significant Differences

- **32 to 51**
- **25 to 31**
- **18 to 24**
- **8 to 17**
- **Parks**