

Final Report

The American Community Survey: CHALLENGES AND OPPORTUNITIES FOR HUD

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Submitted by



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EXECUTIVE SUMMARY

Since 1940 the Census Bureau has used two questionnaires to collect data for the decennial census: (1) a “short form” that counts the population and gathers basic information and (2) a “long form” that obtains more detailed demographic, housing, social, and economic information from a sample of households.

What we know about households – their incomes, their education, their employment, their housing – at the State, county, city, and census tract level usually comes from the long form. The Department of Housing and Urban Development (HUD) uses long-form information to determine program eligibility, allocate funds, target program activities, assess client needs, and evaluate client performance.

The Census Bureau has been planning to conduct a large national survey of households, called the American Community Survey (ACS), which would begin in 2003 and would be conducted every year thereafter. The Census Bureau intends for the ACS to serve the same purposes as the long form and to make the long form unnecessary in future censuses.

As of the printing of this report, Congress had not completed action on the Census Bureau’s appropriation request for fiscal year 2003. The Senate Appropriation Bill does not contain sufficient funds for the ACS; the House of Representatives has not finished drafting its appropriation measure. At this time, it appears that the Census Bureau will not be able to move to full implementation of the ACS in 2003.

The ACS vs. the Long Form

The ACS and the long form use similar questions and they utilize similar data collection methods (i.e., they are both mail-out surveys with telephone and in-person follow-up). Despite these similarities, the ACS differs from the long form in important respects. Among the most important differences are ones having to do with timeliness of data, precision, measurement of variables, and method of data release.

- The most important advantage of ACS is that it provides updated information throughout the decade because the ACS data are collected continuously. In contrast, because the long-form data are collected only once per decade, the long-form data become increasingly outdated as the decade progresses.
- Whereas estimates based on long-form data are released once per decade, new ACS estimates will be released each year, beginning in 2004 for areas with populations over 65,000, beginning in 2006 for areas with populations between 20,000 and 65,000, and beginning in 2008 for all areas.
- While the ACS questions are similar to those in the long form, they differ in some important respects, such as the following.
- The ACS defines residency in terms of “current residence” – a unit is defined as the current residence of a household if the household is living in the unit for at least two months upon

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receipt of the survey, even if the household lives somewhere else for most of the year. In contrast, the long form uses a “usual residence” rule, i.e., the place where a person lives and sleeps most of the time. The difference in definitions of residence has consequences for vacancy and homeownership estimates.

- ACS respondents will be requested to answer every question as of the date when they fill out the questionnaire or with respect to the 12 months prior to the date when they fill out the questionnaire. In contrast, the long form asks respondents to answer questions as of April 1 or for the preceding calendar year.
- The ACS annual samples are smaller than the long-form sample. The ACS annual samples each include about 2.5 percent of households, whereas the long-form sample includes 16.7 percent of households. The smaller sample size of the annual ACS has noteworthy consequences, including the following.
 - ◆ For areas with populations over 65,000, annual ACS estimates will have standard errors approximately 2.5 times the size of standard errors of comparable long-form estimates.
 - ◆ For areas with populations less than 65,000, the Census Bureau considers annual estimates to be below publication standards; therefore it will only release three-year moving average estimates for areas with populations between 20,000 and 65,000, and five-year moving averages for areas below 20,000. However, even the five-year averages will be less precise than comparable long-form estimates, having standard errors approximately 1.33 times as large.
- Estimates for areas smaller than census tracts (e.g., block groups) will not be released in the official ACS tables. In contrast, long-form estimates are provided for block groups.
- Because of the relative imprecision of the ACS estimates, 90-percent confidence limits will be released with them. In contrast, long-form data releases do not include confidence limits.

HUD Uses of ACS Data

The launching of the ACS and the demise of the long form could have important effects, both positive and negative, on the HUD activities that use long-form data. For this reason, HUD contracted with ORC Macro to help the Department anticipate the consequences of moving to the ACS. In the initial phase of the project, the ORC Macro team identified 25 HUD activities that depend on decennial census data and that could be affected by the ACS. The activities are the following:

- Allocation Formulas
 - ◆ Community Development Block Grants
 - ◆ HOME Block Grants
 - ◆ Emergency Shelter Block Grants
 - ◆ Indian Housing Block Grants
 - ◆ Section 8 fair share allocations

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- ◆ Section 202 fair share allocations
- ◆ Section 811 fair share allocations
- Eligibility Determinations
 - ◆ CDBG targeting & urban counties
 - ◆ HOME match
 - ◆ Low Income Housing Tax Credits: Difficult Development Areas & Qualified Census Tracts
 - ◆ Mortgage Revenue Bonds: Qualified Census Tracts
 - ◆ Identifying areas of economic distress, such as, HUB zones, Empowerment Zones and Enterprise Communities, or renewal communities
- Program Parameters
 - ◆ Fair Market Rents & Annual Adjustment Factors
 - ◆ Income limits – multiple programs
- Program Operations
 - ◆ FHA multifamily insurance – market analyses
 - ◆ Site and Neighborhood Standards
- Monitoring and Enforcement
 - ◆ Oversight of Government Sponsored Enterprises
 - ◆ Fair Housing Enforcement
- Needs Assessments
 - ◆ Consolidated Plan – CHAS
 - ◆ PHA Plans
 - ◆ Worst Case Needs Reports
- Research and Evaluation
 - ◆ Annual Performance Plan – Goals and Monitoring
 - ◆ National Urban Policy Report
 - ◆ CDBG evaluation
 - ◆ General research and evaluation

Conclusions

Based on ten meetings with HUD users, two meetings with ACS staff at the Census Bureau, and extensive analysis of HUD and Census Bureau documents, we reached three conclusions:

CONCLUSION 1: *The American Community Survey will benefit both HUD and its clients. Having more current data will improve all HUD activities that make use of long-form data and will create opportunities for new uses of these data by both HUD and cities and counties.*

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We base this conclusion on five observations:

1. All HUD activities that make use of long-form data will benefit from having more current data.
2. No HUD functions will be made worst off by the Census Bureau's decision to replace the long form with the ACS.
3. Some of the issues associated with the use of ACS data are also issues associated with the use of long-form data.
4. Annual availability of ACS data creates new opportunities for HUD.
5. Cities and counties will have greatly improved information on which to base housing, community development, and economic development decisions.

CONCLUSION 2: Using ACS data in place of decennial long-form data will create no problems for current HUD applications that HUD users will not be able solve in a manner consistent with existing practices and program objectives.

We base this conclusion on four observations.

1. Despite some differences, the ACS is very similar to the decennial long form in content and format.
2. The Census Bureau will release ACS data in formats consistent with HUD's needs and the Census Bureau is willing to produce special tabulations and provide other assistance to HUD.
3. There is sufficient time for all HUD users to prepare for incorporating ACS data into their applications. The earliest ACS data (for areas with populations of 65,000 or greater) will not be released until 2004, and data for all areas will not be available until 2008.
4. Our use-by-use analysis in Part II of the Report finds that HUD has reasonable options for dealing with all of the complications that will arise.

CONCLUSION 3: Substituting ACS data for decennial long-form data will present challenges for some HUD applications and will require the Department to make adequate preparations for the ACS by anticipating problems and devising solutions.

Our analysis uncovered thirteen issues that could present problems to HUD or its clients as the Department shifts from using the decennial long form to the ACS. These issues are the challenges that HUD users and managers will face. Chapter 6 discusses all thirteen issues in general and Part II of the report discusses how the issues affect particular HUD applications.

1. The sample design for the ACS differs in small ways from the sample design for the decennial long form. HUD users should be aware of how the sample design treats group quarters and non-traditional housing, and how the undercount issue affects the ACS.

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- The ACS will survey overnight shelters but will not survey establishments providing services to the homeless or known street sites. Therefore, it is less capable of providing information on the homeless population.
2. There are differences between the ACS and the long form in the definition or conceptual basis for some variables. These differences can affect how HUD uses these variables.
 - The Census Bureau acknowledges a downward bias in the estimation of vacancy rates in the ACS. Vacancy rates are used in formula allocations and in market analyses for FHA multifamily insurance.
 3. The long form provides a snapshot as of April 1 of the decennial year; the ACS provides averages over the reporting period. Accordingly, ACS estimates must be interpreted differently than similar long-form estimates.
 - HUD will use ACS data on gross rents to calculate fair market rents. To trend the ACS data forward, HUD will have to choose a central point in the data collection period on which to base the trend.
 4. The ACS collects for a sample the same information that the short form collects for the entire population. HUD might choose to use the ACS in preference to the short form in some cases.
 - In setting housing goals for Fannie Mae and Freddie Mac, HUD uses the racial composition of a census tract in its definition of underserved areas. HUD could use the ACS estimates to update the counts derived from the short form of the 2000 census.
 5. The Census Bureau and the Bureau of Labor Statistics produce other statistical series (e.g., the Current Population Survey and American Housing Survey) that contain some of the same information that HUD can anticipate obtaining from the ACS. HUD will need to decide when to use these series instead of the ACS. Also, inconsistency in the estimates produced by different surveys could be an issue -- having more than one “official” number for the same variable can create problems for HUD.
 - HUD uses the CPS to track homeownership rates at the national level. It can use the ACS to track homeownership rates for cities and counties. However, the ACS national rate will generally not be identical to the CPS rate; so using both series would involve some inconsistency.
 6. HUD sometimes needs data for areas smaller than census tracts, such as block groups and tract parts. The ACS will provide this information but in a format that may not be adequate for some HUD applications.
 - In implementing its site and neighborhood standards, HUD makes undue concentration determinations based on income and poverty rates for neighborhoods that sometimes are smaller than census tracts.

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7. The ACS uses a smaller sample than the long form. Differences in the precision of estimates or year-to-year changes in estimates can create problems for HUD applications.
 - HUD uses census data to designate Qualified Census Tracts for the Low Income Housing Tax Credit program. The ACS provides the necessary income information but the ACS estimates will be less precise than those from the decennial long form.
8. The ACS will report data using different reporting periods for different sized areas. Inconsistent or multiple reporting periods can create problems for HUD applications.
 - HUD uses formulas to allocate funds for both housing and community development programs. After 2008, the ACS will provide HUD with very accurate annual data for large jurisdictions but only three-year or five-year moving average data for smaller jurisdictions. HUD will have to choose between using data measured over the same time period for all jurisdictions (five-year moving averages) or using the most recently available information in all cases (annual data for some places and moving-average data for others). The first choice would result in jurisdictions receiving allocations based on consistent time periods but would involve ignoring more recent information for the larger jurisdictions. The second choice would favor timeliness over consistency.
9. The Census Bureau will not publicize information based on only one year of ACS data for areas with populations of less than 65,000 because it believes that the precision of these estimates is low. For these areas, the Census Bureau will use moving average ACS numbers as the “official” information. However, beginning in 2008, the Census Bureau will release to researchers and planners a “research file” containing annual ACS data for areas of all sizes, including census tracts. The research file is intended for users who understand the limitations of the data. The Census Bureau expects these users to use these data for statistical modeling or for constructing larger areas for which the Census Bureau does not release information, such as large neighborhoods. HUD may want to consider using the “unofficial” research file results in some of its applications.
 - HUD prepares data extracts for jurisdictions to use in their Consolidated Plans. At the census tract level, HUD could provide only the five-year moving average data or both the five-year moving average data and the most recent one-year (unofficial) data.
10. Statutes and regulations set constraints on how HUD uses data for some applications. These statutes and regulations were drafted when small area demographic and economic data were available only once every ten years. These constraints can hinder HUD in using ACS data in the most effective way.
 - The CDBG statute requires HUD to use data “referable to the same point or period in time.” For this formula, at least, HUD will have to use five-year moving average data for all jurisdictions.
11. The ACS will become fully operational in 2008. Prior to that year ACS data will be available for some places but not others. The phased availability of ACS data can create problems for HUD applications.

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- HUD uses census data to determine if jurisdictions are eligible for a reduction in the matching funds requirement of the HOME program. HUD will be able to use ACS data to make this determination for larger jurisdictions before similar ACS data will be available for smaller jurisdictions.
12. The ACS creates a number of new opportunities for HUD by providing long-form type data throughout the decade. HUD should consider changing the way it carries out its functions to take advantage of the intercensal information provided by the ACS and should investigate using more sophisticated techniques to take full advantage of the ACS.
- To produce more accurate estimates of median incomes for setting income limits, HUD could employ statistical modeling to combine ACS data with the data that it currently uses from the Bureau of Labor Statistics.
13. The new OMB guidelines on reporting of racial and ethnic categories and on the classification of core based statistical areas can create problems for HUD applications and can further complicate the transition to the ACS.
- The Indian Housing Block Grant formula uses factors calculated over the American Indian and Native Alaskan population. The new OMB guidelines allow persons to classify themselves as members of more than one race. In the 2000 census, 2,475,956 persons classified themselves as American Indian or Native Alaskan only but 4,119,301 persons classified themselves as either American Indian or Native Alaskan only or American Indian or Native Alaskan and another race – a 66 percent increase.

Implications for HUD Managers

HUD users must be aware of these issues and how they can affect specific HUD applications. Representative examples were given above, but many other cases are discussed in Part II of this report. HUD analysts will need to modify how they use census data to accommodate the special features of the ACS and to take advantage of the additional information it will provide. HUD managers need to understand that the ACS will present challenges. Managers must be prepared to provide additional resources to technical staff and to furnish the policy guidance that the technical staff will need to choose between alternative adaptations to the ACS.

The advent of the ACS will require HUD to set aside more resources for ACS-related functions:

- Having new data annually may involve more work for those applications that HUD currently carries out annually, such as allocating funds by formula or setting fair market rents and income limits.
- Having new data available each year may encourage HUD to perform functions more often, for example, to carry out functions annually that are now carried out less frequently, generally only once a decade, such as designating Qualified Census Tracts or providing clients with data on conditions in their communities for use in the Consolidated Plan.
- Having reliable new data available each year for areas with populations at or above 65,000 might induce HUD to expand current reporting activities and analyses to include lower levels

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of geography. For example, HUD could begin to generate “worst case housing needs” indicators for every metropolitan area. Currently HUD can do this only once a decade for all metropolitan areas and only every four to six years for the 47 largest metropolitan areas.

- Having reliable new data available each year might induce HUD to undertake activities that it has not performed in the past, such as statistical modeling in support of various program operations, such as preparing progress reports for the Annual Performance Plan.

We analyzed the first three of these possible expansions and concluded that HUD will need to devote more HUD staff time and contractor staff time to these functions under a fully operational ACS but will save money on other contract funding.

- The estimate of HUD staff requirements rises by over two staff years from 468 staff weeks to 590 staff weeks.
- Contractor staff support rises from 172 staff weeks to 211 staff weeks.
- Despite the increases, total staff weeks devoted to these functions remains modest: 15.4 staff years (801 staff weeks).
- As an offset to the need for more staff, HUD will save money on contractor support because it can substitute ACS data for a large share of the \$3 million it spends annually for random digit dialing surveys to calculate fair market rents (FMRs).

Recommendations

The American Communities Survey will significantly enhance HUD’s ability to carry out many of its program and analytical functions. Previously HUD has had to rely on decennial long-form data that were collected between three and twelve years ago for determining program eligibility, allocating funds, assessing local performance, and carrying out other important functions. More up-to-date data will improve the accuracy and credibility of these activities, but switching from decennial long-form data to the ACS will present HUD users and managers with challenges. Taking into account the technical, policy, and resource issues raised by the ACS, we make three recommendations:

1. *HUD should ensure that its managers are well informed about the nature and timing of the ACS so that they can provide their technical staff with the resources and guidance they will need to move from the decennial long form to the ACS.*
 - a. Principal Staff and Senior Executives should be briefed on what the ACS is and why they need to pay attention to it.
 - b. On an application-by-application basis, technical staff should review the discussion of their specific applications in Part II of the Report and should determine what changes will be needed in their procedures for acquiring and processing census data.

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- c. Technical staff and program managers should meet to discuss the issues. Technical staff should indicate what policy guidance may be needed and any additional resources needed.
 - d. HUD should set aside additional funds to provide contract staff to augment HUD technical staff and to support acquisition of special extracts from the Census Bureau or outside processing of ACS releases. Additional in-house staff will be needed as well.
2. *HUD should ensure that certain key problems are resolved early on to eliminate confusion and smooth adaptation to ACS data.*
- a. For many HUD applications, statutes specifically direct the Department to use the most recent decennial census. The “legal” relationship between the ACS and the decennial census has not been resolved fully. This relationship will affect how the Department uses ACS data and the frequency with which it employs new ACS data. For some applications, HUD may not be allowed to use ACS products that are not considered part of the decennial census. If all ACS products are considered part of the decennial census, then HUD may have to update some applications with each annual release of ACS data.
 - b. The statutes that govern various HUD programs divide the nation into two mutually exclusive parts, metropolitan areas and non-metropolitan areas. OMB’s new guidelines for designating core base statistical areas introduce the new concept of micropolitan areas, which are concentrations of populations smaller than metropolitan areas. OMB staff has told us that these areas are to be considered non-metropolitan. This determination needs to be confirmed because it will affect how some program funds are allocated, how some eligibility determinations are made, and how some floors and caps are calculated in accordance with statutory language.
 - c. Year-to-year stability is an issue that deserves some Departmental attention. Estimates based on the ACS will be less precise than estimates based on the long form at all levels of geography. Moreover, sampling variation will be more apparent for estimates based on the ACS because a given change appears larger when it occurs between two successive years than when it occurs over ten years. Therefore, we believe that HUD’s Principal Staff should decide whether, at least for some uses, steps should be taken to minimize year-to-year changes. HUD applications could use various techniques to obtain year-to-year stability. These include: using new ACS data less frequently than annually, using moving average ACS data even when annual data are available, and making a change only when the new data are statistically different than the old data.
 - d. ACS data will be available for areas with populations of 65,000 or more in 2004, for areas with populations between 20,000 and 65,000 in 2006, and for areas, including census tracts, with populations less than 20,000 in 2008. HUD must decide when to adopt the new ACS data. This issue is a second case where we believe that Department-wide guidance could be helpful. This does not mean one answer for all applications; different answers may be appropriate for different applications. The potential impact on clients of shifting to ACS data is significant enough to warrant some attention to when and how the process should begin, depending upon the characteristics of an application.

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3. *HUD should investigate options to take fuller advantage of the opportunities offered by the ACS.*
 - a. Before 2003 HUD should contract with the Census Bureau for all the special abstracts and tabulations of ACS data that the Department will need for its various applications. By contracting early, HUD will give Census Bureau staff time to design the tabulations, do the necessary programming, and test the results on the 2003 ACS.
 - b. HUD should consider providing funding to the Census Bureau for new staff within the ACS unit to be dedicated solely to HUD needs.
 - c. In recent years, new statistical techniques have been developed that could be used effectively with ACS data. HUD should direct the Assistant Secretary of Policy Development and Research to study how the Department could use ACS data in new ways to enhance program operations.

Given the talents of the HUD analysts who use census data in HUD applications and the head start that the Department has given itself through this project, we believe that HUD will be able to make the transition to the ACS with minimal difficulty. If the Department implements our recommendations, we believe that it will avoid all major difficulties and will be a leader among Federal agencies in taking advantage of the American Community Survey.

Part I

**Analysis of the Impact of the American Community
Survey on the U.S. Department of Housing and Urban
Development**

CHAPTER 1: OVERVIEW OF THE REPORT

Purpose of the Study

Since 1940 the Census Bureau has used two questionnaires to collect data for the decennial census: (1) a “short form” that counts the population and gathers basic information and (2) a “long form” that obtains the same basic information plus more detailed demographic, housing, social, and economic information from a sample of households.

What we know about households – their incomes, their education, their employment, their housing – at the State, city, county, and census tract level usually comes from the long form. The Department of Housing and Urban Development (HUD) uses long-form information to determine program eligibility, allocate funds, target program activities, assess client needs, and evaluate client performance.

Beginning in 2003 and every year thereafter, the Census Bureau will conduct a large national survey of households, called the American Community Survey (ACS). The ACS is similar to the decennial census long form, but it will be collected continuously instead of once every ten years. The Census Bureau intends for the ACS to serve the same purposes as the long form and to make the long form unnecessary in future censuses.¹

The launching of the ACS and the demise of the long form could have important effects, both positive and negative, on the HUD activities that use long-form data. For this reason, HUD contracted with ORC Macro to help the Department anticipate the consequences of the ACS. As part of this project, ORC Macro studied HUD uses of long-form data, met with HUD analysts, studied the available documentation on the ACS, and consulted with the Census Bureau staff who will conduct the ACS. This Final Report contains the key findings from ORC Macro’s research into the ACS and HUD’s applications, with emphasis on the challenges and opportunities that the ACS presents to HUD.

The intended audience for this Report is HUD policy makers and analysts who currently use long-form data. This Report should help these individuals understand the issues and opportunities involved in moving to the ACS and guide them in adapting their activities to take full advantage of this new source of data. HUD can also use the Report to inform its clients and stakeholders about the benefits of the ACS and how HUD’s adoption of the ACS will affect their interaction with the Department.

Readers should remember that, at HUD’s request, this research was designed to help the agency prepare for the challenges that will be involved in moving to the ACS. Because the Report focuses on possible difficulties, readers might infer that HUD would be better off if the Census Bureau were to cancel the ACS and retain the long form. This is emphatically not the case. The

¹ As of the printing of this report, Congress had not completed action on the Census Bureau’s appropriation request for fiscal year 2003. The Senate Appropriation Bill does not contain sufficient funds for the ACS; the House of Representatives has not finished drafting its appropriation measure. At this time, it appears that the Census Bureau will not be able to move to full implementation of the ACS in 2003.

ACS corrects a problem that has threatened to undermine every HUD use of long-form data, namely doubts about the validity of using information collected years earlier. Despite the differences between the ACS and the long form and the adjustments HUD will have to make to use ACS data, the Department and its clients will be better off with more current data than the long form can provide.

The superiority of the ACS for HUD's uses is fortunate because the Census Bureau fully intends that the 2000 long form will have been the last long form to accompany a decennial census and that, in the future, the ACS will be the source for detailed demographic, housing, and economic information on the population. If the Census Bureau convinces Congress to fully fund the ACS, then HUD users have no other choice than to adjust their applications to take full advantage of the ACS.

Organization of the Report

The Executive Summary contains the Report's most important findings.

Part I provides a detailed discussion of the ACS and its impacts on HUD.

- *Chapter 1, this chapter, explains how the Report is organized.*
- *Chapters 2, 3, and 4 present background information on the ACS and other important changes in the federal statistical system. Chapter 2 provides a non-technical overview of the ACS, noting the similarities and differences between the ACS and the decennial long form. Chapter 3 contains more technical information on the ACS, including information on sample design and tabulation plans. Chapter 4 discusses core based statistical areas and federal guidelines for tabulating data on race and ethnicity. In 2000, the Office of Management and Budget (OMB) issued new guidelines for dividing the country for statistical purposes and for collecting and tabulating racial and ethnic information. Chapter 4 highlights the major features of these changes and explains how they will affect HUD's use of both ACS and long-form data.*
- *Chapters 5, 6, and 7 provide a HUD-wide view of how the substitution of the ACS for the decennial long form will affect key Departmental functions. Chapter 5 identifies 25 important HUD activities that depend on long-form type data and groups these activities into seven categories. Chapter 6 examines all the concerns about the impact of the ACS on HUD applications that our research has identified. This is the key analytical chapter of the Report and should enable readers to understand why the transition to the ACS will require preparation by HUD users. While there appear to be no insurmountable problems, there will be situations in which HUD users will have to make adjustments in how they handle Census Bureau data and HUD policy makers will need to choose between alternatives. Chapter 7 contains a matrix that shows which of the 13 concerns examined in Chapter 6 are relevant to which of the 25 uses identified in Chapter 5.*
- *Chapters 8 and 9 deal with two administrative implications of the ACS for HUD: timing and resources. Chapter 8 describes when various ACS products would be available to HUD users and compares this timetable with the times when HUD users need the data in order to*

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carry out their functions in accordance with statutory or regulatory deadlines. A calendar summarizes this analysis. Chapter 9 studies whether having new demographic and housing information every year instead of once a decade will require additional staff and contract resources. This Chapter provides an estimate of the additional resource costs.

- *Chapter 10 discusses the general policy implications of replacing data from the decennial long form with ACS data.*

Part II examines the implications of the ACS for important HUD applications of decennial long-form data.

- *Chapters 11 through 25 examine the impact of the ACS on 20 of the 25 HUD uses described in Chapter 5. Each Chapter describes one or more of the HUD uses and analyzes how the ACS will impact that use or uses. We group the uses to make it easier for HUD users to find the information most relevant to their work. Five uses were dropped from the discussion in Part II because they are not active functions (the designation of areas of economic distress), because they adopt the output of other HUD applications (PHA plans), because they have not used census data in recent years (CDBG Annual Report), or because they are not programmatic (Worst Case Housing Needs Report and general research and evaluation).*
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 - Emergency Shelter Block Grants
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 - ♦ Chapter 17 Fair Market Rents
 - ♦ Chapter 18 Median Income & Income limits
 - ♦ Chapter 19 Market Analyses for FHA multifamily insurance
 - ♦ Chapter 20 Site and Neighborhood Standards
 - ♦ Chapter 21 Oversight of Government Sponsored Enterprises
 - ♦ Chapter 22 Fair Housing Enforcement
 - ♦ Chapter 23 Consolidated Plan

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- ◆ Chapter 24 Annual Performance Plan
- ◆ Chapter 25 National Urban Policy Report

Appendices contain useful background documents.

- Appendix A is the most recent version of the questionnaire to be used in the ACS.
- Appendix B contains the long-form questionnaire from the 2000 census.
- Appendix C contains the short-form questionnaire from the 2000 census.
- Appendix D is the OMB guidelines for designating core based statistical areas.

CHAPTER 2: THE AMERICAN COMMUNITY SURVEY: OVERVIEW

What and Why

Beginning in 2003 and every year thereafter, the Census Bureau will conduct a large national sample survey of households, called the American Community Survey (ACS). The Census Bureau intends for the ACS to serve the same purposes as the “long form” in the decennial census and to eliminate the need for future long forms.

Since 1940 every decennial census has had two parts: (1) a “short form” instrument to count the population and gather basic information; and (2) a “long form” that obtains the same information plus more demographic, housing, social, and economic information from a sample of households. What we know about households – their incomes, their education, their housing – at the State, city, county, and census tract level usually comes from the long form. HUD uses long-form information in numerous ways, including determining program eligibility, allocating funds, targeting program activities, assessing needs, and evaluating client performance.

Because the Census Bureau collects long-form information only once every 10 years, long-form data are out of date during most years of a decade. Federal program administrators, local planners, and other data users are often forced to use outdated long-form data for decisions that have expensive consequences and affect the lives of millions of people. HUD’s applications are no exception; the use of outdated long-form data raise valid concerns about formula allocations, eligibility determinations, and other HUD actions. The American Community Survey is the solution that the Census Bureau has created to provide users with information every year instead of once every ten years. It will be an on-going survey that the Census Bureau believes will eliminate the need for a long form in the 2010 census and subsequent censuses. In the absence of the long form, HUD users will use ACS.

Similarities between the ACS and the Long Form

The ACS will resemble the long form in content, questionnaire design, data collection procedures, and data tabulations.

Required Response: The ACS will be considered part of the decennial census and will have “census status.” The same confidentiality requirements that apply to a decennial census will apply to the ACS, and respondents will be required to answer the questionnaire just as they are required to answer a decennial census questionnaire.

Content & Questionnaire Design: Households selected for the ACS will fill out a questionnaire that looks very much like the long-form instrument used in the 2000 census. The ACS includes every topic included in the long form; and for most questions, the wording is similar if not identical to that in the long form.

Data Collection Procedures: The data collection procedures used for the ACS have the same features as those used for the long form. The Census Bureau will mail ACS questionnaires to a sample of 250,000 households every month. (The households will be selected so that the results

can be generalized from the nation down to the census tract level.) If a household fails to return the questionnaire within six weeks, the Census Bureau will try to collect the information through telephone interviewing. If telephone interviewing also fails, the Census Bureau will send field representatives to interview one in every three non-responding households.

Data tabulation: From the national level to the census tract level, the Census Bureau will prepare tables from the ACS data that are very similar in both content and format to the tables it now prepares from the long form. The Census Bureau will also provide a public use microdata sample (PUMS), similar to the long-form PUMS, containing a sample of individual responses with suppression of location information and other disclosure limitation techniques to prevent identification of specific households.

Differences Between the ACS and the Long Form

There will be important differences between the ACS and the long form that will affect how users apply information from the ACS.

Sample Size: The annual ACS sample will be three million housing units, roughly one-seventh the size of the long-form sample. The smaller sample size will mean that estimates based on annual ACS data will be less precise than those based on the long form at every level of geography. For areas with smaller populations, the lower precision will affect how and when Census releases data; the discussion of **Data Tabulation** below shows how the Census Bureau will combine samples for several years to increase sample size and improve precision.

Data Collection Procedures: The Census Bureau will conduct the ACS throughout the year, mailing out 250,000 questionnaires each month. The Census Bureau collects long-form information around April 1st of the decennial census year.

Content & Questionnaire Design: There are a number of differences in this area; the most important from HUD's perspective are:

- The long form provides a snapshot of conditions in an area as of April 1st; the ACS describes average conditions in an area over a one-year to five-year period, depending upon the size of the area. ACS respondents will be requested to answer every question as of the date when they fill out the questionnaire or with respect to the 12 months prior to the date when they fill out the questionnaire. The long form asks respondents to answer questions as of April 1 or for the preceding calendar year.
- The decennial census uses a "usual residence" concept, that is, the place where the person lives and sleeps most of the time. The ACS uses a "de facto" or "current residence" rule. People who are staying for two or more months at a temporary location are included in the ACS at that location. This difference in concept means that the ACS and the long form would not necessarily report the same vacancy rate or homeownership rate for the same geography. Other variables, such as median income, may also be affected.

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- The long form asks households whether they lived in the same residence five years ago and, if not, where they moved from. The ACS asks households whether they lived in the same residence one year ago and, if not, where they moved from.
- Trial versions of the ACS have included two questions of potential interest to HUD.
 - ◆ Whether households live in assisted housing and, if so, what type of assisted housing. The long form does not cover this topic.
 - ◆ Whether a household is living in a unit only part of the year. This will help identify places with seasonal fluctuations in population.

The assisted housing questions will not be part of the 2003 ACS and, currently, there are no plans to use them in future years.

In most other cases, wording changes are minor and do not alter the interpretation of responses.

Data tabulation: the Census Bureau will handle release of ACS data differently than release of the 2000 long-form data in several important ways.

- The Census Bureau will release ACS data only electronically, i.e., over the Internet or through CDs; there will be no published reports such as those that will be available for the 2000 census.
- Because of the ACS's smaller sample size, the Census Bureau will accumulate data for smaller places over multiple years before releasing tables based on combined years of data for those areas. Specifically:
 - ◆ For areas with populations of 65,000 or more, the Census Bureau will release tables based on data from the most recent survey only. The tables for areas of this size will be available for the first time in 2004 based on the 2003 ACS.
 - ◆ For areas with populations between 20,000 and 65,000, the Census Bureau will release tables based on the three most recent years; the tables for these areas will be available for the first time in 2006 based on the 2003-2005 ACS's. (Combining data for the most recent three years creates a "three-year moving average.")
 - ◆ For areas with populations below 20,000, including census tracts, the Census Bureau will release tables based on the five most recent years; the tables for these areas will be available in 2008 based on the 2003-2007 ACS's. (Combining data for the most recent five years creates a "five-year moving average.")
- Because of the small sample sizes, the Census Bureau will not include data at the block group level in the tables it provides on the Internet. It will provide block group data in CD format for use by researchers and others who understand the limitations of these data.²

² For the decennial census, the Census Bureau reports at the block level only that information collected by the questions that appear on both the short form and the long form. The Census Bureau reports at the block group level the same information plus a limited amount of information collected only on the long form.

- The Census Bureau also plans to provide a separate tabulation annually that will contain the standard ACS tables for all levels of geography down to the census tract based on one year of data only. This “research product” is intended only for expert users because it contains information that the Census Bureau considers too imprecise to release to the general public. The Census Bureau is providing this option to those who want to use the data for modeling or who want to combine smaller areas into larger non-standard geographies where the combined sample size would support reasonably accurate estimates. An example of the latter use would be local planners combining information about several census tracts that form a recognized neighborhood within a community. The Census Bureau does not plan to begin releasing this research product until 2008.
- In contrast to the long form, the standard ACS tables will contain confidence intervals around estimates. For example, the Census Bureau might say that median income for a city based on the 2003 ACS is \$37,500 and then add that there is 90-percent confidence that the true estimate is between \$36,900 and \$38,100.

Why Switching to the ACS Will Not Be Business As Usual

The ACS resembles the long form in design, content, data collection, and data tabulation. For this reason, one might expect that, for most applications, the transition from the long form to the ACS would be seamless, presenting the Department with no major problems. HUD, however, should not assume that the advent of the ACS means nothing more than substituting one data source for another. Special characteristics of the ACS may require HUD to make significant changes in the way its does its business.

- **The Census Bureau will release data differently for large and small places.** In the past HUD has obtained long-form data for all areas simultaneously. After 2008 new data will be available every year for all areas but the standard tables will be defined differently. For example, in 2008 one will be able to obtain tables on the city of Charleston SC from the Census Bureau in three formats: annual data based on the 2007 ACS, three-year moving average data based on the 2005-2007 ACS surveys, and five year moving average data based on the 2003-2007 ACS surveys. For the city of Florence SC, tables will be available in only two formats, three-year moving average data based on the 2005-2007 ACS surveys and five year moving average data based on the 2003-2007 ACS surveys.
- **ACS data will be less precise.** When the Census Bureau reports on an area larger than 65,000, its analysis is based on a sample only one-seventh the size of the long-form sample. For smaller areas, the Census Bureau combines multiple years of ACS data to obtain adequate sample sizes. These samples range from roughly one-half to three-quarters the size of the long-form sample. In all cases, published ACS tables will be based on smaller samples than similar long form tables for the same area. For example, a long-form table covering a single census tract will be based on a 1-in-6 sample (approximately 255 households for an average tract). The comparable ACS table will be based on a 1-in-8 sample compiled over five years (approximately 192 households for an average tract). Because of reduced precision, the Census Bureau will include the confidence interval around all estimates.

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- **Some ACS variables will be collected differently or may be defined differently.** The ACS questionnaire covers all the topics covered by the long form and most questions are worded very similarly. But there are some noteworthy differences. The questions dealing with in-migration cover a different time period. The distinction between “usual residence” and “current residence” can change the concept being measured by some questions, such as tenure or the vacancy rate.
- **Annual availability of ACS data can also create complications.** After 2008 the standard tables will be available for every place every year. Activities that HUD previously performed only once a decade, i.e. after the release of long-form data from the decennial census, could now be carried out annually. More resources will be needed to handle the additional work – calculating the new numbers, disseminating the numbers to HUD clients, and monitoring whatever changes take place. Annual updates may also create problems for HUD’s clients. Frequent changes might be confusing or impose unnecessary burdens, particularly since the updates could be affected by sampling error.

For these reasons, HUD users and HUD program managers need to pay careful attention to how the shift from using decennial census data to using ACS data may affect their programs. The benefits of the ACS make these efforts worthwhile.

CHAPTER 3: THE AMERICAN COMMUNITY SURVEY: TECHNICAL DETAILS

Beginning in 2004, HUD analysts and program managers will have the option of using data from the American Community Survey (ACS) in program applications that currently use data from the long form of the decennial census. After 2010 HUD users will only have ACS data for these applications. This Chapter examines six technical characteristics of the ACS that users should understand before attempting to incorporate ACS data into their program operations:

- Sample design
- Precision of estimates
- Continuous vs. point-in-time data collection
- Variable definitions and concepts
- Moving average vs. annual data
- Timetables and formats for ACS data release/special tabulations

This Chapter describes the technical characteristics from the perspective of a statistical survey. While examples relate to current HUD applications, the Chapter does not address all the ways in which any individual characteristic might affect specific HUD uses. The Chapter emphasizes the details of the ACS survey more than their impact on HUD uses.

In Chapter 6, we compile a list of thirteen issues that have arisen during our study of how the ACS might affect various HUD applications.³ We believe that the thirteen issues provide a more useful framework for analyzing problems HUD might experience in trying to use the ACS. In Part II, the Report discusses, application by application, how the thirteen issues relate to the most important applications.

This Chapter provides extensive references to source documents used to compile information on the ACS. In many cases, the text is taken almost verbatim from the referenced source.

Sample Design

The Census Bureau intends to sample 250,000 housing units every month, totaling three million housing units annually, about 2.5 percent of all occupied housing units nationwide (in the 50 states and District of Columbia). The Census Bureau will use a form of stratified random sampling in which housing units are arrayed by location and then sampled systematically with the sampling rate varying by size of jurisdiction.⁴ The sample will be drawn from the Census Bureau's Master Address File (MAF), a complete listing of all residential addresses and group

³ Some of the technical characteristics of this Chapter are issues in Chapter 6, such as continuous vs. point-in-time data collection.

⁴ Smaller areas will be sampled at a higher rate. The average sampling rate will be approximately 2.5 percent or 1 in 40. The sampling rate will vary from a high of 1 in 10 to a low of approximately 1 in 53.

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quarters in the country.^{5, 6} Once selected, a housing unit will not be eligible for sampling again for five years.

The Census Bureau will mail ACS questionnaires to sample households each month. A random subsample of one-twelfth of the annual sample will constitute each monthly panel. Data collection for each monthly panel extends over a three-month period, with telephone follow-up in the second month for addresses where a telephone number can be obtained, and personal-visit follow-up in the third month for a one-third subsample of the remaining non-respondents. For units with no usable mailing address, for example those with only a physical description, a two-thirds subsample is sent straight to personal visit.⁷

The Census Bureau will weight the responses to allow generalization to the total population at all levels of geography from a census tract to the nation as a whole. The key features of the weighting process are:

- A weight will be assigned to each sample person and housing unit. The person weights will be used for calculating estimates of the number of persons with certain characteristics. The housing unit weights are used for estimates of housing units, either occupied or vacant. For household or family estimates, the housing unit weight is used.
- The ACS data will be weighted on an annual (calendar year) basis, rather than being separated into monthly or quarterly panels that are weighted separately. The units included in a particular year's estimate will be those units whose data are collected during that calendar year, rather than those mailed out during the year. For example, if a household receives a questionnaire in December 2003 and responds in January 2004, the Census Bureau will include their response in the 2004 ACS.
- The weights compensate for differences in selection probabilities for different domains, for differences between the original sample and the interviewed sample, and for differences between the sample and independent estimates of population characteristics. For example, because the Census Bureau will send interviewers to visit only one in three housing units that fail to respond after the telephone interviewing stage, these responses will be weighted by a factor of three.⁸
- Between censuses, the Census Bureau uses local records on births and deaths and other administrative records to estimate population for counties and places. ACS counts will be adjusted at the county level to equal these intercensal estimates by age, race, sex, and

⁵ “Group quarters” is the terminology given by the Census Bureau to any institutional residential facility, such as a dormitory, nursing home, hospital, or prison. A group home is usually indistinguishable from a residence and will be sampled as a residence.

⁶ Group quarters will not be sampled in the 2003 ACS but will be included in future ACS's.

⁷ Charles H. Alexander, *American Community Survey Data For Economic Analysis*, October 2001, available on the ACS website.

⁸ Charles H. Alexander, Scot Dahl, and Lynn Weidman, *Making Estimates from the American Community Survey*, a paper presented to the Annual Meeting of the American Statistical Association, August 1997, available on the ACS website, page 4.

ethnicity.⁹ Some small counties may be combined so that the ACS counts for the combination is adjusted to independent Census Bureau estimates for the combination.

The weighting procedures are similar to those used for the long form and present no major problems to users of the ACS data. The key difference is the how the counts are controlled. The census long-form population and housing estimates are controlled to agree with short-form counts for small areas down to the census tract level. The ACS estimates are controlled to independent population estimates derived from administrative records, which for small areas have less detail and greater error than the census counts.¹⁰ This difference is smaller shortly after the completion of a decennial census, but can be expected to increase later in the decade, until the next census provides fresh counts.^{11, 12}

The weights do not compensate for the fact that some information is missing for responding sample units; this is done through imputation. "Imputation" is the insertion of a plausible value for missing values of variables. In some cases, the missing value can be established deterministically from reported values; for example the missing variable "sex" for a person listed as "daughter" of the reference person would be allocated as "female." In cases when the likely value cannot be logically deduced, the value to be imputed is taken from a "donor" person or housing unit with complete data. The donor record is selected to be similar on certain other matching variables. For example in selecting a donor for missing "educational attainment," a person of the same age, race, and Hispanic origin would be used. The matching variables need to be processed earlier than the variable being imputed, since they must have non-missing values when the search for a donor takes place. Demographers and economists familiar with each specific topic developed the editing and imputation procedures for different sets of variables, such as marital status, education, or income.¹³

Precision of Estimates from the ACS

The most recent Census Bureau publication on the topic indicates that single-year ACS estimates will have about 3 times the long-form standard error.¹⁴ Rough calculations suggest that the ratio is closer to 2.5 times and other Census Bureau publications use this estimate.¹⁵

⁹ Discussion with Census Bureau staff, May 13, 2002.

¹⁰ Note that "usual residence" is the standard for the control totals. So information on the characteristics of current residents is attributed to usual resident totals.

¹¹ Differences Between the American Community Survey (ACS) and The Census 2000 Long-form survey from the ACS website.

¹² The Census Bureau is considering using a feedback mechanism that would use information from the ACS to improve the independent population estimates. For example, the independent population estimates have not historically done a good job of specifying the race and ethnicity of persons who migrate from one county to another. The ACS could improve this facet of the estimates.

¹³ Alexander et al, 1997, page 5.

¹⁴ Alexander (2001)

¹⁵ Charles H. Alexander, *Recent Developments in the American Community Survey*, presented to the Annual Meeting of the American Statistical Association, August 1998, available at the ACS website, page 7. Here the discussion is in terms of variances which are standard errors squared.

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For a typical area, the ACS will sample 2.5 percent of all households in a given year while the long form would survey approximately 16 percent during a census year. For means, the standard error is σ (the population standard deviation)/ \sqrt{n} (sample size).

$$n_{ACS} = 2.5/16 n_{LF} = .16 n_{LF} \text{ so that } \sqrt{n_{ACS}} = .4 \sqrt{n_{LF}}.$$

$$\text{Therefore, } \sigma/\sqrt{n_{ACS}} = 2.5 \sigma/\sqrt{n_{LF}}.$$

Notice that this 2.5 relationship holds at all levels of geography from the nation through states and cities to census tracts. For annual data, the ACS will always be less precise than the decennial long form. However, in high population areas, the sample size will still be large enough to produce useful estimates. In other words, in large areas the standard error will still be small relative to the estimate because n_{ACS} will be large. For this reason, the Census Bureau has adopted the criterion that single-year estimates will be published only for geographic areas or other domains with populations of 65,000 or more. (Domain refers to tabulations for subpopulations based on factors other than geography, for example, tabulations for racial or ethnic groups. The precision issues are equally important for these tabulations.)

The Census Bureau criterion for publishing its standard tables corresponds to requiring a “12 percent coefficient of variation for a 10 percent estimate, which implies a 90 percent confidence interval of 10.0 ± 2.0 .” This is roughly comparable to the precision of Current Population Survey (CPS) estimates for States. Under the same criterion, the Census Bureau will publish 3-year averages for areas or domains of more than 20,000 population.¹⁶

The coefficient of variation = Standard error/estimate. A coefficient of variation of 12 percent for a population estimate of 10 percent implies a standard error of 1.2 percent. Note: For percentage estimates, a simple standard error can be calculated by the formula $\sqrt{p(1-p)/n}$. In this case p is 0.1 so $1-p$ is 0.9. For an area of 65,000 population, n is approximately 622 ($65,000/2.61$ (average household size) * 0.025 (the sampling rate)). So $\sqrt{p(1-p)/n} = 0.012$. Using a normal approximation, a 90 percent confidence interval would span 1.645 standard errors on each side. $1.645 * 1.2 = 1.974$ or approximately 2 percent.

The ACS data product that will most directly replace the long-form summary data will be a series of 5-year moving averages for all sizes of geographic areas. These will start in 2008 with the 2003-2007 average, and will be updated each year thereafter. The standard errors of any one of these 5-year estimates will be slightly larger than those of a comparable long-form estimate, because the 5-year initial mailout sample is smaller than the decennial long form and because of the sub-sampling for nonresponse follow up; the standard errors will typically be about 1.33 times as large as comparable long-form standard errors. This is equivalent to moving from a 95% level of confidence to a 90% level of confidence.¹⁷

¹⁶ Alexander (2001), page 5.

¹⁷ Ibid. (This appears to be a rough approximation. Inspecting a normal or Student's t-distribution suggests that the trade-off is more like moving from a 95% percent confidence level to an 86% confidence level.)

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Estimates based on the ACS will be less precise than those based on the decennial long form. The precision comparison is better when multiple years of ACS data are used to construct the estimate, but even with five years of data the ACS is still less precise.

In *Recent Developments in the American Community Survey*, Alexander provides a table to show the minimum change by population size that can be detected in comparing a percentage between different years. That table is reproduced here as Exhibit 3.1 to show that the ACS can pick up small changes in large areas but only large changes in small areas. The lower ability to detect changes is one reason why the Census Bureau will not release tables for places with less than 65,000 residents.

Exhibit 3.1: Ability of the ACS to Detect Year-to-Year Changes
Measured Increase from One Year to the Next
Required to be Statistically Significant

Population	Rate in Year 1 (percent)	Min. Significant Year 2 Value
500,000	10.0	11.0
250,000	10.0	11.4
100,000	10.0	12.2
65,000	10.0	12.7
30,000	10.0	14.0
20,000	10.0	14.9
15,000	10.0	15.7
5,000	10.0	20.0

The Census Bureau has been testing the ACS concept since 1996 in various locations throughout the country. The year 2000 tests involved 3-percent samples in Broward County FL (part of the Miami metropolitan area), Bronx County NY, Lake County IL (a suburb of Chicago); San Francisco CA, and Franklin County OH (the major part of Columbus). Since this sampling rate is only slightly higher than the 2.5-percent rate planned for the ACS, the results of these tests should furnish good examples of the precision one could expect from the ACS.

Exhibit 3.2 reports representative findings from these test surveys. The first two rows show the size of the area being sampled in terms of number of people and number of housing units. The third row is our estimate of the actual sample size, which was calculated by taking 3 percent of the number of households.¹⁸ The remaining ten rows contain countywide estimated means, medians, or percentages derived from the surveys. Each cell contains three numbers. The first number is the point estimate; the second and third numbers mark off the lower and upper bounds of a 90-percent confidence interval around the point estimate. This interval can be interpreted as providing 90 percent certainty that the true number falls between the lower and upper bounds.

¹⁸ Non-responses would have reduced the actual number of respondents upon which the information in the Exhibit is based.

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Exhibit 3.2: Representative Results from ACS Test Sites

	Broward County	Bronx County	Lake County	San Francisco	Franklin County
Population	1,603,094	1,285,415	623,378	756,976	679,189
Housing Units	741,043	490,659	225,919	346,520	324,042
Est. sample	18,526	12,266	5,648	10,396	8,101
Median Age	37.7 37.5 – 37.9	31.0 30.8 – 31.2	34.2 34.0 – 34.4	36.5 36.2 – 36.8	30.8 30.3 – 31.3
Average Household Size	2.48 2.46 – 2.50	2.83 2.81 – 2.85	2.91 2.89 – 2.93	2.32 2.30 – 2.34	2.32 2.27 – 2.37
Rental vacancy rate	6.6 5.8 – 7.4	4.7 4.2 – 5.2	6.9 5.3 – 8.6	3.0 2.5 – 3.5	8.0 7.0 – 9.0
Percent high school graduates	83.4 82.9 – 83.9	64.7 63.9 – 65.5	87.7 87.0 – 88.4	84.3 83.6 – 85.0	85.8 85.1 – 86.5
Percent Unemployed	5.2 4.9 – 5.5	10.2 9.7 – 10.7	4.2 3.7 – 4.7	4.5 4.3 – 4.7	5.2 4.9 – 5.5
Mean travel time (minutes)	25.8 25.5 – 26.1	40.1 39.4 – 40.8	31.0 30.5 – 31.5	29.6 28.9 – 30.3	20.7 20.2 – 21.2
Median household income	\$40,249 \$39,769 -- \$40,729	\$27,547 \$26,668 -- \$28,426	\$67,675 \$65,952 -- \$69,398	\$57,259 \$55,609 -- \$58,909	\$36,731 \$35,464 -- \$37,998
Percent below poverty	11.6 11.3 – 11.9	29.0 28.5 – 29.5	6.1 5.8 – 6.4	9.5 9.2 – 9.8	15.9 15.4 – 16.4
Median number of rooms	4.9 4.7 – 5.1	4.3 4.1 – 4.5	6.6 6.4 – 6.8	4.5 4.3 – 4.7	5.5 5.3 – 5.7
Median gross rent	\$763 \$755 -- \$771	\$634 \$627 -- \$641	\$742 \$727 -- \$757	\$977 \$970 -- \$984	\$589 \$574 -- \$604

Because all five sites have populations of least 600,000, the results generally show a high degree of precision. The estimates of gross rent and median income, two variables of particular interest to HUD, have coefficients of variation that range from less than one percent to slightly over two percent. However, the confidence intervals around the rental vacancy rates are large relative to the estimates; the coefficients of variation for the rental vacancy rates range from 6.5 percent to over 14 percent.

Continuous Data Collection vs. Point-in-Time Collection

The Census Bureau will conduct the ACS throughout the year, mailing out 250,000 questionnaires each month. The Census Bureau collects long-form information around April 1st of each census year. ACS respondents will be requested to answer every question as of the date when they fill out the questionnaire or with respect to the 12 months prior to the date when they fill out the questionnaire. The long form asks respondents to answer questions as of April 1 or for the preceding calendar year.

This difference in approach affects how one interprets certain variables for annual ACS data. Combining multiple years of ACS data into moving averages makes the difference in interpretation greater.

- **Variables that describe categorical characteristics of people or housing units:** Examples of these variables are race, marital status, employment status, and vacancy status. The long form gives a “snapshot” as of April 1, 2000. The ACS tells what the average characteristic was over the period – the calendar year for annual ACS data and a 3- or 5-year period for moving average ACS data. One would not expect these two approaches to obtain estimates that are exactly equal. Some of these characteristics change over time, for example, as people marry or quit their jobs. Other characteristics may change with turnover of households in sampled units.
- **Variables that normally have trends:** Examples of these variables include income, rent, utility costs, house value, and age. (Income is discussed separately.) The long form again gives a snapshot as of April 1, 2000 and the user must adjust for the subsequent effects of any trends. The ACS reports averages for the period. ACS users must also adjust for the subsequent effects of any trends but, in addition, must center the observed value at some point within the period in order to know how long to apply the trend. Presumably most variables would be centered at the middle of the period.
- **Income:** The Census Bureau will adjust income for changes in the cost of living. Annual data will be adjusted to the end of the year and moving average data will be adjusted to the end of the 3-year or 5-year period.¹⁹ This adjustment will put all the income responses into constant dollars. Making an inflation adjustment is not the same as trending. The cost of living adjustment assumes that the purchasing power measured at any point in the data collection period remains constant throughout the period. For example, assume that the cost of living rises by 3 percent a year. If a household reports an annual income of \$50,000 in January, a cost of living adjustment to the end of the year would increase this income to \$51,500, the amount needed in December to equal the purchasing power of \$50,000 in January. A trending adjustment makes no assumption about purchasing power. It attempts to tract movements in dollar income. Assume that dollar income is growing at 5 percent a year. Then a trending adjustment to the end of the year would increase the \$50,000 reported in January to \$52,500 in December.

Moving averages lengthen the period over which the data describe conditions within an area. The standard Census Bureau tables for areas over 65,000 will tabulate the rents reported by respondents over the twelve months during which data were collected. A unit reporting a contract rent of \$800 in January might actually be paying \$850 in December. The standard table would record this unit as having a rent of \$800. The standard Census Bureau tables for areas under 20,000 will tabulate rents reported by respondents over a sixty-month period. A unit reporting a contract rent of \$800 in the January of the first year might actually be paying \$1,070

¹⁹ We presume the cost of living adjustment will be made to the end of the survey period. In our last meeting with Census Bureau staff, they were not certain what reference point would be used.

in December of the fifth year. The standard table would record this unit as having a rent of \$800.²⁰

Variable Definitions and Concepts

The ACS questionnaire covers all the topics included on the long form and most questions are worded very similarly. Users should be aware of the following differences.

“Current” vs. “Usual” Residence: Perhaps the most important difference in variable concept between the ACS and the long form involves the concept of where a household resides. In a decennial census, each person is to be enumerated as an inhabitant of his or her "usual residence." Usual residence is the place where the person lives and sleeps most of the time, or the place he or she considers to be his or her usual residence. This place is not necessarily the same as the person's legal or voting residence, nor did the census always count persons as residents of the place where they happened to be staying on Census Day.

The American Community Survey (ACS) concept of residence differs from this decennial census concept. Because the survey is conducted every month on independent samples, and produces annual estimates or estimates averaging over multiple years of data, a concept of current residence was adopted as being more appropriate than the usual residence concept of the decennial census. The census requires that everyone have only one usual residence, since its primary purpose is to provide counts for the apportionment of Congress. The concept of current residence being used in the American Community Survey also requires that each person have only one residence at any point in time, but that residence does not have to be in the same place throughout the year. This concept allows the survey information to more closely reflect the actual characteristics of each area.

To implement the current residence concept, the "Two-Month" rule was established. This rule states that if a person is staying in a sample unit at the time of survey contact, and is staying there for more than two months, he or she is a current resident of that unit whether or not the unit is also the person's usual residence under census rules.²¹ If a person who usually lives in the unit is away for more than two months at the time of survey contact, he or she is not a current resident of that unit. Anyone staying in the unit at the time of survey contact who has no other place where they usually stay is considered a resident of the unit. The time of survey contact is defined to be when the respondent completes the survey questionnaire, or when the unit is reached by telephone or through a personal visit during the follow-up for mail non-response.

²⁰ See Alexander (1998) for a discussion of “Variables Whose ‘Meaning’ Changes” over the period used for a moving average.

²¹ For group quarters, a person is considered a resident if he or she has been a resident of the group quarters for 30 days or more.

In the vast majority of areas of the country, the use of usual residence or current residence as the classification basis would produce substantially the same statistics. However, there might be appreciable differences for areas where large numbers of people spend several months of the year in units that are not their primary residences; for example, Florida, Arizona, and in beach or mountain vacation areas with large seasonal populations.²²

One might expect the different concepts of residency to produce different counts of the population for the same area. For example, one might expect the ACS to count more people in a seaside resort than the decennial census would count. However, the ACS does not produce independent population counts. The Census Bureau controls the ACS counts to its intercensal estimates derived from administrative records. The difference in residency concepts affects who is included for the purpose of describing the counted population. In a seaside resort, the ACS would include more people for determining characteristics such as median income or percent with at least a high school education. The characteristics of these people will be ascribed to the count from the intercensal estimates.²³

Tenure & Vacancy: The choice of residence concept can affect the measurement of certain variables, particularly tenure and vacancy status. Some of the documents available on the ACS website indicate that homeownership rates and vacancy rates will be lower; however, the Census Bureau staff at a November 9, 2001 meeting with ORC Macro researchers claimed that it is not clear how the change in residency concept would affect the vacancy rate and homeownership rate. They cited examples that would both raise or lower the observed vacancy rate. For example, a migrant worker household spends time every year in two residences, a permanent home in Texas and temporary quarters in Florida where it lives from March through May. The long form would consider the home in Texas as the family's usual residence. Since the family lives in both units for more than two months, either unit would qualify under the current resident standard. If the ACS sampled the unit in Texas in March through May, it would list the unit as vacant whereas the long form would have listed it as occupied. If the ACS sampled the unit in Florida in March through May, it would list the unit as occupied whereas the long form would have listed it as vacant.

Because of the different definitions of what constitutes a household's residence, the long form and the ACS measure different concepts of vacancy. Both concepts are valid. However, even if one accepts the ACS concept of vacancy, the Census Bureau staff

²² This discussion of the residence concept was taken from the *Data Collection and Processing* explanation in the methodology section of the ACS website. This document contains more detail on residence rules.

²³ For example, assume the short form counts 100,000 persons as of April 1st in a county with a large summer population. Also assume that the long form finds that 65 percent of the respondents in the county have at least finished high school. The decennial census would "count" 65,000 persons in the county with at least a high school diploma. Now assume the 2003 ACS, which gathers information throughout the year and therefore includes the summer population, finds that 70 percent of the respondents have at least finished high school. Also assume that the Census Bureau's intercensal population estimates calculate a 2003 population for the county of 110,000. The ACS would report 77,000 persons with at least a high school diploma in its 2003 tabulations for the county.

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acknowledged a downward bias in measuring the concept. The ACS asks people to report things as they stand on the day when they respond. A certain percentage of mail questionnaires are returned from all occupied units but none from vacant units. When telephone or in-person follow-up occurs, the question is asked as of that point in time. So some units that were vacant on the day the questionnaires arrived may subsequently be reported as occupied. Simulations performed by the Census Bureau indicate a downward bias of the magnitude of 1.2 percentage points.²⁴

Migration: There is a noteworthy difference in the wording of the questions on in-migration. The long form asks households whether they lived in the same house five years ago and, if not, where they moved from. The ACS asks households whether they lived in the same house one year ago and, if not, where they moved from. This change has both advantages and disadvantages. The shorter time span allows better tracking of changes in migration patterns and facilitates more accurate responses. But, because of the shorter time span, substantially fewer persons will report movement.

The trial runs of the ACS in 2000 through 2002 included two questions that offer opportunities to HUD users, particularly if HUD can obtain special tabulations of ACS data from the Census Bureau that take advantage of these new questions. Unfortunately, the assisted housing question will not be asked in the first full ACS survey in 2003 and currently there are no plans to include the question in future ACS's.

Assisted Housing: The ACS will ask households whether they live in assisted housing and, if so, what type of assisted housing. The long form does not cover this topic. In the past, surveys that have attempted to determine if respondents live in assisted housing have found that respondents often answer this question incorrectly, especially when they are asked to identify the type of assisted housing. Currently ORC Macro is assisting HUD in developing better questions for use in other surveys.

Seasonality: The ACS will ask questions to determine whether a household is living in a unit only part of the year. This will help identify places with seasonal fluctuations in population. Rents may vary substantially over the course of the year in a seaside resort community. With this information, the Census Bureau could conceivably separate high-season rents from low-season rents.

Consistency in Content and Question Wording: The Census Bureau wants to avoid changing content and the wording of questions but recognizes that early experience with the ACS may indicate the need to make some changes. Therefore, there may be minor content or wording changes for the 2006 sample. After the first decade, the Census Bureau wants to limit content changes to once a decade and intends to concentrate any changes in years ending in "8".

²⁴ Discussion with Census Bureau staff on November 9, 2001.

Moving Average vs. Annual Data

HUD users may be faced with using a mixture of annual data and moving average data. These users should understand how annual data and moving average data would behave differently.

1. Moving averages represent conditions over multiple years and therefore are never as current as the most recent annual data. In a formula allocation using poverty counts, the allocation for a large jurisdiction could be determined using information from only the most recent year while the allocation for smaller jurisdiction could be determined using information from the last three (or maybe even five) years. The former estimate would use only data from the most recent year, whereas the latter would involve data up to three years old.
2. The Census Bureau does not plan to trend any of its data forward. HUD users will have to decide on a case-by-case basis whether to attempt trending the data. For example, one might want to trend rents forward but not poverty counts. HUD will want to trend income forward. The Census Bureau's decision to report income in constant dollars will complicate trending.
3. Moving averages tend to smooth data. Annual data will pick up trends faster. But irregular movements in the data will also distort annual data more easily. For example, if rents were to rise 12 percent in one year and then drop 9 percent the following year, annual data would show the full upward and downward swing. A three-year moving average would show only a 4-percent rise after the first year and then a one percent rise in the second year. The moving average dampened the movement.²⁵
4. The tendency to dampen irregular movements in data is important when sampling error is a concern. When estimates have large coefficients of variation²⁶, what appear to be large year-to-year irregular movements may only be sampling errors.

Timetables and Formats for ACS Data/Special Tabulations

The Census Bureau plans for both the format and timing for releasing data are subject to change. Here are the basic facts as currently planned:

Media

- The Census Bureau will release ACS data only electronically, i.e., over the Internet or through CDs; there will be no published reports such as those that will be available for the 2000 census.

²⁵ Consider five years of data: x , x , $1.12x$, $.91x$, and x . The three-year moving average series would begin in year three and have these three values: $1.04x$, $1.01x$, and $1.01x$.

²⁶ The ratio of the standard error to the estimate.

Variation in Tabulation Plans by Size of Place

- Because of the ACS's smaller sample size, the Census Bureau will accumulate data for smaller places over multiple years before releasing tables for those areas.
 - ♦ For areas with populations of 65,000 or more, the Census Bureau will release tables based on data from the most recent survey. The tables for areas of this size will be available for the first time in 2004 based on the 2003 ACS.
 - ♦ For areas with populations between 20,000 and 65,000, the Census Bureau will release tables based on the three most recent years; the tables for these areas will be available for the first time in 2006 based on the 2003-2005 ACS's. (Combining data for the most recent three years creates a "three-year moving average.")
 - ♦ For areas with populations below 20,000, including census tracts, the Census Bureau will release tables based on the five most recent years; the tables for these areas will be available in 2008 based on the 2003-2007 ACS's. (Combining data for the most recent five years creates a "five-year moving average.")
 - ♦ If the population of an area (or domain) exceeds more than one of the thresholds, then the Census Bureau will release data on that area (or domain) in multiple formats. Beginning in 2008, ACS data will be available in the annual, three-year moving average, and five-year moving average formats for areas with populations of 65,000 or more. ACS data will be available in three-year and five-year moving average formats for areas with populations between 20,000 and 65,000.

Content and Format

- From the national level to the census tract level, the Census Bureau will prepare tables from the ACS data that are very similar in both content and format to the tables it now prepares from the long form.
 - ♦ However, the ACS staff would not characterize their data release plans in terms of the SF3 and SF4 files used for the 1990 census and planned for the 2000 census. The Census Bureau is currently rethinking its product line and may redesign the products for the ACS.
 - ♦ Recently the Census Bureau released all the tables from its 2000 trial run for the ACS, which was called the Census 2000 Supplementary Sample (C2SS). In a May 13, 2002 meeting, ACS staff said that the C2SS tables will provide potential ACS users with a good idea of the content and format of the tables that they plan to release for the ACS. The C2SS release contains over 800 tables; however, there will be substantially more ACS tables because the Census Bureau plans to include variations of these tables with racial and ethnic information.
- The standard ACS tables will contain, for the first time, confidence intervals around estimates. For example, the Census Bureau might say that median income for a city based on the 2003 ACS is \$37,500 and then add that there is 90-percent confidence that the true estimate is between \$36,900 and \$38,100.

Geography

- The Census Bureau will use the geographical delineations of metropolitan areas as defined by OMB after each decennial census and will add new metropolitan areas to their tabulations if OMB adds new areas during the course of a decade.
- The Census Bureau plans to release ACS data separately for all seven American Indian/Alaskan Native Area entities used in the 1990 census: reservations, tribal trust lands, individual trust lands, Alaskan Regional Corporations, Alaskan Native Village Statistical Areas, Tribal Jurisdiction Statistical Areas, and Tribal Designated Statistical Areas. In addition, it will release data for Hawaiian homelands and state reservations as well.
 - ♦ The key will be the size of the areas. The Navaho reservation has a population large enough to make the first (2003 data only) release. Areas with smaller populations will be released according to the population guidelines described in the second bullet directly above.
 - ♦ The planned tabulations would involve not only data for these areas but also data for the intersection of these areas with other geographies, e.g., the remainder of a county that contains a reservation. The size of the intersection would determine when the data would be available.
- The Census Bureau plans to release ACS data for the intersections of other types of geographies as well, e.g., the intersection of a place with a county such as the overlaps of Atlanta with Fulton and DeKalb counties. The timing of the release will depend on the size of the intersection.
- When boundary changes occur, the Census Bureau plans to use the boundary in effect on January 1 of the year after the last year of data used to construct the tabulations. For example, if a city of less than 20,000 persons annexes an area in 2007, then the five-year moving average data published in 2008 will conform to the boundary of the city as of January 1, 2008. To achieve this, the Census Bureau will adjust the data for years 2003 thru 2007 to match the January 1, 2008 boundary.
 - ♦ The annual data in the research product described below will correspond to the boundaries in effect on January 1 of the year after each wave of data was collected. In the example immediately above, the research product would contain annual data for the old boundaries for 2003 through 2006 but annual data for the new boundary for 2007.
- Because of the small sample sizes, the Census Bureau will not include data at the block group level in the tables it provides on the Internet. It will provide block group data in CD format for use by researchers and others who understand the limitations of these data.²⁷
- The Census Bureau will release data for “tract parts”, the term applied to the intersection of a tract and another reporting geography, e.g., the part of tract 1054 that is in the city of Denver. Tracts never cross county or State boundaries but they do cross place boundaries.

²⁷ For the decennial census, the Census Bureau reports at the block level only that information collected by the questions that appear on both the short form and the long form. The Census Bureau reports at the block group level the same information plus a limited amount of information collected only on the long form.

Other Public Tabulation

- The Census Bureau also plans to provide a separate tabulation annually that will contain the standard ACS tables based on one year of data only for all levels of geography down to the census tract. This “research product” is intended only for expert users because it contains information that the Census Bureau considers too imprecise to release to the general public. The Census Bureau is providing this option to those who want to use the data for modeling or who want to combine smaller areas into large non-standard geographies where the combined sample size would support reasonably accurate estimates. An example of the latter use would be local planners combining information about several census tracts that form a recognized neighborhood within a community. The Census Bureau does not plan to begin releasing this research product until 2008.
- The Census Bureau will also provide every year a public use microdata sample, similar to the long form PUMS, containing a sample of individual responses with suppression of location and other information that might identify specific households. The microdata sample will include information from one out of three of all responding households.

Timing

- The Census Bureau plans to begin releasing data in the middle of the year following its collection. So the 2003 data will be released in mid-2004. State level data will be released first and then data for smaller jurisdictions. In the first year, the Census Bureau will release standard tables only for jurisdictions with populations of 65,000 or more.
- The various releases will occur over a number of months and currently the Census Bureau does not have an estimate of how long this period will be. The schedule is likely to change over time with the release period becoming more compact. The key to when ACS data becomes available is the “data review process”, an internal check within the Census Bureau to determine if the numbers look right. Once the first couple of years of ACS data are available then this process will become quicker because the earlier year results provide an easy check for later years.

Relationship to Other Data Series

- The Census Bureau will continue to publish data from other sources once the ACS is fully implemented, such as poverty rates from the Current Population Survey (CPS) and homeownership rates from the housing vacancy survey (HVS). The Census Bureau and the Bureau of Labor Statistics plan to use ACS data in modeling to improve other series such as small area income and poverty estimates (SAIPE) and local area unemployment statistics (LAUS). The Census Bureau will consider the modeled poverty estimates to be superior to the ACS estimates but the modeled estimates will not be available until after the ACS numbers are released.
- The Census Bureau will not reconcile different measurements of the same variable in different data collections, e.g., unemployment in the ACS and in the CPS for a given year. Census unemployment rates are always higher than CPS rates because the CPS uses more probes to determine who is currently in the labor force. In addition, Census income always differs from CPS income.

Special Tabulations for HUD

- Under current plans, HUD would be able to order special tabulations from the Census Bureau for particular uses, such as, CHAS or fair market rents. As of this time, the Census Bureau has not released any guidelines regarding special tabulations.
 - ◆ The Census Bureau staff distinguished between one-time special tabulations and recurring tabulations. One-time tabulations would be produced after all the public data products. Recurring tabulations would be produced after all the public data products the first year that the Census Bureau calculates them. In subsequent years, the Census Bureau would incorporate recurring tabulations into the normal production process so that HUD could obtain the results earlier.
- HUD would also be able to request tabulation based on matches between the ACS sample and agency records. For example, the Census Bureau might match all ACS respondents by address with all residents of assisted housing to produce a tabulation of the economic, demographic, and housing characteristics of the residents of assisted housing. The extent to which matching will be possible is not known at this time but the language of the cover letter to be sent to ACS respondents appears to anticipate the use of matching.

CHAPTER 4: NEW GUIDELINES ON RACE/ETHNICITY CATEGORIES AND STATISTICAL AREAS

In December 2000, the Office of Management and Budget (OMB) issued guidelines on two subjects closely related to the topic of this Report. The first release instructed federal agencies on how to collect and report data on race and ethnicity. The second release radically updated the definitions and techniques that OMB uses after each census to define statistical areas. Because these new guidelines affect how HUD uses both long form and ACS data, we reviewed them and discussed them with HUD users. This Chapter contains the most important findings from this research.

Standards on Race and Ethnicity

The following excerpt from the OMB guidelines explains the need for the guidelines (emphasis added) and provides the formal definitions of the various racial and ethnic categories:²⁸

On October 30, 1997, the Office of Management and Budget (OMB) published "Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity" (Federal Register, 62 FR 58781 - 58790). The 1997 standards reflect a change in data collection policy, making it possible for Federal agencies to collect information that reflects the increasing diversity of our Nation's population stemming from growth in interracial marriages and immigration. *Under the new policy, agencies are now required to offer respondents the option of selecting one or more of the following five racial categories included in the 1997 standards:*

American Indian or Alaska Native: A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

Black or African American: A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."

Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

²⁸ "Provision Guidance on the Implementation of the 1997 Standards for Federal Data on Race and Ethnicity," released by the Office of Statistical Policy at OMB on December 15, 2000. This 102 page document is available from OMB's website. This excerpt is taken from pages 6 and 7.

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These five categories are the minimum set for data on race for Federal statistics, program administrative reporting, and civil rights compliance reporting.

With respect to ethnicity, the standards provide for the collection of data on whether or not a person is of "Hispanic or Latino" culture or origin. (The standards do not permit a multiple response that would indicate an ethnic heritage that is both "Hispanic or Latino" and "Not Hispanic or Latino.") This category is defined as follows:

Hispanic or Latino: A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term, "Spanish origin," can be used in addition to "Hispanic or Latino."

The new guidelines impose two key requirements: the ability to choose more than one race and making race and ethnicity into separate questions. Before the 1997 guidelines, persons were forced to classify themselves as members of only one racial group. In addition, race was not always distinguished from ethnicity. For example, the form used to collect information on mortgage applicants in accordance with the Home Mortgage Disclosure Act required the applicants to classify themselves in the following mutually exclusive categories: American Indian, Asian or Pacific Islander, Black, Hispanic, White, or Other. Now multiple races are allowed and Hispanic is clearly considered an ethnic categorization, independent of race. Whites or blacks can be either Hispanic or non-Hispanic and Hispanics can be members of any race.

Notice that the guidelines impose only a minimum requirement on the number of racial categories. More categories are permitted as long as the tabulation can be collapsed into these categories. The 2000 census and the ACS provide 15 racial categories.

The guidelines ensure uniform practice within the Federal Government in collecting information on race. The 2000 census was the first decennial census to allow persons to identify themselves with more than one race. In this census, 6.8 million persons (2.4 percent) classified themselves as members of two or more races. The ACS will follow this practice as well.

The new practice has a large impact on the number of persons considered members of a given race. In the 2000 census, 2,475,956 persons classified themselves as American Indian or Native Alaskan only, but 4,119,301 persons classified themselves as either American Indian or Native Alaskan only or American Indian or Native Alaskan and another race – a 66 percent increase.

Allowing multiple responses to the race question complicates tabulation of the results in two ways. First, there are more options. At a minimum there is one new category, "more than one race;" but more detail is possible. For example, one could tabulate all two-way classifications, e.g., those choosing both African American and white.²⁹ Second, the number of respondents in the new multiple-race cells might be small, creating both confidentiality and analysis problems.

²⁹ The guidelines do not limit the number of categories that a respondent can choose. A person may choose more than two categories.

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While recognizing problems, the OMB guidelines push for as much racial categorization as possible. The key OMB tabulation requirements are as follows:³⁰

- Consistent with criteria for confidentiality and data quality, the tabulation procedures used by the agencies should result in the production of as much detailed information on race and ethnicity as possible.
- Depending on the judgment of users, the combinations of multiple responses could be collapsed.
 - ◆ One method would be to provide separate totals for those reporting in the most common multiple race combinations and to collapse the data for other less frequently reported combinations. The specifics of the collapsed distributions would be dependent on the results of particular data collections.
 - ◆ A second method would be to report the total selecting each particular race, whether alone or in combination with other races. These totals would represent upper bounds on the size of the populations who identified with each of the racial categories. In some cases, this latter method could be used for comparing data collected under the old standards with data collected under the 1997 standards.
- Regardless of the method chosen for collapsing multiple race responses, Federal agencies must make available the total number reporting more than one race, if confidentiality and data quality requirements can be met, in order to ensure that any changes in response patterns resulting from the 1997 standards can be monitored over time.

The new race and ethnicity guidelines will affect HUD users in the following areas: formula allocations, needs assessments, and research and evaluation. Part II will include a full discussion of these effects for the relevant applications. This Chapter will provide only a brief description of concerns involving two uses.

The formula used to allocate Indian Housing Block Grant funds uses various factors defined over the American Indian and Native Alaskan population. As noted earlier, this population totals either 2.5 million persons or 4.1 million persons nationwide, depending on whether one counts persons of multiple races. HUD will have to decide which population to consider when it applies this formula.

The Consolidated Plan requires that States and other jurisdictions identify the housing needs of large families, the disabled, the elderly, single persons, renters, owners, extremely low-income families, low income families, moderate income families, and poverty level families. It further requires that they consider “the extent that any racial or ethnic group has disproportionately greater need in comparison to the needs of that category as a whole.” The new guidelines raise two questions for the Consolidated Plan: whether to consider persons of multiple race as a separate racial group and whether to base the data for any particular racial group on those who classified as members of that group alone or also to include those who are classified as members of that group and one or more other racial groups.

³⁰ *Ibid.* Page 8.

Core-Based Statistical Areas

In the late 1940's the Federal Government recognized that it would be useful if all agencies used common area definitions when collecting information on densely populated regions. Under the direction of OMB's predecessor, the Bureau of the Budget, the concept of "Standard Metropolitan Areas" was used in reports from the 1950 census. Since 1950, OMB has used the information from each new census to identify metropolitan areas throughout the country.

Over time the concept and definitions have changed somewhat but generally the country has been divided into three mutually exclusive parts: the central cities of metropolitan areas, the parts of metropolitan areas outside of central cities (suburbs), and non-metropolitan areas. However, various problems have arisen with this topology. Important population concentrations outside of metropolitan areas have not received sufficient attention. The standards used to define what parts should be in a metropolitan area have created regions that span many counties and include very rural parts. The standards themselves became complex. And finally, as metropolitan areas have grown together, it has been difficult to separate the individual pieces.

Because of these and other problems, OMB led an interagency effort to reform the standards and make them more consistent with the continued evolution of settlement patterns in the United States. On August 22, 2000, the Review Committee Final Report was published in the Federal Register.³¹ On December 27, 2000, OMB published the new standards based mainly but not entirely on the recommendations in the Review Committee Final Report.³² Appendix D contains the standards portion of that publication.

These standards will be applied as soon as commuting data becomes available from the 2000 census. Designation of areas will take place in 2003. The major changes from the standards used after the 1990 decennial census are the following:

- The new standards recognize two types of population concentrations: metropolitan areas and micropolitan areas. Metropolitan areas have a core urbanized area of 50,000; micropolitan areas have a core urban cluster of 10,000.
 - ♦ Micropolitan areas are a new concept. Many places previously classified as non-metropolitan will now be classified as micropolitan.
 - ♦ The core requirement for metropolitan areas has been raised. Some current metropolitan areas will become micropolitan. A few will become neither metropolitan nor micropolitan.
- The metropolitan/micropolitan distinction requires new terminology. The term "core based statistical area" refers to both metropolitan and micropolitan areas. Places that are fall outside of both metropolitan and micropolitan areas are referred to as "outside core based statistical areas".

³¹ 65 FR 51060-51077

³² *Standards for Defining Metropolitan and Micropolitan Statistical Areas* (65 FR 82228-82238).

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- ◆ “Non-metropolitan” is not a term used in the new guidelines.
- ◆ Recognizing that “non-metropolitan” is a term that appears frequently in program legislation, OMB indicates that places outside of metropolitan areas would be considered non-metropolitan in the context of the new standards.³³ Thus micropolitan areas would be considered non-metropolitan.
- The new standards construct metropolitan and micropolitan areas using counties as the main building blocks. Previously, OMB used cities and towns to construct metropolitan areas in New England. For comparability with the rest of the country, OMB previously defined a separate set of New England County-based Metropolitan Areas (NECMAs). Now county-based is the normal nationwide. To the extent feasible, OMB will construct a separate set of New England City and Town Areas (NECTAs) to maintain continuity with the old metropolitan areas in New England.
- The new standards use commuting as the only criterion to decide whether a county is or is not part of a metropolitan or micropolitan area. Previously, commuting was the most important of several factors. The commuting threshold has been increased so that the area in square miles of many current metropolitan areas should decline as counties are dropped under the new standards.
- The new standards provide for Combined Statistical Areas formed by the union of two adjacent core based statistical areas with sufficient commuting interaction.
 - ◆ The standards automatically combine two or more adjacent metropolitan areas into one metropolitan area if sufficient commuting exists between the areas.
 - ◆ At a lower threshold of commuting interaction, combining is option. The option is left to the Congressional delegations of the areas.
- Large metropolitan areas (over 2.5 million persons) with a single core may be subdivided into “metropolitan divisions”.
- The concept of a “central city” has been replaced by the concept of a “principal city”. In general, a city must have a larger population to become a “principal city” under the new standards than was needed to become a “central city” under the previous standards. There should be fewer principal cities than central cities.
 - ◆ Every metropolitan area and micropolitan area will have a principal city. In some cases, these principal cities will be smaller than the minimum central city under the old standard. There will be no metropolitan or micropolitan areas named after counties, such as Nassau-Suffolk.
- Consistent with previous practice, OMB may add new core based statistical areas at any time. A full updating of the designation is anticipated after the 2008 ACS becomes available. The updating will affect outlying counties only, not core counties.

In Part II, this Report will discuss how these differences affect particular uses. The most serious problems arise from the changing composition of “non-metropolitan” areas, a term no longer used by OMB but one which appears frequently in HUD program legislation. The new standards

³³ E-mail exchange with Suzann K. Evinger, Office of Statistical Policy, OMB, March 21, 2002.

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will cause some areas now classified as metropolitan to be reclassified as either micropolitan or outside of core based statistical areas. A change in classification will affect how these areas are treated for purposes of designations used in the low income housing tax credit program. The new standards will also expand the population of non-metropolitan areas as the term is used in HUD legislation. This will affect the floors used in setting fair market rents and income limits.

The shift in terminology and definition from central city to principal city will cause some problems and may necessitate some technical amendments. In general, grandfather provisions governing central cities for the CDBG and HOME programs make these problems minor. Finally, the shifting boundaries of metropolitan areas will create some difficulties for research that tracks conditions in metropolitan areas over time but these difficulties occur with every redefinition of metropolitan areas.

CHAPTER 5: HUD APPLICATIONS THAT DEPEND ON CENSUS DATA

On March 28, 2002, ORC Macro delivered to HUD an *Inventory of Current Uses*, a document that catalogues and describes HUD's current uses of census long-form data. HUD requested this product as a necessary step in understanding how the launching of the ACS and the demise of the long form could affect the Department.

This Report builds on the *Inventory of Current Uses* by providing extensive details about the ACS and other changes to the federal statistical system and by analyzing how those changes will affect the identified uses. Beginning in 2004, HUD analysts and program managers will have the option of using data from the American Community Survey (ACS) in program applications that currently use data from the long form of the decennial census. After 2010 HUD users will only have ACS data for these applications.

The next Chapter provides a thorough overview of the various ways in which these changes could alter how HUD does business. Part II contains an application-by-application analysis of both problems and opportunities. This Chapter sets the stage for both the next Chapter and Part II by identifying the affected applications.

The Structure of the Inventory

The *Inventory of Current Uses* groups HUD applications that use census long-form data into seven categories. After considering several alternatives, the ORC Macro team recommended grouping the applications by purpose, because applications that have the same purpose tend to use census long-form data in similar ways and most likely will experience similar problems in substituting ACS data for census long-form data.

Exhibit 5.1 lists the categories, defines them, and shows how they differ on two important dimensions: data use and data importance. The characterizations in the third and fourth columns apply to the majority of uses but not necessarily every use in the category.

In the fourth column, Centrality of Census data, "mandatory" means that statutes or regulations require the use of census data. "Optional" means that there are no statutory or regulatory requirements. After establishing the legal requirements, this column discusses whether alternatives exist.

HUD Applications That Depend on Long-Form Data

The remainder of this Chapter identifies the 25 HUD uses, grouped by the categories, describes each program briefly, and explains why census-type data are needed. Exhibit 5.2 provides a convenient listing of the 25 uses grouped into the seven categories.

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Exhibit 5.1: Categories of HUD Applications Using Long-Form Data

Category	Purpose	How Census data tend to be used	Centrality of Census data to the function
Allocation formulas	Use of Census data in formulas to allocate program funds (e.g., CDBG funds) to areas.	Census variables are used to construct factors in the funding formulas.	Mandatory. No alternative source.
Eligibility determinations	Use of Census data to establish an area's eligibility for benefits under various programs (e.g., CDBG target areas).	Eligibility is defined by whether an area is above or below a threshold, measured mainly by Census data.	Mandatory. No alternative source.
Program parameters	Use of Census data to set parameters used to administer programs (e.g., fair market rents).	Census data are used to establish local baselines that are updated by other data.	Optional. Census data are one of several inputs. However, it appears that Census data are essential.
Program operations	Use of Census data to inform day-to-day program operations (e.g., market analyses for FHA multifamily mortgage insurance).	Census data are used on an ad hoc basis to describe local conditions as input into a program decision.	Optional. Census data are one of several inputs. Other data are equally or more important.
Monitoring and enforcement	Use of Census data to determine whether institutions or individuals are acting properly (e.g., the GSE housing goals)	Census data are used to describe the areas in which institutions or individuals are acting.	Optional. Census data appear essential for GSE housing goals but used much less for fair housing enforcement.
Needs assessments	Use of Census data to measure needs for HUD resources (e.g., the Consolidated Plan)	Census data are used to count individuals or identify areas having certain needs.	Optional. Census data are essential for local needs assessments but are not used for national assessments.
Research and evaluation	Use of Census data to assess the impact of HUD activities or to quantify urban or housing conditions (e.g., the Annual Performance Plan).	Census data are used to describe changes in social or economic conditions at the local or national level.	Optional. Census data are essential for local needs assessments but are not used for national assessments.

Exhibit 5.2: HUD Uses for Census Long-Form Data Organized by Purpose

- Allocation Formulas
 - ◆ Community Development Block Grants
 - ◆ HOME Block Grants
 - ◆ Emergency Shelter Block Grants
 - ◆ Indian Housing Block Grants
 - ◆ Section 8 fair share allocations
 - ◆ Section 202 fair share allocations
 - ◆ Section 811 fair share allocations
- Eligibility Determinations
 - ◆ CDBG targeting & urban counties
 - ◆ HOME match
 - ◆ Low Income Housing Tax Credits: Difficult Development Areas & Qualified Census Tracts
 - ◆ Mortgage Revenue Bonds: Qualified Census Tracts
 - ◆ Identifying areas of economic distress, such as, HUB zones, Empowerment Zones and Enterprise Communities, or renewal communities
- Program Parameters
 - ◆ Fair Market Rents & Annual Adjustment Factors
 - ◆ Income limits – multiple programs
- Program Operations
 - ◆ FHA multifamily insurance – market analyses
 - ◆ Site and Neighborhood Standards
- Monitoring and Enforcement
 - ◆ Oversight of Government Sponsored Enterprises
 - ◆ Fair Housing Enforcement
- Needs Assessments
 - ◆ Consolidated Plan – CHAS
 - ◆ PHA Plans
 - ◆ Worst Case Needs Report
- Research and Evaluation
 - ◆ Annual Performance Plan – Goals and Monitoring
 - ◆ National Urban Policy Report
 - ◆ CDBG evaluation
 - ◆ General research and evaluation

Allocation Formulas

1. Community Development Block Grants

The Community Development Block Grant (CDBG) program provides States and large cities and counties with funds that they can use for a wide variety of community and economic development activities. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of community and economic development. The CDBG program attempts to distribute funds annually among States and large cities and counties on the basis of need. Census variables are used as proxies for various types of need.

2. HOME Block Grants

HOME Investment Partnerships Act establishes partnerships with State and local governments and provides those governments with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance. The HOME program attempts to distribute funds annually among States and large cities and counties on the basis of need. Census variables are used as proxies for various types of need.

3. Emergency Shelter Block Grants

Emergency Shelter Grants (ESG) awards grants for the rehabilitation or conversion of buildings into homeless shelters. It also funds certain related social services, operating expenses, homeless prevention activities, and administrative costs. It supplements State, local, and private efforts to improve the quality and number of emergency homeless shelters. HUD allocates ESG funds by formula. Census variables serve as proxies for need.

4. Indian Housing Block Grants

Indian Housing Block Grants (IHBG) provide Indian tribes and Alaskan Native villages with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance. The IHBG program attempts to distribute funds annual among Indian tribes and Alaskan native villages on the basis of need. Census variables are used as proxies for certain types of need.

5. Section 8 fair share allocations

The Section 8 voucher program (now known as the Housing Choice Voucher Program) provides low-income households with vouchers that can be used to obtain decent, safe, and sanitary housing in the private rental market. The vouchers cover the difference between 30 percent of the household's income and the lower of the gross rent of the unit or the program standard rent for the locality. Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available to applicants in

sub-national groupings and to allocate funds among the groupings according to a formula. Census variables are used as proxies for certain types of need.

6. Section 202 fair share allocations

Section 202 expands the supply of supportive housing that is designed to accommodate the special needs of elderly persons and provides a range of services that are tailored to the needs of elderly persons. Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available to applicants in sub-national groupings and to allocate funds among the groupings according to a formula. Census variables are used as proxies for certain types of need.

7. Section 811 fair share allocations

Section 811 expands the supply of supportive housing that is designed to accommodate the special needs of persons with disabilities and provides the supportive services that address the individual health, mental health, and other needs of such persons. Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available to applicants in sub-national groupings and to allocate funds among the groupings according to a formula. Census variables are used as proxies for certain types of need.

Eligibility Determinations

8. CDBG targeting & urban counties

The CDBG program provides States and large cities and counties with funds that they can use for a wide variety of community and economic development activities. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of community and economic development. HUD uses census data in the CDBG program to determine the eligibility of places to receive annual formula allocations (entitlement jurisdictions) and to determine whether areas selected by States and entitlement jurisdictions to receive program funds satisfy the targeting requirements of the program. The eligibility criteria are stated in terms of census variables.

9. HOME match

The HOME program seeks to establish partnerships with State and local governments and to provide those governments with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance. In return, State and local governments are expected to provide matching funds from their own resources equal to 25 percent of the HOME funds expended by the State or local government within a fiscal year. Section 220 instructs HUD to reduce the matching requirement by 50 percent for States and local governments in “fiscal distress” and by 100 percent for States and local governments in “severe fiscal distress”. The statute and regulations provides criteria stated in terms of census long-form

data for determining whether States and local governments are in “fiscal distress” or “severe fiscal distress”.

10. Low Income Housing Tax Credits: Difficult Development Areas & Qualified Census Tracts

The Low Income Housing Tax Credit promotes the construction and rehabilitation of housing for lower income families by providing tax credits to investors. State and local housing finance agencies allocate tax credits to investors in accordance with statutory requirements and rules set by the Internal Revenue Service. In 1989, Congress amended Section 42 of the Internal Revenue Code to provide additional tax credits in Qualified Census Tracts and Difficult Development Areas. Congress assigned HUD the responsibility of designating Qualified Census Tracts and Difficult Development Areas. The eligibility criteria are stated in terms of census variables.

11. Mortgage Revenue Bonds: Qualified Census Tracts

State and local housing finance agencies can issue tax exempt bonds and use the proceeds to make low interest rate loans to assist first-time homebuyers become homeowners. Section 143(j) of the Internal Revenue Code identifies certain targeted areas. State and local housing finance agencies are required to place at least 20 percent of the proceeds from any tax-exempt bond issue into mortgages in these areas. In addition, certain program requirements are liberalized in these areas. HUD assists the Internal Revenue Service in making these designations. The eligibility criteria are stated in terms of census variables.

12. Identifying areas of economic distress, such as, HUB zones, Empowerment Zones and Enterprise Communities, or renewal communities

Occasionally Congress assigns HUD the responsibility of designating areas that are economically underdeveloped to be eligible for various benefits, but HUD has no on-going responsibility of this nature. HUD managed the selection of metropolitan Empowerment Zones and Enterprise Communities. As part of that effort, HUD had to determine whether the areas proposed by competing jurisdictions met the qualifications of the Empowerment Zone Act. If Congress had implemented the American Private Investment Corporation (APIC) proposal, HUD would have had to determine whether the corporations competing for APIC status were proposing to carry out their activities in APIC-qualified areas. Long-form data are typically used for these purposes.

Program Parameters

13. Fair Market Rents & Annual Adjustment Factors

Since 1974, HUD has used the Section 8 housing choice voucher program to help households obtain better rental housing and reduce the share of their income going to rent. A key parameter in the operation of the voucher program is the fair market rent (FMR). Each year HUD must estimate FMRs for 354 metropolitan areas, 2,366 counties in non-metropolitan areas, and 16 counties dropped by HUD from the OMB definitions of 6 metropolitan areas. HUD also

publishes annually a related parameter called the “annual adjustment factor” which determines the rent increase that landlords, who have signed multiyear contracts with Section 8 recipients, are allowed to receive. Long-form data are used to set these program parameters.

14. Income limits – multiple programs

HUD and other agencies provide assisted housing to households with annual incomes below certain levels. These “income limits” vary by program, by location, and by size of household. HUD must estimate income limits for more than eight programs each year for 354 metropolitan areas, 2,366 counties in non-metropolitan areas, and for 16 counties dropped by HUD from the OMB definitions of 6 metropolitan areas. While HUD does not use long-form data to set income limits, it will most likely use ACS data for this purpose.

Program Operations

15. FHA multifamily insurance – market analyses

HUD uses both market analyses and appraisals as tools in underwriting multifamily mortgage insurance. A market analysis provides an estimate of annual demand for rental housing taking into consideration anticipated shifts in tenure; projected losses to the rental inventory via demolition, conversion, and other means; and any adjustments necessary for current excess levels of vacancies and construction activity. The demand estimate should show the number of additional rental units that would promote balanced market conditions. The market analysis should provide an assessment of whether the development of a proposed project would adversely affect the existing rental inventory, with particular attention to the impact on other HUD-insured properties. A market analysis attempts to estimate both the demand for and supply of rental housing. On the demand side, census short-form data are used to count households by type and tenure. Information from the Census Bureau on recent population growth and local information on changes in number of jobs are used to project the number of renter households forward. On the supply side, vacancy rates are used to estimate the number of vacant rental units available to new renter households from the existing stock.

16. Site and Neighborhood Standards

HUD has established site and neighborhood standards to govern the location of new assisted housing projects. These standards are designed (a) to prevent locating a project in an area of minority concentration, (b) to prevent locating a project in racially mixed areas if the project would cause a significant increase in the ratio of minority to non-minority residents in the area, and (c) to promote greater choice of housing opportunities and avoid undue concentration of assisted persons in areas containing a high proportion of low-income persons. To carry out its site and neighborhood standards, HUD needs information on the racial and income composition of neighborhoods, which may be derived from census data.

Monitoring and Enforcement

17. Oversight of Government Sponsored Enterprises

Fannie Mae and Freddie Mac are privately owned corporations that have federal charters. Their charters confer important benefits on Fannie Mae and Freddie Mac. In return for these benefits, Congress has given HUD responsibility for setting goals to ensure that the activities of Fannie Mae and Freddie Mac extend the benefits of homeownership to those households for whom mortgage credit is often difficult to obtain. HUD sets three types of goals: a low- and moderate-income housing goal, a geographically targeted goal, and a special affordable housing goal. The low- and moderate-income goal uses HUD's median income estimate to define what mortgage purchases satisfy this goal. The geographically targeted goal uses census data to identify areas "underserved" with respect to the availability of mortgage finance. In determining whether a mortgage financed by Fannie Mae or Freddie Mac satisfies the special affordable housing goal, HUD will sometimes consider the income distribution in the census tract in which the property is located.

18. Fair Housing Enforcement

The Fair Housing Law prohibits discrimination in the sale or rental of housing based on race, color, national origin, disability, age, religion, and sex. An individual who believes he or she has been discriminated against can (a) seek fair treatment and recompense through a federal conciliation process or (b) bring a private suit in Federal court. Congress has assigned HUD responsibility for the conciliation process. HUD is also responsible for ensuring that the agency and its clients carry out HUD programs in a non-discriminatory manner. HUD does not routinely use census data in investigating and conciliating fair housing complaints. Occasionally, an investigation will require analysis of the racial or other characteristics of a small area such as a census tract.

Needs Assessments

19. Consolidated Plan – CHAS

HUD developed the consolidated plan to streamline the application process for HUD program funds and to integrate and enhance the associated local planning processes. The consolidated plan is the application vehicle for the Community Development Block Grant program, the Emergency Shelter Block Grant program, the HOME Investment Partnerships program, and the Housing Opportunities for Persons with AIDS program. In addition, for 17 other programs, HUD requires that the jurisdiction either have a consolidated plan or certify that the application is consistent with a HUD-approved consolidated plan. The regulations for submitting a Consolidated Plan require States and communities to consider, among other concerns, factors such as: cost burden, overcrowding, lead-based paint hazards, and the housing needs of large families, the disabled, the elderly, single persons, renters, owners, extremely low-income families, low-income families, moderate-income families, and poverty-level families. States and communities must also identify "the extent that any racial or ethnic group has disproportionately greater need in comparison to the needs of that category as a whole." Submitters must also "identify and describe any areas within the jurisdiction with concentrations of racial/ethnic

minorities and/or low-income families.” To help participants prepare their Consolidate Plans and meet other program requirements, HUD provides them with extracts of census data relevant to the topics in the Consolidate Plan and other program requirements.

20. PHA Plans

A public housing agency (PHA) must submit a Five-Year Plan and an Annual Plan for each year in which the PHA receives Section 8 assistance, public housing operating subsidy, or capital funds. The five-year plan covers mission and goals and objectives. The annual plan covers housing needs and a number of PHA operating procedures. The regulations for submitting an Annual Plan require PHAs to assess the housing needs of elderly families, the disabled, extremely low-income families, very low-income families, low-income level families, and households of various races and ethnic groups. In preparing their annual plans, PHAs typically use the data extracts that HUD provides for use in the Consolidated Plan.

21. Worst Case Needs Report

The Worst Case Housing Needs (WCHN) report fulfills the Congressional mandate to report on the extent of severe housing problems among American households. The report documents the need for continued housing assistance and the progress made to eliminate housing problems and provide affordable housing. The Worst Case Housing Needs report uses data from the American Housing Survey. The ACS may be relevant for future reports because it contains much of the information used in the WCHN report, could provide national data every year whereas the American Housing Survey is available only biennially, and can provide reliable data at the State, metropolitan, county, and city level.

Research and Evaluation

22. Annual Performance Plan – Goals and Monitoring

The Department’s Annual Performance Plan (APP) specifies the outcomes that HUD expects to achieve through its programs. The APP links HUD’s mission statement to a set of strategic goals, which, in turn, are linked to more specific strategic objectives. Some strategic objectives state what desirable impact on some national problem HUD hopes to achieve. The APP also identifies external factors that may hinder or help the Department achieve the desired impact. Sometimes the strategic objectives are expressed in terms that require use of ACS-type data to measure their attainment.

23. National Urban Policy Report

By statute, the Executive Branch must prepare biennially a National Urban Policy Report (NUPR) that assesses conditions in urban areas and articulates a coordinated Federal policy to improve urban conditions. Various Administrations have used the NUPR as a means of explaining their view of urban problems and how solutions to these problems fit into a broader perspective of national issues. The NUPR uses decennial census data and a variety of other data sources to depict conditions in cities and suburbs.

24. CDBG evaluation

By statute HUD is required to report to Congress annually on how CDBG funds are spent and on how they are benefiting recipient jurisdictions. In recent years, HUD has combined the CDBG report into broader reports on HUD activities. Over the years, the content and structure of the CDBG annual report has varied greatly. Generally the report focuses on how communities use their CDBG funds, categorizing expenditures by use, the characteristics of the areas where projects are undertaken, and the characteristics of the beneficiaries. Census short-form and long-form data are sometimes used to characterize the areas.

25. General research and evaluation

Research, evaluation, and program monitoring cover a wide range of possible uses. Most, but not all of these uses, are one-time efforts that do not fit the pattern of the functions studied in this report. Nevertheless, the ACS may benefit these unlisted uses in many important ways. HUD routinely tracks social phenomena important to housing and urban development. The ACS offers an alternative to the sources currently used for this purpose. HUD maintains program data systems that contain information on recipients of HUD funds and how these funds are used. Some of these program databases already link census long-form data with program data. The ACS could provide a more current description of some of the characteristics of the areas in which HUD programs operate. As a central part of its mission, HUD funds national data collections on housing and housing markets, such as the American Housing Survey (AHS). The ACS can be used to improve these surveys and enrich the information they provide. Program evaluations attempt to determine how program actions affect people and the neighborhoods in which they live. The ACS will provide more current information on important outcome measures at the neighborhood level, such as employment, household income, and housing value. Finally, HUD has expanded its efforts to develop geographical information systems that help HUD manage and assess its programs and encourage more housing and urban research outside the Department. The ACS will enrich these geographical information systems.

CHAPTER 6: PROBLEMS IN USING ACS DATA IN HUD APPLICATIONS

This Chapter draws together the most important questions and concerns encountered in our research on substituting ACS data in HUD applications that currently use census long-form data. These applications were discussed briefly in Chapter 5. In Part II, this Report will discuss the issues specific to the most important applications. The Chapters in Part II provide HUD users with the information needed to make the transition from the long form to the ACS for those applications. The goal of this Chapter is to provide readers with a comprehensive understanding of the full range of issues facing the Department during this transition. These are “cross-cutting” issues that affect multiple applications. Chapter 7 specifically maps the issues onto applications, and further details are provided in Part II.

This summary organizes the discussion into thirteen categories:

1. Sample design
2. Problems with Individual Variables
3. Continuous vs. Point-in-Time Data Collection
4. The ACS vs. the Short Form
5. Alternative Sources for the Same Information
6. Data for Block Groups and Tract Parts
7. Sample Size/Precision
8. Variable Base Periods
9. The “Unofficial” Research Product File
10. Statutory and Regulatory Requirements
11. Transition Concerns
12. New Opportunities
13. New OMB Guidelines

Readers should remember that, at HUD’s request, this research is intended to help the agency prepare for problems. Because the Report focuses on difficulties, readers might infer that HUD would be better off if the Census Bureau were to cancel the ACS and retain the long form. This is emphatically not the case. The ACS corrects a problem that has threatened to undermine every HUD use of long-form data, namely doubts about the validity of using information collected years earlier. Despite the differences between the ACS and the long form and the adjustments HUD will have to make to use ACS data, the Department and its clients will be better off with more current data.

The superiority of the ACS for HUD’s uses is fortunate because the Census Bureau fully intends that the 2000 long form will have been the last long form to accompany a decennial census and that, in the future, the ACS will be the source for detailed demographic, housing, and economic information on the population. HUD users have no other choice than to learn how to use the ACS in their applications.

Sample Design

ISSUE: The sample design for the ACS differs in small ways from the sample design for the decennial long form. RESEARCH QUESTION: Do differences involving group quarters, non-traditional housing, and following-up on difficult to enumerate populations have detrimental effects on any HUD uses?

In meetings with the ORC Macro team, HUD users raised three issues about how the Census Bureau plans to draw the ACS sample.

a. Group Homes and Institutions

A distinction needs to be made between group quarters and group homes. “Group quarters” is the terminology given by the Census Bureau to any institutional residential facility, such as a dormitory, nursing home, hospital, or prison. Insufficient funding in the planning years will prevent the Census Bureau from being ready to include group quarters in the 2003 ACS. Group quarters will be included in future ACS’s. Failure to include group quarters in the 2003 ACS will not affect release of the moving average data in either 2006 or 2008. Adjustments will be made to 2003 numbers so that the moving average data will represent the entire population, including those living in group quarters.

Group homes are virtually indistinguishable from regular residences and will find their way into the ACS in all years. In general, the Census Bureau will not be able to distinguish a household of unrelated individuals, such as students sharing a house, from a supervised living arrangement involving unrelated individuals, such as a half-way house.

The Census Bureau does not plan to distinguish in its tabulations between the institutionalized population (those living in group quarters) and the regular population. If there is enough interest in this distinction, a special report may be issued. The microdata file will indicate who lives in group quarters and who does not.

b. Non-traditional Housing

The 2000 census tried to count those living in non-traditional housing by surveying homeless shelters, by surveying persons found at service providers, such as soup kitchens, and by surveying persons at known “street sites”. The results of these efforts are summarized in a report entitled, *Emergency and Transitional Shelter Population, 2000*³⁴ which stresses that the results of these efforts do not constitute a count of the homeless population.

The ACS will include shelters in group quarters. It will not survey service providers or street sites. In this way, it will differ from the 2000 decennial census.

c. Undercount

Decennial censuses fail to count some individuals; other individuals are counted more than once. Errors like these can cause the census to undercount or overcount the population. In recent

³⁴ Annetta C. Smith and Denise I. Smith, *Emergency and Transitional Shelter Population, 2000*, Census Bureau, October 21.

years, concern has focused on the possibility that the census differentially undercounts some segments of the population. Specifically, it was thought that the 1990 census undercounted African Americans and Hispanics. Advocates and analysts have argued that the Census Bureau should adjust the population count to take into account any differential undercount. After extensive analysis, the Census Bureau concluded that the accuracy of the 2000 decennial census could not be improved through adjustments.

A major purpose of the short form is to produce population counts. The long form and ACS were not designed to produce a count of the population; rather, they describe the demographic, social and economic characteristics of the population. In reporting ACS results, the Census Bureau will force the ACS tabulations to match independent estimates of the population produced elsewhere in the Census Bureau. The undercount issue concerns these control totals and not the ACS itself. At this time, the Census Bureau has no plans to adjust the control totals for any undercount or overcount in the 2000 census.

Response rates in the 2000 trial run of the ACS, called the Census 2000 Supplementary Survey (C2SS), were uniformly high for all groups and were higher than those from the 2000 long form, but the response rates were somewhat lower for African Americans and Hispanics compared to whites. For this reason, the Census Bureau is considering increasing the follow-up rate in census tracts with low response rates.

Problems with Individual Variables

ISSUE: There are differences between the ACS and the long form in the definition or conceptual basis for some variables. RESEARCH QUESTION: Do these differences have detrimental effects on any HUD uses?

This section discusses potential problems with some of the most important variables used in HUD applications and opportunities provided by new variables or new wording of variables used on previous long forms.

a. Income

HUD uses income distributions from the decennial census at the State, metropolitan area, county, and census tract levels in several important applications. The ACS will generate comparable income distributions but HUD users need to be aware of two important differences.

The first difference involves the earnings period covered by the income distribution. The long form asks respondents to report their income for the previous calendar year. Income distributions from the 2000 census will represent 1999 income. The ACS asks respondents to report income earned over the past 12 months. Respondents replying in January will be reporting income for the previous calendar year, respondents replying in July will be reporting income earned in the last half of the previous calendar year and the first half of the survey calendar year, and respondents replying in December will be reporting income from the last month of the previous calendar year and the first eleven months of the survey calendar year.

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Staff at the Census Bureau refer to income information that will be collected in the 2003 ACS as “2002-2003 income.”

The second difference involves the inflation adjustment that the Census Bureau plans to apply to the income information collected in the ACS. The Census Bureau plans to report income in constant dollars. Income information collected in the various months will be adjusted for inflation so that all collected income will be expressed in dollars with the same purchasing power, presumably the purchasing power of dollars in December of the survey year.³⁵ For moving average tabulations, all income information will be adjusted for changes in purchasing power over the period used to calculate the moving average. In other words, income reported by a respondent in the first month of a five-year moving average will be adjusted for almost five years of inflation.

These two differences will have important consequences for some HUD applications. For example, in calculating income limits, HUD adjusts income distributions for growth in income, not inflation. Making an inflation adjustment is not the same as trending. The cost of living adjustment assumes that the purchasing power measured at any point in the data collection period remains constant throughout the period. For example, assume that the cost of living rises by 3 percent a year. If a household reports an annual income of \$50,000 in January, a cost of living adjustment to the end of the year would increase this income to \$51,500, the amount needed in December to equal the purchasing power of \$50,000 in January. A trending adjustment makes no assumption about purchasing power. It attempts to tract movements in dollar income. Assume that dollar income is growing at 5 percent a year. Then a trending adjustment to the end of the year would increase the \$50,000 reported in January to \$52,500 in December.

For applications that involve trending income, HUD users will have to center the ACS information at an appropriate point in the collection period and remove the inflation adjustment before applying a trending factor.³⁶ The Census Bureau does not plan to release unadjusted income information.

HUD users should be aware that, for States, counties, and school districts, the Census Bureau will release a second set of median income estimates generated through statistical modeling. The Census Bureau believes the modeled estimates will be better estimates of median income. However, the modeled numbers will not be available until months after the ACS estimates. There will be no modeled estimates of median income at the place or census tract levels.

³⁵ In a meeting on May 13, 2002, ACS staff indicated that the Census Bureau had not yet determined the point in time that will be the basis for the constant dollar calculation.

³⁶ Here is an example of a simple adjustment. Assume that from the 2003 ACS the Census Bureau reports a median income for the Washington metropolitan of \$50,750 in purchasing power as of December 31, 2003. This number contains an adjustment for changes in purchasing power over the year in which the Census Bureau collected data. Assume that the Census Bureau used an inflation rate of 3 percent per annum to adjust the income data. Since data were collected throughout the year, the average response was 6 months old at the end of the period. So HUD could put the median back into current dollars by dividing \$50,750 by $(1+(.03/2))$, the inflation rate is reduced by one-half because the average response was adjusted for only half a year. This adjustment would produce a median income of \$50,000, which HUD would then have to trend forward based on some estimate of the growth in money income.

b. Rent Burden

Rent burden is the ratio of gross rent to income. HUD uses rent burden in several applications, including the HOME formula and the Section 8 fair share allocations. HUD users will be able to use the rent burden as reported in ACS tabulations in the same way that they use rent burden as reported in long-form tabulations.

Although the Census Bureau plans to adjust income for inflation, it will calculate the rent burden ratio from the gross rent and the unadjusted income reported by each respondent. The only difference is that the ACS tabulations report average rent burden over the period (one year, three years, or five years) covered by the tabulations while the long-form tabulations report rent burden as of April 1st of the census year.

c. Poverty

HUD uses poverty rates to allocate funds and determine the eligibility of areas for certain benefits. HUD users should be able to use ACS poverty rates in the same way that they currently use long-form poverty rates. The only difference is that the ACS tabulations report the average poverty rate over the period (one year, three years, or five years) covered by the tabulations while the long-form tabulations report the poverty rate as of April 1st of the census year.

We do not know whether the Census Bureau plans to make the determination of whether the members of a household live in poverty in the month when the Census Bureau receives the filled-out questionnaire or at the end of the collection period after income has been adjusted for inflation. The decision of the Census Bureau to adjust income for inflation means that there should be little difference between the two approaches.

HUD users should be aware that, for States, counties, and school districts, the Census Bureau will release a second set of poverty estimates generated through statistical modeling. The Census Bureau believes the modeled estimates will be better estimates of the poverty rate. However, the modeled numbers will not be available until months after the ACS estimates. There will be no modeled estimates of the poverty rate at the place or census tract levels.

d. Vacancy Rate

Chapter 3 explained how the ACS uses a “current residence” concept while the decennial census uses a “usual residence” concept. Two examples show how the different concepts can lead to different conclusions regarding whether a particular unit is occupied or vacant.

Example 1: A family has two homes, a house in Connecticut where members of the household work and a house in Arizona. They spend six months a year in each, November through April in Arizona and May through October in Connecticut. In filling out a long-form questionnaire, they would list the home in Connecticut as their usual residence. The Connecticut home would be considered occupied for census purposes while the home in Arizona would be considered vacant even though on April 1st the family would actually be living in Arizona. The vacancy status of the two homes for ACS purposes would depend on where and when the family receives the ACS questionnaire. If the family receives the questionnaire in Arizona between November

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and April, it would list that home as its current residence and the home would be considered occupied. If the family receives the questionnaire in Arizona between May and October, it would not fill out the questionnaire and the house would be considered vacant. Unless an ACS question is sent to the home in Connecticut, no determination would be made about its vacancy status. If an ACS questionnaire were sent to the home in Connecticut, its vacancy status would depend upon when the family responded. If the family responded between May and October, the unit would be considered occupied. Otherwise the Connecticut home would be considered vacant.

Example 2: Assume that there is an apartment complex in Florida that is frequently occupied by migrant workers coming to pick the Spring citrus harvest. A migrant worker family has a permanent home in Texas but spends two months each Spring in Florida working on the citrus harvest. If the family received a decennial long form in March while living in that apartment complex, it would not consider that unit its usual residence and the census would record the unit as vacant even though it is occupied at the time of the census. If, instead, the family were to receive an ACS questionnaire in March, it would list the unit as its current residence and the ACS would record the unit as occupied. Alternatively, if the family were to receive the ACS questionnaire at its home in Texas while it were in Florida, the home in Texas would be considered vacant. The long form would have recorded the home in Texas as occupied.

Both concepts lead to legitimate and workable interpretations of what is vacant and what is occupied. Generally, if they are properly measured, the two concepts should produce measures of the vacancy rate that differ only slightly. This may not be true, however, in places with large seasonal populations such as Florida, Arizona, and mountain and beach resorts.

While the ACS concept of residence leads to a valid vacancy rate in theory, there is a bias in how the ACS measures vacancy under this concept. The simplest way to explain this bias is to go back to example 1. If an ACS questionnaire is sent to the home in Connecticut in March, it sits in the mailbox unanswered. In April, a census interviewer will call the home in Connecticut but will be unable to contact the family. In May, the family returns home and finds the questionnaire in the mailbox. The instruction on the questionnaire tells the family to fill out the questionnaire as of the day they respond. Therefore, the family submits the questionnaire in May and the ACS records the home as occupied even though the home was vacant when the questionnaire was received and when the telephone follow-up took place.³⁷ The Census Bureau has performed simulations to measure the bias. According to their calculations, the ACS would report a vacancy rate 1.2 percentage points lower than the actual vacancy rate that the ACS's current residence concept would indicate.

It is important to understand that the problem with the vacancy status variable is not the difference in concept but the failure of the ACS to measure its concept in an unbiased manner.

³⁷ If the family does not fill out the questionnaire when it comes home, a census taker may visit the family and collect the information. In this case, the house would also be listed as occupied.

e. Tenure (Homeownership Rate)

For both the decennial census and the ACS, all occupied units are classified as either owner occupied or renter occupied. The homeownership rate is the ratio of all owner occupied units to all occupied units. The distinction between usual residence and current residence can result in different measurement of both the numerator and the denominator of this fraction. For this reason, the homeownership rate as measured by the ACS may differ from that measured by the long form or by that measured by the Current Population Survey that also uses the usual residence standard.

f. Migration

The long form asks, “Did this person live in this house or apartment 5 years ago (on April 1, 1995)?” The ACS asks, “Did this person live in this house or apartment 1 year ago?”

The Census Bureau treats migration as a population variable and not as a housing unit variable. Both surveys ask this question for each person in the household and the Census Bureau tabulates the results with reference to the population. The 2000 C2SS reports that approximately 16 percent of all persons did not live in the same unit twelve months earlier. It would not be strictly accurate to use 16 percent as an estimate of the turnover in households because individuals can be new to an area without their entire household being new. For example, a family could take in an elderly relative.

This difference in wording leads to different interpretations of the answers. Exhibit 6.1 shows how the difference in interpretation varies by the questionnaire and by the size of the place.

Exhibit 6.1: Interpretation of In-Mover Counts from Long Form and ACS

Survey	“No” Answers
Long-form tabulation	Count of residents who did not live in their current unit five years ago.
ACS tabulation based on one year of data	Count of residents who did not live in their current unit one year ago.
ACS tabulation based on five years of data	Average over 5 years of the count of residents each year who did not live in their current unit one year ago.

Note that the five-year ACS does not measure the same phenomenon as the long form. Even if one were to sum five years of ACS data, the total would be conceptually different from what one obtains from the long form. For example, the 2000 long form cannot identify persons who moved into a unit in 1996 but move out before April 1, 2000.³⁸ Such a person could have been counted if there had been a 1997 ACS. For this reason, the rate of in-migration measured by the ACS should be greater than one-fifth of the rate measured by the long form.³⁹

³⁸ If the whole household moved in 1996 and moved out before April 1, 2000, the long form would record the replacement household as in-movers whereas the members of both households were in-movers during the five-year period.

³⁹ If individuals rather than households were sampled and if the annual rate of in-migration were 0.16, then the probability of finding a person who had not moved into his or her unit within the last five years would be $(1-0.16)^5 = 0.418$. The percentage of person who would answer “no” would be 0.581. $0.581/5 = .116$ which is less than the underlying rate of 0.16.

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The difference in wording also affects the characterization of in-movers in two ways. First, the term “in-mover” means something different for the two surveys. A long-form “in-mover” is someone new to his or her unit within the last five years; an ACS in-mover is someone new to his or her unit within the last year. Second, the long form’s longer time horizon means that it will have more in-movers to study. If an area has a large number of in-movers, it is possible to analyze the characteristics of these in-movers using other information collected during the survey.

For a given area, the number of in-movers in a sample equals the number of persons in sampled households times the percentage of in-movers. Long-form samples have more in-movers to examine for two reasons: (1) the long-form samples are larger and therefore include more persons and (2) the long-form classifies anyone new to the unit within the last 5 years as an in-mover whereas the ACS classifies only those new to the unit within the last year as in in-mover. Anyone who answers “no” to the ACS survey would also answer “no” to the long form but some who answers “yes” to the ACS would answer “no” to the long form. This advantage also holds for small areas where multiple ACS surveys are summed. For example, at the census tract level, the long-form still has a higher sampling rate -- 16.7 percent versus 12.5 percent ($5 * 2.5$) for the ACS.

The ACS should have adequate samples to study the characteristics of in-movers at the national, State, and large metropolitan areas or large place levels. For example, in a metropolitan area of 200,000, one could anticipate obtaining 800 in-movers in an annual ACS sample.⁴⁰ For a typical census tract, one could anticipate obtaining 80 in-movers from a combined five years of ACS samples.⁴¹ This might be sufficient to support some analysis of the characteristics of in-movers but is significantly less than what one might expect from a long-form sample.⁴²

In the tabulation plans for SF3 summary file from the 2000 census, the only characteristics of in-movers that the Census Bureau plans to publish are where they came from, e.g., a different part of the same metropolitan area or a different metropolitan area. Racial and ethnic characteristics are likely to be available from the SF4 summary file, but the Census Bureau has not yet released the tabulation plans for the SF4. To obtain other characteristics of in-movers, one would have to obtain special tabulations from the Census Bureau.

g. Disability

Exhibit 6.2 displays the questions used to inquire about disabilities on the 1990 long form, the 2000 long form, and the ACS. These questions are asked with respect to each person in the household. From HUD’s perspective, the 2000 long form and the ACS should be a substantial improvement over the 1990 long form in terms of useful information on disabilities. We have included the 1990 questions because HUD bases the factor used in the Section 202 fair share

⁴⁰ $800 = 200,000$ (number of persons in all households) * 0.025 (percentage of households sampled) * 0.16 (national in-mover rate from C2SS)

⁴¹ $80 = 4,000$ (typical number of persons in a census tract) * (0.025*5) * 0.16

⁴² A rough estimate of the number of in-movers in a long-form sample of a typical census tract is 388. $388 = 4,000 * 0.167$ (long form sampling rate) * 0.581(see footnote 35).

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formula on these questions. HUD may want to revise this factor using the expanded information available from both the 2000 long form and the ACS.

Exhibit 6.2: Disability Questions from the 1990 & 2000 Censuses and the ACS

1990 Census	2000 Census	ACS
<p>Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which –</p> <ul style="list-style-type: none"> a. Limits the kind or amount of work this person can do at a job? b. Prevents this person from working at a job? <p>Because of a health condition that has lasted for 6 or more months, does this person have any difficulty –</p> <ul style="list-style-type: none"> a. Going outside the home alone, for example, to shop or visit a doctor’s office? b. Taking care of his or her own personal needs, such as bathing, dressing, or getting around inside the home? 	<p>Does this person have any of the following long-lasting conditions:</p> <ul style="list-style-type: none"> a. Blindness, deafness, or a severe vision or hearing impairment? b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying? <p>Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:</p> <ul style="list-style-type: none"> a. Learning, remembering, or concentrating? b. Dressing, bathing, or getting around inside the home? c. (Answer if this person is 16 YEARS OLD OR OLDER.) Going outside the home alone to shop or visit a doctor’s office? d. (Answer if this person is 16 YEARS OLD OR OLDER.) Working at a job or business? 	<p>Does this person have any of the following long-lasting conditions:</p> <ul style="list-style-type: none"> a. Blindness, deafness, or a severe vision or hearing impairment? b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying? <p>Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:</p> <ul style="list-style-type: none"> a. Learning, remembering, or concentrating? b. Dressing, bathing, or getting around inside the home? c. (Answer if this person is 16 YEARS OLD OR OLDER.) Going outside the home alone to shop or visit a doctor’s office? d. (Answer if this person is 16 YEARS OLD OR OLDER.) Working at a job or business?

The 2000 long form and the ACS ask two questions whose wordings are identical on both surveys. The 1990 long form asks two questions that together include three elements of the second question on the 2000 long form and the ACS. The 1990 long form does not ask about the two elements in the first question on the 2000 long form and the ACS; nor does it ask about difficulty in “learning, remembering, or concentrating”.

Currently the Census Bureau plans to tabulate disability status by age and type of disability and by age, sex, and employment status. Racial and ethnic characteristics are likely to be available from the SF4 summary file, but the Census Bureau has not yet released the tabulation plans for the SF4. To obtain other characteristics of the disabled, one would have to obtain special tabulations from the Census Bureau.

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The ability to ACS to provide reliable characterizations of the disabled population for a given area depends upon the sample size. The C2SS estimates that approximately 16 percent of Americans, five years old or older, suffer from one form of disability or another.⁴³ For a small metropolitan area of 80,000, an annual ACS survey should include 320 disabled persons.⁴⁴ For a census tract, the five-year moving average ACS survey would base its characterization of the disabled on a sample of 80 disabled persons.⁴⁵ The adequacy of these samples depends upon the frequency with which particular characteristics occur and whether two or more characteristics are being studied at the same time.

h. Seasonal Residence

The ACS contains a three-part question designed to determine first whether some or all of the household members live elsewhere during the year and second, if all live elsewhere sometime during the year, whether they consider the residence being reported on in the ACS as a primary residence or as a vacation home, a school residence, a work residence, or other residence. The Census Bureau added this question to help it investigate seasonal population flows. The long form does not measure seasonality of residence.

HUD users who plan to purchase special tabulations from the Census Bureau may want to consider using this variable. It could potentially be used to distinguish high season rents from low season rents for setting fair market rents in resort areas or for eliminating high-income temporary residents from permanent residents in determining whether an area satisfies the CDBG targeting requirements. The practical value of this variable for these and similar purposes may be limited by the requirement that a household member reside in the units for at least two months in order to be counted.

i. Assisted Housing

The 2000 C2SS form of the ACS contained two questions related to housing subsidies. The first question asks whether any Federal, State, or local program is paying part of the rent and then asks whether the assistance is “Section 8” or “some other government program.” The second question asks whether the unit is in a public housing project or is part of a government housing project. Unfortunately, the assisted housing question will not be asked in the first full ACS survey in 2003 and currently there are no plans to include the question in future ACS's. If HUD is interested in this information, the Department will need to convince the Census Bureau that there is a statutory or regulatory requirement for the information.

These questions are potentially valuable to HUD. Chapter 17 notes that HUD should eliminate assisted housing in calculating the 40th percentile of the distribution of gross rents to set fair market rents. Until now HUD has had to estimate the effect of eliminating assisted housing. These questions would allow HUD to eliminate assisted units directly from the sample. However, past experience has shown that respondents make many mistakes in answering questions of this nature. Some respondents have difficulty determining whether or not they

⁴³ The proportion varies from 6 percent for those 5 to 20 to 40 percent for those 65 or over.

⁴⁴ $320 = 80,000 * 0.025 * 0.16$

⁴⁵ $80 = 4,000 * (0.025*5) * 0.16$

receive any rental assistance and, of those that do identify themselves as assisted, many misidentify the type of assistance they receive. ORC Macro is now working with HUD to devise the best way to gather this information from people.

Continuous vs. Point-in-Time Data Collection

ISSUE: The long form provides a snapshot as of April 1 of the decennial year; the ACS provides averages over the reporting period. RESEARCH QUESTION: Does this difference in interpretation of numbers have detrimental effects on any HUD uses?

The Census Bureau will conduct the ACS throughout the year, mailing out 250,000 questionnaires each month. The Census Bureau collects long-form information around April 1st of each census year. ACS survey asks respondents to answer every question as of the date when they fill out the questionnaire or with respect to the 12 months prior to the date when they fill out the questionnaire. The long form asks respondents to answer questions as of April 1 or for the preceding calendar year.

This difference in approach affects how one interprets certain variables from the ACS compared to the same variables from the decennial census. Combining multiple years of ACS data into moving averages makes the difference in interpretation greater.

- **Variables that describe categorical characteristics of people or housing units:** Examples of these variables are race, marital status, employment status, and vacancy status. The long form gives a “snapshot” as of April 1, 2000. The ACS tells what the average characteristic was over the period – the calendar year for annual ACS data and a 3- or 5-year period for moving average ACS data. One would not expect these two approaches to obtain estimates that are exactly equal. Some of these characteristics change over time, for example, as people marry or quit their jobs. Other characteristics may change with turnover of households in communities.
- **Variables that normally have trends:** Examples of these variables include income, rent, utility costs, house value, and age. (Income is an exception and will be discussed separately.) The long form again gives a snapshot as of April 1, 2000 and the user must adjust for the subsequent effects of any trends. The ACS reports averages for the period. ACS users must also adjust for the subsequent effects of any trends but, in addition, must center the observed value at some point within the period in order to know for how long to apply the trend. Presumably most variables would be centered at the middle of the period. (See discussion about moving averages further on in this section.)
- **Income:** The Census Bureau will adjust income for changes in the cost of living. As explained in section 2 of this Chapter, making an inflation adjustment is not the same as trending. The cost of living adjustment assumes that the purchasing power measured at any point in the data collection period remains constant throughout the period. For example, assume that the cost of living rises by 3 percent a year. If a household reports an annual income of \$50,000 in January, a cost of living adjustment to the end of the year would increase this income to \$51,500, the amount needed in December to equal the purchasing

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power of \$50,000 in January. A trending adjustment makes no assumption about purchasing power. It attempts to track movements in dollar income. Assume that dollar income is growing at 5 percent a year. Then a trending adjustment to the end of the year would increase the \$50,000 reported in January to \$52,500 in December.

Moving averages lengthen the period over which the data describe conditions within an area. This lengthening affects both the interpretation of variables and any trending that might be required. Consider both a categorical variable – unemployment – and a trend variable – rent. For areas with populations over 65,000, the standard Census Bureau tables will report average unemployment rate over the calendar year in which the ACS collects data. For areas with populations between 20,000 and 65,000, the Census Bureau will report average unemployment rate over the preceding three years. This difference will complicate comparisons between places. For example, using ACS data, analysts can compare Charleston SC and Columbia SC (both with populations over 65,000) on the basis of annual data but would have to use three-year moving average data to compare either Charleston or Columbia with Florence SC (with a population of 30,000).

For areas with populations over 65,000, the Census Bureau will tabulate the rents reported by respondents over the twelve months during which data were collected. A household reporting a contract rent of \$800 in January might actually be paying \$850 in December. The standard table would record this household as having a rent of \$800. The standard Census Bureau tables for areas under 20,000 will tabulate rents reported by respondents over a sixty-month period. A household reporting a contract rent of \$800 in the January of the first year might actually be paying \$1,070 in December of the fifth year. The standard table would record this unit as having a rent of \$800.⁴⁶

HUD users have several options for dealing with problems presented by using data from multiple years to describe conditions within an area. For categorical variables, users can try to measure the variables over the same time period. For example, users could choose to work with a three-year moving average unemployment for Charleston in order to match the time period for which data are available for Florence. Alternatively, after 2008 when the research product will become available, users could use the unofficial annual data for Florence in order to make the comparison with Charleston on the basis of the most recent year for both places. Finally, users could try to find a way to trend the moving average data forward to make it more comparable with annual data. In this example, users would have to find a way to trend the unemployment rate for Florence from the middle of the second year to the middle of the third year. (Since the Charleston data is an average over the year, one would probably center the unemployment rate estimate in the middle of the year.)

For some categorical variables, users may choose not to make any adjustment. For example, it is arguable whether comparisons between Charleston and Florence on variables such as educational attainment, disability status, average number of rooms in a house, or fertility need to be made over the exact same time period.

⁴⁶ See Alexander (1998) for a discussion of “Variables Whose ‘Meaning’ Changes” over the period used for a moving average.

For variables with trends, users also have options. After 2008, users can choose to match the time periods by using three-year moving averages for both cities or by using the less precise but more current annual data. (Annual data for Florence would have to come from the “research product.”) Users can employ national or regional trends to update the moving average rent. Or users can look at the annual data to determine what sort of trending factor should be applied to the moving average.

The Census Bureau will release unweighted moving averages, that is, in a three-year moving average, the Census Bureau would sum the totals for the three years and then divide by three. Because the Census Bureau will eventually begin releasing the annual data that goes into the moving averages, HUD would have the option of constructing weighted moving averages. For example, HUD could construct a moving average by taking the first year totals adding twice the second year totals and adding three times the third year totals and then dividing the sum by six. This approach gives greater importance to the more recent data. HUD could construct weighted moving averages in other ways, including moving averages that give greater importance to the oldest data.⁴⁷

The ACS vs. the Short Form

ISSUE: The ACS collects for a sample the same information that the short form collects for the entire population. RESEARCH QUESTION: Are there uses in which HUD might choose to use the ACS in preference to the short form?

The long form and the ACS both ask the same questions that are asked on the short form. These questions include: the number of persons in the household; family status; tenure; and the age, sex, race, and ethnicity of every household member. HUD makes use of many of these short form variables. Race, for example, is central in making site and neighborhood determinations and is also used to define underserved areas in setting goals for Fannie Mae and Freddie Mac.

Unfortunately, short form variables experience the same aging problems that long-form variables face. The racial composition of a census tract may change greatly between 2000 and 2008. So HUD must consider the desirability of substituting ACS data for short form data.

Three factors would argue against substituting ACS data for short form data.

- First, there would be a significant loss of precision. Short form data represent a 100 percent sample. The ACS sample is 2.5 percent for annual data, 7.5 percent for three-year moving average data, and 12.5 percent for five-year moving average data. For very large areas, such as New York or Los Angeles, a 2.5 percent sample would be very accurate; for smaller areas, one would have to take care even with a 12.5 percent sample.
- Second, the gain in timeliness is not as significant for places where the standard tables are based on moving averages. For example, for census tracts, the first ACS results would not be

⁴⁷ In the May 13, 2002 meeting, ACS staff indicated an interest in developing weighted moving averages for special tabulations.

available until mid-2008 and would report average racial composition over the period from 2003 to 2007. The center of the period being analyzed would be 3 years old by mid-2008; this compares with 7.25 years old for the decennial short form counts.

- Third, the ACS data will not be available at the block level. For some purposes, HUD uses block level data to construct neighborhoods. This is often the case in making site and neighborhood determinations.

While there are good reasons for not using ACS data in place of short-form data, the decision should be made on a case-by-case basis. As mentioned earlier, a 2.5 percent sample is more than adequate for many purposes in reasonably large places. Also HUD users may be able to find creative ways to mix short-form data and ACS data for the same variables. For example, one could use the annual data in the research product to examine whether the racial composition of an area has changed over the decade, particularly if the area contained two or more census tracts.

Alternative Sources for the Same Information

ISSUE: The Census Bureau and the Bureau of Labor Statistics produce other statistical series that contain some of the same information that HUD can anticipate obtaining from the ACS.

RESEARCH QUESTION: When should HUD use these series instead of the ACS and will having more than one number for the same variable create problems for HUD?

The decennial long form provides extensive social and economic information on Americans and American households. Much of this information is available at the national, and sometimes at the State or lower levels, from other sources. For example, the Current Population Survey (CPS) reports unemployment rates at the national and State levels every month. Annually the CPS furnishes estimates of median household income and poverty rates at the national level. The long form is valuable primarily because it extends the availability of this information down to counties, places, and even census tracts.

The existence of alternative data sources raises two important questions: (1) which source is better? and (2) what happens if the ACS and an alternative source come up with different numbers for the same measurement?

The first issue has to be answered on a variable-by-variable and use-by-use basis. In general, the ACS will have a significantly larger sample but it may not be designed to provide the most precise answer to a particular question. The ACS covers many topics and, therefore, can afford to devote only a few questions to each topic. A survey designed to address only a few topics can probe more deeply into those topics. For example, the CPS contains a more thorough set of questions to determine whether a respondent is in the labor force. For this reason, the decennial census always reports a higher unemployment rate than the CPS. Other sources may also release their estimates before the ACS and timeliness may be important to a particular HUD application.

The second issue, having two numbers for the same measurement, will definitely be a problem for HUD users. They will have to ensure that HUD clients and the audience for HUD reports understand why more than one estimate exists and why HUD chose one estimate over another. Sometimes HUD may want to mix sources, using the ACS for estimates involving cities and

counties and using another source for national estimates. For example, the Housing Vacancy Survey (HVS) tracks the homeownership rate at the national level quarterly and the HVS estimates are usually available within 30 days after the end of a quarter. While the HVS offers convenient tracking of the national homeownership rate, the ACS would allow tracking at the jurisdiction level. The problem is that the ACS and HVS will only occasionally produce the same annual estimate for the country. The differences between the two estimates will generally be small but small differences are important if one is trying to determine whether the year-to-year changes are positive or negative.

The discussion below compares the ACS with the most likely alternative source for four important variables (or related sets of variables) along four dimensions: conceptual differences, the level and frequency of reporting, the adequacy of the sample, and timely availability of data.

a. Unemployment rate

The Bureau of Labor Statistics (BLS) uses the Current Population Survey (CPS) to collect information on labor force participation, employment, unemployment, and the unemployment rate. While the analysis focuses on the unemployment rate, the conclusions would apply to the other measures as well.

Conceptual Differences

The CPS is a better measure of the unemployment rate because it uses a more thorough set of questions to determine whether a respondent is in the labor force. For this reason, the decennial census always reports a higher unemployment rate than the CPS.

Level & Frequency of Reporting

BLS reports unemployment rates monthly and annually for the nation and all States. BLS uses statistical modeling to extend these estimates to all metropolitan areas, all counties, and all places over 10,000. The ACS will report annually for the nation, States, metropolitan areas, counties, places, and census tracts.

Adequacy of Sample

The CPS was designed to provide reliable statistical estimates at the national and State levels. BLS has developed statistical models to provide estimates of labor force, employment, unemployment, and the unemployment rate for metropolitan areas and cities where the CPS does not collect data or does not collect sufficient data to make direct estimates of these variables. Despite the conceptual superiority of the CPS, the ACS estimates at the metropolitan area, county, and place levels will be superior to the current BLS measures. The ACS estimates will be based on actual data instead of model projections. However, it is anticipated that BLS will revise their models using ACS data. If this occurs, the accuracy of the BLS annual estimates should improve significantly and may rival the ACS in accuracy.

Timely Availability

The BLS estimates are produced monthly for the nation and States on both a seasonally adjusted and a not-seasonally adjusted basis. These data are available on the first Friday after the end of

the month. For metropolitan areas and cities, BLS produces monthly data on a not-seasonally-adjusted basis and these data are generally available within 60-90 days of the end of a month. The annual summary of metropolitan area and city data is available generally around May. The ACS estimates will be annual and will be available six to twelve months after the end of a calendar year.

b. Household Income, Family Income, and Poverty

The Census Bureau uses the CPS to estimate median household income, median family income, the number of persons in poverty, and the poverty rate. The Census Bureau's small area income and poverty estimation project (SAIPE) provides estimates of median household income and the poverty rate at the State and county level based on statistical modeling.⁴⁸ Currently the Census Bureau derives its SAIPE estimates from the CPS; in the future it will base these estimates on the ACS. The following discussion compares the current SAIPE estimates with ACS estimates.

Conceptual Differences

The CPS uses the "usual residence" concept while the ACS uses the "current residence" concept. This difference will result in some households being classified as residents of one place in one survey and residents of another place in the other survey. This difference should not lead to any difference in measurements at the national level.⁴⁹

Level & Frequency of Reporting

The CPS produces annual estimates at the national and major census division level and separately for New York City, and Los Angeles. The small area estimates cover all States and counties and are usually produced every two years. The ACS's annual estimates will cover the nation, all States, all central cities, and other geographies. The ACS will also permit intercensal measurement of the concentration of poverty, that is, the percent of poor persons who live in census tracts with poverty rates of 40 percent or higher.

Adequacy of Sample

The ACS has a much larger sample than the CPS: 3 million annually vs. roughly 200,000 households.⁵⁰ Despite the smaller sample size, at the national level, the CPS provides highly precise estimates of the median household income, median family income, the number of persons in poverty, and the poverty rate. With the addition of ACS data, the Census Bureau's SAIPE estimates will be very accurate. In fact, the Census Bureau believes that these estimates will be superior to the ACS estimates.

⁴⁸ The Census Bureau currently allocates the county estimates to school districts as well. The Census Bureau is considering releasing ACS data by school district.

⁴⁹ The difference in concepts could lead to differences in measurements in areas with large seasonal populations but, except for New York and Los Angeles, no direct CPS estimates of median income or poverty will be released below the major census division level.

⁵⁰ The CPS samples approximately 60,000 households monthly in panels. Each panel is interviewed for eight straight months, not interviewed for four months, interviewed for another four months, and then dropped from the sample.

Timely Availability

The CPS estimates for the nation, major census divisions, New York City, and Los Angeles are available in October of the following year. The ACS estimates for all areas will be available between July and December of the following year. The Census Bureau small area estimates for States and counties will generally be available 18 months to two years after the end of the calendar year for which estimates are calculated.

c. Homeownership Rate

The Housing Vacancy Survey, a component of the CPS, tracks the homeownership rate for the entire population and various domains, such as households with below median income and different racial and ethnic groups.

Conceptual Differences

Like the decennial census, the CPS collects information about respondents' "usual residence" while the ACS collects information about respondents' "current residence". This difference in concepts can result in the ACS and the CPS producing different estimates of the homeownership rate for the nation, different subgroups, or different metropolitan areas. These differences should be minor for the nation and for different subgroups and for the 75 metropolitan areas for which the Census Bureau provides homeownership estimates from the CPS.

Level & Frequency of Reporting

The Current Population Survey provides quarterly and annual information on the homeownership rate for the nation, the four census regions, central cities vs. suburbs vs. non-metropolitan areas, different racial and ethnic groups at the national level, different types of households at the national level, and households below median income at the national level. The Census Bureau releases annual homeownership rates for 75 metropolitan areas and makes available to HUD unpublished central city and suburban homeownership rates for these metropolitan areas. The ACS measures homeownership rates at all levels of geography and allows analysis of homeownership rates for various groups at all levels of geography. The ACS estimates are annual for places over 65,000 or multi-year for smaller places. Compared with CPS data, ACS information on homeownership rates will be available for more areas, including non-metro areas.

Adequacy of Sample

The ACS has a much larger sample than the CPS: 3 million annually vs. roughly 200,000 households. At the national level, the CPS provides highly precise estimates of the homeownership rate. Its estimates of homeownership rates for major subpopulations, such as central city residents, are also highly precise. However, the CPS estimates are not precise for specific metropolitan areas or central cities and display year-to-year changes in the homeownership rate that are too large to be real. The ACS estimates will be based on larger samples at all levels of geography. The ACS advantage will be particularly strong below the State level.

Timely Availability

The CPS data is available within 30 days after the end of a quarter. The ACS data will be available for the nation, states, and all large jurisdictions annually. Data for smaller areas will also be available annually beginning in 2008, but only on a multi-year moving average basis. The ACS will be available six to twelve months after the end of a calendar year.

d. Vacancy rates

The Housing Vacancy Survey provides quarterly and annual estimates of vacancy rates at the national and major census division level.

Conceptual Differences

The HVS uses the “usual residence” concept while the ACS uses “current residence”. As explained earlier in this Chapter, this difference can result in different estimates of the vacancy rate for the same area. Typically these differences will be minor but may be sizable in places with large seasonal populations. Since the Census Bureau provides vacancy estimates only for the nation, major census division, and 75 metropolitan areas, none of which appear to have large seasonal shifts in population, this difference in concept, by itself, should not result in large differences in estimates. However, as noted in this Chapter’s discussion of the vacancy rate variable, there is a downward bias in the ACS’s measurement of its concept of a vacancy rate. On average, the ACS underestimates its vacancy rate by 1.2 percentage points.

Level & Frequency of Reporting

The HVS reports quarterly at the national level and annually for States and the 75 largest metropolitan areas. In the past, the Census Bureau has released unpublished data for the largest central cities in the 75 metropolitan areas and the rest of the metropolitan areas. The ACS will report vacancy rates annually for all areas with populations of 65,000 or more. For smaller places, the ACS will report vacancy rates using either three-year or five-year moving average.

Adequacy of Sample

The HVS sample is large enough to provide reliable quarterly estimates at the national level and usable annual estimates for States and the 75 largest metropolitan areas, but confidence intervals are large for many States and metropolitan areas. The unpublished estimates for central cities and the remainder of metropolitan areas show large year-to-year swings. The ACS sample is much larger and will provide much more precise estimates at the State, metropolitan area, and submetropolitan area levels.

Timely Availability

The HVS quarterly reports are generally available within 30 days after the end of a quarter; the annual reports are generally available by the end of January of the next year. The ACS reports will be available between July and December of the next year.

Data for Block Groups and Tract Parts

ISSUE: HUD sometimes needs data for areas smaller than census tracts, such as block groups and tract parts. RESEARCH QUESTION: Will the ACS provide adequate information on these areas?

Because of the small sample sizes, the Census Bureau will not include data at the block group level in the tables it provides on the Internet. It will provide block group data in CD format for use by researchers and others who understand the limitations of these data. These data will not be available until 2008 when the first census tract information will be released. The Census Bureau will also release data for “tract parts”, the term applied to the intersection of a tract and another reporting geography, e.g., the part of tract 1054 that is in the city of Denver. Tracts never cross county or State boundaries but they do cross place boundaries.

To prevent users from being able to derive information about individual respondents from ACS tabulations, the Census Bureau will use a “swapping” technique in which information for persons within an area are swapped with information for similar persons outside the area. The details of the swapping procedure – the size threshold that triggers swapping, the percentage of persons whose information is swapped, and the variables swapped – are confidential. The general rule is that if you have enough information to identify a person, then the information for that person is probably not the information from that person. This technique has been designed to prevent changing the basic character of an area. For example, swapping will not make a poor area appear rich.

Information on areas smaller than a census tract is likely to be based on swapped data. The same techniques are already used in the decennial census, but these techniques will be used more frequently in the ACS because of its lower sampling rate.

Sample Size/Precision

ISSUE: The ACS uses a smaller sample than the long form. RESEARCH QUESTION: Will differences in the precision of estimates or year-to-year changes in estimates create problems for HUD uses?

Chapter 3 analyzed the adequacy of the sample sizes used for ACS statistics and compared the precision of ACS estimates to those of the decennial long form. In brief, at all levels of reporting, the ACS uses smaller samples and provides less precise estimates than the long form. Exhibit 6.3 compares sample sizes for various levels of geography.

Exhibit 6.3: Estimated Sample Sizes for Areas of Varying Population (in number of households sampled)

Population	ACS Reports Will Be Based On:	ACS Sample Size	Long-Form Sample Size
1,000,000	One year of data	9,579	63,985
500,000	One year of data	4,789	31,992
200,000	One year of data	1,916	12,797
100,000	One year of data	958	6,398
65,000	One year of data	623	4,159
40,000	3-year moving average	1,149	2,559
20,000	3-year moving average	575	1,280
15,000	5-year moving average	718	960
10,000	5-year moving average	479	640
4,000	5-year moving average	192	256

The adequacy of a sample depends primarily on the absolute number of observations in the sample. The Census Bureau has designed the single year, three-year moving average, and five-year moving average tabulation format to ensure that all reported results would be based on reasonably sized samples. However, recognizing that ACS tables will be less precise than similar tables that one might have used from the long form, the Census Bureau will publish 90-percent confidence intervals around any point estimate so that a user will be able to judge the precision of the estimate.

a. Adequacy around Tabulation Thresholds

Exhibit 6.3 shows that the ACS tables for a city or county of 40,000 persons will be based on a larger sample than the ACS tables for a city or county of 65,000 or a city or county of 100,000. Similarly the ACS tables for a place or county of 15,000 will be based on a larger sample than the ACS tables for a place or county of 20,000. The two thresholds – 65,000 and 20,000 – that separate how the Census Bureau tabulates the data are the points at which the sample sizes begin to be stretched to the margins of adequacy. Below the thresholds, the Census Bureau adds more data to enhance precisions.

HUD users should be particularly careful when using ACS data for places with populations just above 65,000 or just above 20,000. For most purposes, the ACS tables will be completely reliable for these places. However, users should be alert to any sizeable year-to-year swings in measurements for threshold-sized places. For example, in setting income limits, HUD may want to establish automatic edits that highlight large year-to-year swings in median income for counties around 65,000 or 20,000 so that HUD can decide to base the new median income solely on the ACS results or to adjust the new median income in some way.

b. Adequacy for Small Places and Small Domains⁵¹

Implicit in the preceding discussion about sample size in threshold-sized places was the idea that a sample of 500 to 600 is the minimum desired size. However, Exhibit 6.3 shows that the ACS tables for places below 10,000 will be based on smaller samples. A typical census tract has a population of only 4,000. ACS tables for the typical tract would be based on samples of less than 200.

Adequacy is a relative term. It is so difficult to obtain data for small places that analysts are typically willing to use less precise data than they would want for larger places. This compromise is not unique to the ACS. Users of long-form data for census tracts settle for samples in the range of 250 observations.

There are a number of HUD applications that focus on individual census tracts, for example, designating qualified census tracts for the low income housing tax credit. In these applications, HUD users will have to be careful about the precision of judgments made for individual tracts.

Applications involving small places are not the only times that HUD users have to be concerned about precision. Many HUD applications deal with only part of the overall population. For example, income limits are based on median income of families, not the median income of all households. Fair market rents are based on gross rents paid by households who have moved into two-bedroom units within the past 12 months.

Constraints like these reduce the effective size of the sample and lessen precision. For example, only 68 percent of households are family households. Therefore, for a non-metropolitan county of 20,000, one could expect to find only 391 ($= 0.68 * 575$) family households upon which to base median family income using ACS data. Among all households, only approximately 5 percent are renter households who live in two-bedroom units and who moved into these units within the last 12 months. Therefore, in a metropolitan area of 100,000, HUD could expect to find only 48 ($= 0.05 * 958$) recent movers in two-bedroom rental units. By past HUD standards, this sample would be too small for setting FMRs.

The Consolidated Plan requires that States and other jurisdictions identify the housing needs of large families, the disabled, the elderly, single persons, renters, owners, extremely low-income families, low income families, moderate income families, and poverty level families. It further requires that they consider “the extent that any racial or ethnic group has disproportionately greater need in comparison to the needs of that category as a whole.” Combining these requirements can greatly reduce effective sample size. For example, 12.4 percent of the population was elderly in 2000 and 12.5 percent were Hispanic. If these proportions were independent, then one should expect to find only 1.6 percent ($= 0.124 * 0.125$) of a sample to be

⁵¹ Domain is a term that the Census Bureau uses to refer to aggregations of data that are based on a criterion other than geography. For example, the Census Bureau tabulates data by race and ethnicity as well as geography. All ACS responses for person identified as Hispanic would be considered a domain. Domains can exist within geography, e.g., all African Americans in the Washington DC metropolitan area.

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elderly Hispanics. To obtain 200 elderly Hispanics in an ACS sample, one would have to start with an area whose population were 500,000.^{52, 53}

The need for care is not unique to ACS data. HUD users who focus on only part of the population would also need to exercise care in using decennial long-form data. For example, HUD users had to develop special rules for dealing with small non-metropolitan counties when they used the 1990 census to rebenchmark FMRs. The multiple disaggregating of the population in the Consolidated Plan can create sample size problems even with the long form. These problems are just not as severe with the long form as with the ACS. To obtain 200 elderly Hispanics in a long-form sample, one would have to start with an area whose population was almost 75,000.⁵⁴

c. Year-to-Year Stability

Small samples present problems to HUD mainly with respect to the stability of measurements from one year to the next. HUD would not like an area's eligibility for benefits to change from year-to-year simply because a new sample leads to a different determination. Similarly HUD would not like an area's allocation of funds to rise or fall simply because of sampling variability. Needs assessments, such as those for Hispanic elderly in the Consolidated Plan, should not differ from year to year simply due to sampling variability.

Year-to-year stability of ACS measurements is less likely to be a problem for census tracts and other small areas because the ACS tables will be based on moving averages. At the census tract level only one fifth of the sample changes every year. A simple example shows how a moving average reduces sampling variation.

Chapter 3 indicated that the Census Bureau criterion for publishing its standard tables corresponds to requiring a 12 percent coefficient of variation. (The coefficient of variation is the ratio of the standard error to the estimate.) Consider the measurement of the poverty rate for a census tract. Assume that the actual poverty rate is 20 percent. Then a coefficient of variation of 12 percent implies a standard error of 2.4 percent. Each year the Census Bureau will add a new year of ACS data and drop a year of ACS data to calculate the poverty rate for a census tract. If the poverty rate for the new data were one standard error (2.4 percent) different from the poverty rate for the dropped year of data, then the impact of the change would be $2.4 / 5 = 0.48$ percent shift in the poverty rate. A two standard error difference would shift the measured poverty rate over five years by only 0.96 percent. Thus dropping a measurement of 22.4 percent and replacing it with a measurement of 17.6 percent would alter the published poverty rate by less than one percentage point.

⁵² $500,000 = 200 / (0.016 * .025)$ Note that, for the purposes of the Consolidated Plan, it is the number of persons, not the number of households that is important. Therefore the sampling rate was applied to the population not the number of households.

⁵³ This example assumes that the Hispanic population and the elderly population are distributed evenly across the country. Obviously, this is not the case. It would be relatively easier to obtain an adequate sample of elderly Hispanics in San Antonio than in Pittsburgh.

⁵⁴ $74,850 = 200 / (0.016 * 0.167)$

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For areas with populations of 65,000 or more, each set of Census Bureau tables will be based on separate ACS surveys so one cannot count on overlapping samples to smooth year-to-year changes. For areas with large populations, the absolute sample sizes will be large enough to moderate any year-to-year changes resulting simply from sample variation. To demonstrate this point, we reproduce Exhibit 3.2 as Exhibit 6.4.

Exhibit 6.4 reports representative findings from five ACS test sites. The first two rows show the size of the area being sampled in terms of number of people and number of housing units. The third row is the Report’s estimate of the actual sample size, which was calculated by taking 3 percent of the number of households.⁵⁵ The remaining ten rows contain countywide means, medians, or percentages derived from the surveys. Each cell contains three numbers. The first number is the point estimate; the second and third numbers mark off the lower and upper bounds of a 90-percent confidence interval around the point estimate. This interval can be interpreted as providing 90 percent certainty that the true number falls between the lower and upper bounds.

Exhibit 6.4: Representative Results from ACS Test Sites

	Broward County	Bronx County	Lake County	San Francisco	Franklin County
Population	1,603,094	1,285,415	623,378	756,976	679,189
Housing Units	741,043	490,659	225,919	346,520	324,042
Est. sample	18,526	12,266	5,648	10,396	8,101
Median Age	37.7 37.5 – 37.9	31.0 30.8 – 31.2	34.2 34.0 – 34.4	36.5 36.2 – 36.8	30.8 30.3 – 31.3
Average Household Size	2.48 2.46 – 2.50	2.83 2.81 – 2.85	2.91 2.89 – 2.93	2.32 2.30 – 2.34	2.32 2.27 – 2.37
Rental vacancy rate	6.6 5.8 – 7.4	4.7 4.2 – 5.2	6.9 5.3 – 8.6	3.0 2.5 – 3.5	8.0 7.0 – 9.0
Percent high school graduates	83.4 82.9 – 83.9	64.7 63.9 – 65.5	87.7 87.0 – 88.4	84.3 83.6 – 85.0	85.8 85.1 – 86.5
Percent Unemployed	5.2 4.9 – 5.5	10.2 9.7 – 10.7	4.2 3.7 – 4.7	4.5 4.3 – 4.7	5.2 4.9 – 5.5
Mean travel time (minutes)	25.8 25.5 – 26.1	40.1 39.4 – 40.8	31.0 30.5 – 31.5	29.6 28.9 – 30.3	20.7 20.2 – 21.2
Median household income	\$40,249 \$39,769 -- \$40,729	\$27,547 \$26,668 -- \$28,426	\$67,675 \$65,952 -- \$69,398	\$57,259 \$55,609 -- \$58,909	\$36,731 \$35,464 -- \$37,998
Percent below poverty	11.6 11.3 – 11.9	29.0 28.5 – 29.5	6.1 5.8 – 6.4	9.5 9.2 – 9.8	15.9 15.4 – 16.4
Median number of rooms	4.9 4.7 – 5.1	4.3 4.1 – 4.5	6.6 6.4 – 6.8	4.5 4.3 – 4.7	5.5 5.3 – 5.7
Median gross Rent	\$763 \$755 -- \$771	\$634 \$627 -- \$641	\$742 \$727 -- \$757	\$977 \$970 -- \$984	\$589 \$574 -- \$604

Because all five sites have populations of least 600,000, the results generally show a high degree of precision. The estimates of gross rent and median income, two variables of particular interest

⁵⁵ Non-responses would have reduced the actual number of respondents upon which the information in the Exhibit is based.

to HUD, have coefficients of variation that range from less than one percent to slightly over two percent. However, the confidence intervals around the rental vacancy rates are large relative to the estimates; the coefficients of variation for the rental vacancy rates range from 6.5 percent to over 14 percent.

HUD users may still encounter undesirable year-to-year variability in key measurements for some areas for three reasons. First, areas with populations around the 65,000 threshold will have larger standard errors and, therefore, will be more susceptible to sampling variation. Second, measurements that involve special domains will have larger standard errors than other measurements for the same geography. For example, median family income for African Americans in St Louis will have a larger standard error than median family income for all families in St Louis. Third, when one makes many statistical measurements, one can reasonably expect 10 percent of the measurements to fall outside of the 90 percent confidence intervals simply because of sampling variation.

d. Annual Availability Makes Precision More Important

Why is precision important to HUD? We are unaware of any current HUD application involving long-form data that explicitly takes precision into account. Federal agencies in general have used long-form data without considering precision for two reasons. First, there is no alternative source of information, particularly for small areas. Under this constraint, precision is almost never an issue. Second, long-form data have been available only at ten-year intervals. Changes between decennial censuses are more likely to be considered real rather than statistical flukes. The same numerical difference appears larger when only one year has intervened between two measurements than when ten years have intervened.

The advent of the ACS changes the situation. Federal agencies now have alternatives. Until 2010, the 2000 long form is an alternative. Agencies also can choose between different aggregations of ACS data. For example, HUD could use annual ACS data to calculate fair market rents or it could combine two, three, four, or five years of ACS data to calculate fair market rents. The trade off is between more current data (using only the most recent annual ACS) and more precise data (using multiple years of ACS data or staying with the decennial long form). HUD users will have to choose among these alternatives based on the needs of their programs, but precision should be a major consideration in making the decision.⁵⁶

After 2008 new ACS data will be available every year for all levels of geography. HUD users will have the option of incorporating new data into their applications every year. In some cases, legislative language will compel the use of new data when it becomes available. Clients whose interests are adversely affected by new data may challenge the validity of the new data. HUD users will have to develop protocols for incorporating new data annually and for dealing with challenges.

⁵⁶ Alexander (1998) uses a simulation to analyze how well different multiyear ACS combinations do in predicting current conditions assuming different underlying trends. This analysis is relevant to the use of ACS variables in formulas.

HUD's procedures for setting fair market rents show how HUD users have already created rules for incorporating new data into their applications. Every year HUD funds approximately 60 random digit dialing (RDD) surveys to determine whether the current fair market rents in these markets are accurate. For every surveyed market, HUD has two estimates of the FMR, the new RDD estimate and the previous estimate which may have been trended forward from an older RDD, from the American Housing Survey, or the previous decennial census. HUD uses the following rule to choose between these estimates. If the 95-percent confidence interval around the new RDD estimate includes the previous estimate, then the previous estimate is considered validated. If the previous estimate lies outside the 95-percent confidence interval, then the new RDD estimate is accepted as the better estimate. This procedure tends to reduce the number of abrupt changes.

HUD users will also need to take precision into account in comparing ACS estimates for two different time periods. For example, HUD might want to know whether a reduction in the poverty rate between 2000 and 2008 in an Empowerment Zone is statistically significant. The methodology section of the ACS website provides formulas for calculating the standard errors for comparisons of percentages.

Precision becomes important in two other instances. First, HUD may find many new uses for ACS data, uses for which long-form data are unsuitable because the new uses require current data. In these cases, HUD analysts will have to determine whether the precision of the ACS is adequate. Second, HUD currently uses alternatives that are available between censuses at higher levels of geography for some ACS variables but may want to use the ACS instead, particularly to monitor these variables at lower levels of geography. For example, the Census Bureau publishes national poverty estimates every year and also publishes national homeownership rates every quarter. HUD would certainly like to have annual poverty and annual homeownership estimates at the State, county, and city level. Again HUD analysts will have to determine whether the ACS provides adequate precision for these uses.

Variable Base Periods

*ISSUE: The ACS will report data using different reporting periods for different sized areas.
RESEARCH QUESTION: Will inconsistent or multiple reporting periods create problems for HUD uses?*

HUD frequently uses decennial census data to compare two or more places. For example, formula allocations use long-form variables to measure need so that HUD can distribute funds in proportion to need. The decennial census is particularly useful for comparison purposes because the same information is available for all places for the same time period. In essence, the decennial census takes a statistical snapshot of the country as of April 1st of the census year.

The Census Bureau will tabulate ACS data using different base periods. It will provide tables based on the five-year moving averages for places of all sizes; it will provide tables based on three-year moving averages for places with 20,000 or more residents, and it will provide tables based on the most recent year of ACS data for places with 65,000 or more residents.

a. Consistency of Data

With the ACS, HUD users, who want to compare places of different sizes, face a choice: either to use the most current information and compare places using data covering different time periods or to use data covering the same time period for all places even if reliable, more current information is available for some places. The Census Bureau plans to release tables that provide five year moving average data for all places so it would be easy to put all places on the same basis.

Consistency, however, comes with a price. Moving averages behave differently than annual data. Choosing moving averages when reliable annual data are available could affect how HUD treats its largest clients. The next section discusses how these large clients might be affected.

b. Properties of Moving Averages

The discussion in this section will use a hypothetical poverty rate for a central city measured over ten years annually and by a three-year moving average. Exhibit 6.5 contains the example:

Exhibit 6.5: Hypothetical Example Comparing Annual and Moving Average Data

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Annual Data	15.0	15.5	16.0	19.0	17.0	16.5	16.0	15.5	15.0	14.5
Moving Avg.	NA	NA	15.5	16.8	17.3	17.5	16.5	16.0	15.5	15.0

Smoothing

Moving averages tend to “smooth” changes in time series variables. In the example, the three-year moving average smoothes out the temporary jump in 2006 but spreads its effect to 2007 and 2008. The moving average is 2.2 percentage points lower than the annual data in 2006, 0.3 percentage points higher in 2007, and 1.0 percentage points higher in 2008.

The impact of the smoothing effect on the client depends upon the application. If having high poverty benefits the client, then qualitatively the moving average hurts the client in 2006 but benefits the client in 2007 and 2008. The quantitative impact of the temporary jump is not lessened; it is simply spread over three years.⁵⁷

Some analysts believe that smoothing is advantageous for formula allocations because it lessens the tendency for erratic movements in a variable, which result from either a temporary change in conditions or sampling error, to cause erratic movements in the formula allocation. While smoothing out erratic movements resulting from sampling error appears to be unambiguously good from a formula allocation perspective, it is arguable whether smoothing out a true temporary movement is good.

The desirability of smoothing is also ambiguous in applications that determine eligibility of areas for benefits. If eligibility depends upon a threshold being met, for example, having a poverty

⁵⁷ In Exhibit 6.5, it appears as if the client is a net loser because the gains in 2007 and 2008 do not fully compensate the client for the loss in 2006. However, the observed difference between the annual data and the moving average in the three years is the sum of two effects: the temporary movement in 2006 and the trend in the annual data. Without the trend, the gains in 2007 and 2008 would fully compensate the client.

rate greater than 30 percent, then smoothing may benefit some places and hurt others. For example, places whose poverty rates average about 30 percent over time will have years in which the measured poverty rate is above 30 percent, either because of small movements around the average or because of normal sample variation, and similarly these places will have years in which the measured poverty rate is below 30 percent. If the moving average remains below 30 percent, the place will fail to qualify in any year whereas use of the annual data may have allowed it to qualify in some years. On the other hand, if the moving average remains above 30 percent, the place will qualify in all years whereas use of the annual data may have caused it to not qualify in some years.

Tracking trends

Moving averages are always behind a trend and their smoothing effect may hide a turning point. In Exhibit 6.5, the moving-average is behind both the upward trend in poverty rates from 2003 to 2006 and the downward trend beginning in 2007. In fact, the moving average shows that the trend turned in 2009 rather than in 2007.

From a formula perspective, being behind a trend means that a jurisdiction experiencing a downturn will receive fewer dollars during the period of the downturn with a moving average than with annual data. Once the downturn ends, the jurisdiction will recoup the difference. Similarly, a jurisdiction experiencing improved conditions will receive more dollars during the upturn with a moving average than with annual data. From the perspective of determining eligibility, a jurisdiction experiencing a downturn will not qualify as quickly with a moving average compared with annual data. But a jurisdiction experiencing improved conditions will retain eligibility longer with moving-average data than with annual data.

The “Unofficial” Research Product File

ISSUE: The Census Bureau will not publicize information based on only one year of ACS data for areas with populations of less than 65,000 because it believes that the precision of these estimates is low. For these areas, the Census Bureau will use moving average ACS numbers as the “official” information. However, beginning in 2008, the Census Bureau will release to researchers and planners a “research file” containing annual ACS data for areas of all sizes, including census tracts. The research file is intended for users who understand the limitations of the data. The Census Bureau expects these users to use these data for statistical modeling or for constructing larger areas for which the Census Bureau does not release information, such as large neighborhoods. RESEARCH QUESTION: Would it be useful for HUD consider using the “unofficial” results in any of its uses?

As explained in Chapter 3, the Census Bureau has developed its plans for tabulating ACS data to ensure that the official tables have an acceptable level of accuracy. Taking into account the ACS's sampling rate, the Census Bureau insisted on combining annual waves of ACS data for smaller places to obtain satisfactory sample sizes.

Nevertheless the Census Bureau recognizes that the annual data for small places will be valuable for some users. In particular, the transportation community has lobbied the Census Bureau to

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release annual data all the way down to the census tract and block group levels for use in transportation models.

Therefore, the Census Bureau has decided to provide a separate tabulation annually that will contain the standard tables for all places based on one year of data only. The Census Bureau is providing this option to those who want to use the less precise data for statistical modeling or who want to combine smaller areas into large non-standard geographies where combined sample size would support reasonably accurate estimates. An example of the latter use would be local planners combining information on several census tracts that form a recognized neighborhood within a community.

This release is intended for “expert” users only because it contains information on smaller areas that the Census Bureau considers too imprecise to release to the general public. For this reason these tables will not be available on the Internet like the official ACS tables; they will only be available in a file. Currently the Census Bureau is considering limiting the variables in this all-area-file to those of most interest but initially will probably release everything that is not prohibited by their confidentiality restrictions.

The Census Bureau staff has informally labeled this file of annual data as the “research product”. Currently the Census Bureau does not plan to begin releasing the research product until 2008, that is, until after the first round of five-year moving average data for census tracts becomes available. The unofficial annual data will not be available until after official moving average data are available.

This decision to provide the “research product” has two important consequences for HUD users. First, the research product annual file provides HUD users with information related only to the most recent year instead of information related to the most recent three- or five-year period. In areas where conditions may be changing, the most recent year’s data may be more useful than moving average data. Second, HUD users may find many creative ways to use the annual data either in combination with the official tables or independently.

This section explores some issues related to the use of the unofficial research product.

a. Cache

The standard tables will carry the name of the Census Bureau, which may give the data the added legitimacy in the eyes of the public. Individuals will be able to obtain the same information easily from the Census Bureau’s website. The annual numbers in the research product for areas with populations less than 65,000 will only be available in a data file format (as opposed to tables), so an individual would have to download the file and abstract the information for a particular site. The Census Bureau’s decision not to use the numbers based on only one year’s survey may taint the legitimacy of these numbers in the public’s perception if HUD chooses to use them.

For applications that determine client eligibility or the amount of funding a client receives, HUD would probably want to stick with the official tables. In particular, statutory language that requires use of the decennial census would probably require use of the official tables.

b. Timeliness vs. Precision

The choice between the official tables and the unofficial tables is basically a choice between timeliness and precision. The annual numbers in the research product will provide the most current information on a place but the accuracy of that information will depend on the size of the place. For places with populations less than 65,000, the Census Bureau believes the precision is not good enough to satisfy its standards. But there may be HUD applications where timeliness is so important that the Department may be willing to accept low standards on precision.

A review of the 25 important HUD applications in Exhibit 5.2 suggests only one possible application in which the need for up-to-date information would be so strong that HUD might use the annual numbers in the research product. HUD occasionally participates in federal programs to revitalize economically depressed communities. Eligibility for assistance is sometimes tied to census long-form data. For example, applicants for Empowerment Zones had to identify areas where at least 90 percent of the census tracts have a poverty rate not less than 25 percent, and at least 50 percent of the census tracts have a poverty rate not less than 35 percent. The need to respond to distress as soon as possible might justify using the most recent year's data on poverty rates rather than the five-year moving average data.

c. Irregular Geographies

The distressed community example in the preceding paragraph is closely related to one of the two reasons for the Census Bureau's providing the unofficial research product: the ability to construct irregular geographies. Empowerment Zones could have populations up to 200,000. If one aggregates annual ACS data at the census tract level to produce an area with an aggregate population of 65,000 or more, one has created a sample of sufficient size to satisfy the Census Bureau's requirement for releasing annual data.

d. Statistical Analysis

The second justification for the release of annual data on small areas is to facilitate statistical analysis.

Statistical models derive relationships between variables. For example, transportation modelers would like to know how the choice between solo-driving, car pooling, and taking public transportation depends upon distance to work, number of workers in the household, age of worker, household income, and other variables. The ACS will provide tract level, and perhaps block group level, summary measures of these and related variables. At the tract or block group level, summary statistics based on one year of ACS data will be subject to substantial measurement error. Using five-year moving averages would reduce measurement error but would also result in one-fifth the number of observations. Typically modelers will accept measurement error to increase the number of observations because the ability of models to derive relationships among variables is usually directly related to the number of observations. HUD may find it useful to develop some statistical models with annual ACS data to support program operations. The New Opportunities section of this Chapter will discuss a couple of HUD applications that might have use for statistical modeling.

Closely related to statistical modeling are applications where aggregate accuracy is more important than individual accuracy. In 2008, one can choose between the official census tabulations of conditions in census tracts based on an average of ACS data collect from 2003 through 2007 or an “unofficial” tabulation based only on 2007 ACS data. If one wanted to tabulate the number of census tracts with poverty rates of 40 percent or more, one could use either source. The official data will be more precise but the unofficial data will be more current. Using the official tabulations, HUD would be less likely to make a mistake in deciding whether an individual tract has a poverty rate of 40 percent or more. However, it is possible that the unofficial tabulations will produce a more accurate count of the number of tracts that currently have a poverty rate of 40 percent or more.

Statutory and Regulatory Requirements

ISSUE: Statutes and regulations set constraints on how HUD uses data for some uses. These statutes and regulations were drafted when small area demographic and economic data were available only once every ten years. RESEARCH QUESTION: Will these constraints hinder HUD in using ACS data in the most effective way?

The application-by-application discussion in Part II pays particular attention to statutory and regulatory requirements. For several important applications, statutory language imposes serious constraints on how HUD uses ACS data. In other cases, HUD may want to seek regulatory changes to permit greater flexibility in using ACS data or to set standards for the use of ACS data in particular applications.

Although the statutory and regulatory concerns are typically program specific, two issues arise in the context of several HUD applications: the relationship of the ACS to the decennial census and the impact of annual updates on HUD clients.

a. The ACS and the Decennial Census

The statutory language governing several HUD functions that use long-form type data specify that HUD should use the most recent decennial census for these functions. The Census Bureau maintains that the ACS is a part of the decennial census. The ACS will provide the information that the Census Bureau is required to produce as part of the decennial census and that the Census Bureau now uses the long form to produce. In a broad sense, the ACS is part of the decennial census and therefore statutory language that compels the use of the decennial census is not incompatible with the use of official ACS data.⁵⁸

At this time, however, there is an unresolved problem. It is not clear whether each year’s output from the ACS is part of the decennial census. It may be that only one year’s output would be considered strictly part of the decennial census. For example, the ACS tables for 2010 might be part of the decennial census but not tables from other years. HUD users need to obtain resolution

⁵⁸ While there has been no relevant legal opinion, it would appear that the unofficial research product would not be considered part of the decennial census. Therefore, statutory language compelling HUD to use the decennial census would seem to require the Department to use the official tables.

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of this issue before the first ACS data becomes available in 2004. Otherwise the Department will not know how to proceed on several important applications.

In a May 13, 2002 meeting, the Census Bureau staff offered this unofficial interpretation. The 2004 tables reporting ACS data for areas with populations of 65,000 or more would NOT be considered replacements for the 2000 decennial census. At this stage the Census Bureau would still consider the ACS an experiment. However, the Census Bureau staff believes that the 2008 tables would be considered replacements for the 2000 decennial census in the sense that the Census Bureau would maintain that these tables are the best and most recent information available. The same Census Bureau staff were uncertain whether the Census Bureau would treat the 2006 tables as replacements for the 2000 decennial census.

In response to a question, the Census Bureau staff indicated that the 2009 tables would be considered as replacements for the 2008 tables. Under this interpretation, any legislative requirement that HUD use the most recent decennial census would mean that HUD would have to use each new year's output from the ACS beginning at least in 2008.

b. Impact of Annual Recalculation on HUD Clients

The statutory language that compels HUD to use the decennial census for certain functions generally requires the use of "the most recent decennial census." If an appropriate party decides that each year's ACS tables are "part of the decennial census," then this language would appear to require HUD to use new ACS data whenever they become available. In other words, HUD may be required to recalculate formula factors, redo eligibility determinations, or reset program parameters every year.

Some applications, like FMRs and income limits, are already done annually. For other applications, annual recalculation may create no problems for the Department beyond a resource burden. There are, however, applications where too frequent recalculation of numbers could impose a burden on the clients HUD is trying to serve. Eligibility determinations, for example, permit local governments or private entities to conduct certain activities in certain areas. The planning and execution of these activities takes time. If areas became ineligible before these activities could be carried out, then the goals of the affected programs would be frustrated. Similarly HUD asks jurisdictions to conduct needs assessments and plan their HUD-supported activities to address these needs. Frequent redefinition of needs could complicate the planning process.

For those functions where HUD has the flexibility under statute and regulation to decide how often to update the numbers, the Department should decide what is the most desirable frequency for updating prior to when the Census Bureau begins to treat ACS output as a replacement for the decennial census. If the need to update annually is regulatory but not statutory, HUD should decide whether it wants to keep or change this requirement.

Transition Concerns

ISSUE: The ACS will become fully operational in 2008. Prior to that year ACS data will be available for some places but not others. RESEARCH QUESTION: Will the phased availability of ACS data create problems for HUD uses?

- Beginning in 2004 and every year thereafter, the Census Bureau will release its standard tables for places with populations of 65,000 or more. Data for places of this size will be based on annual ACS surveys. The 2004 release will be based on the 2003 ACS.
- Beginning in 2006 and every year thereafter, the Census Bureau will release its standard tables for places with populations between 20,000 and 65,000. Data for places of this size will be based on a three-year moving average ACS surveys. The 2006 release will be based on the ACS surveys from 2003 through 2005.
- Beginning in 2008 and every year thereafter, the Census Bureau will release its standard tables for places, including census tracts, with populations less than 20,000. Data for places of this size will be based on five-year moving averages of ACS surveys. The 2008 release will be based on the ACS surveys from 2003 through 2007.

Many HUD applications involve places with populations that fit in two or more of these classes. In these cases, HUD will have data for some places before it receives data for other places. Part II discusses what HUD's options are during this transition period for the most important of these uses. Where legislation or regulation does not mandate a specific approach, HUD has two options:

- HUD can continue to use data from the 2000 long form until 2008 when ACS data will be available at all levels of geography or
- HUD can use ACS data as it becomes available for some places and continue to use data from the 2000 long form until ACS data becomes available for other places.

New Opportunities

ISSUE: The ACS creates a number of new opportunities for HUD by providing long-form type data throughout the decade. RESEARCH QUESTIONS: Should HUD change the way it carries out its functions to take advantage of the intercensal information provided by the ACS and should HUD investigate using more sophisticated techniques to take full advantage of the ACS?

The ACS creates a number of new opportunities for HUD by providing long-form type data throughout the decade. Exploring these new opportunities was not an objective of this study. However, in the course of the research, new opportunities became apparent. This Chapter describes three techniques that may be useful in a variety of contexts in the future when the ACS data are fully available. The application Chapters in Part II discuss some new opportunities related to current uses.

Two of the techniques described below require access to the confidential data on individuals collected by the ACS. To take advantage of the opportunities offered by these techniques, HUD

would need to pay the Census Bureau to carry out the analysis or would need to obtain permission to assess the data as “sworn Census agents”. HUD may want to plan in advance so that it can take full advantage of the ACS at the earliest time.

a. Overlaying Program Data with ACS Data

In recent years, HUD has made substantial progress in improving the accuracy and completeness of its program data systems. HUD has also given attention to incorporating geography into its databases by geocoding various activities that are either HUD supported or related to HUD’s mission.⁵⁹ A current HUD initiative seeks to encourage outside analysts to study the equity and effectiveness of HUD programs by providing them with a database linking HUD activities with decennial census information by census tract. A similar database linking HUD activities with ACS information by census tract would be even more attractive to outside analysts because the ACS would allow them to track changes within tracts and relate those changes to HUD activities. This could provide rich information for outcome/impact studies of HUD programs.

b. Matching ACS Data with Program Data

Overlaying HUD data with ACS data involves the use of summary statistics on both sides. Both the HUD information and the ACS tables provide means, medians, and distributions but not data on individuals because of confidentiality concerns. Because HUD has addresses for most of the households it supports through its assisted housing programs, it would be possible to match over 4.5 million households receiving assistance with the 3 million households surveyed by the ACS. An annual match could expect to find 127,000 households assisted by HUD and interviewed by the ACS.⁶⁰ A match of this nature could provide substantial information to HUD on the characteristics of its assisted households. Similar matches may be possible for other programs.

c. Statistical Modeling

In the past 20 years, small area estimation has become a hot topic in statistical research. Small area estimation involves the construction of models that (a) improve the reliability of sample estimates and (b) extend sample estimates to lower levels of geography. The ACS will provide a rich database for new small area estimation efforts.

In Part II, we discuss some possible uses of statistical modeling for specific applications that use census data. HUD may in addition want to use statistical modeling in applications that do not currently use census data. For example, HUD might consider using ACS data in statistical models to check the reasonableness of appraisals prepared by the appraisers hired by lenders seeking FHA multifamily insurance. By no means is it certain that successful models could be created using ACS data. HUD would have to be able to link the gross rent of a particular unit to the characteristics of the unit, i.e., the utilities included in the rent, number of rooms in the unit, number of bedrooms in the unit, type of heat number of units in the structure, age of the structure, and location by census tract. This means that HUD would have to have access to the microdata not released to the public. In addition, HUD would probably want to use the actual

⁵⁹ As an example of non-HUD activities related to HUD’s mission, HUD provides geocoded information on the location of low-income housing tax credit projects.

⁶⁰ $127,000 = 3,000,000 * (4,500,000/106,000,000)$

dollar amount of the gross rent rather than the gross rent categories reported by the Census Bureau.

Successful modeling would not mean that HUD could substitute a model for an in-the-field appraisal. A successful model would be one that HUD could use as a check of reasonableness. For example, if the in-the-field appraisal were two standard deviations higher than the estimate produced by HUD's model, HUD field staff may want to review that appraisal. Or, for example, if five of the last six appraisals submitted by a lender or an individual appraisal were one or more standard deviations higher than the estimates produced by HUD's model, HUD field staff may want to review the practices of that lender or appraiser.

If a successful model could be developed for appraisals, HUD might also be able to apply the same model to check the reasonableness of the comparability studies that HUD requires owners to undertake before HUD will increase rents in some Section 8 project.

HUD may be able to use ACS data in less sophisticated ways to support these program operations. For example, HUD might use the rent distributions available to the public from the ACS as a rough check on the reliability of an appraisal. A quick look at the numbers suggests that this approach may be useful. Consider basing a check on three census tracts, one containing the project being appraised and two bordering tracts. If the tracts were average sized, then over a five-year period 575 households would have been surveyed in the ACS. Of these, on average, 82 households would be renters occupying two-bedroom units. HUD could construct a rent distribution for two-bedroom units based on these 82 units. One could choose the upper and lower quartiles as boundaries against which to compare an appraisal. First, however, HUD would have to trend the rent distribution forward to the same point in time as the given appraisal. Experimentation would be needed to see if such an approach were useful.

New OMB Guidelines

ISSUE: OMB has established new guidelines for racial and ethnic categories and core based statistical areas. RESEARCH QUESTION: Do the new OMB guidelines on reporting of racial and ethnic categories or the classification of core based statistical areas create any problems for HUD uses?

a. Option to Choose Multiple Racial Categories

The new race and ethnicity guidelines will affect HUD users in the following areas: formula allocations, needs assessments, and research and evaluation. The formula used to allocate Indian Housing Block Grant (IHBG) funds uses various factors defined over the American Indian and Native Alaskan population. As noted in Chapter 4, the number of persons nationwide who classified themselves in the 2000 census as American Indian and Native Alaskan only was 2.5 million persons but the number who classified themselves as American Indian and Native Alaskan alone or as American Indian and Native Alaskan and some other race was 4.1 million persons. When the Census Bureau releases small area data on these populations from the decennial long form, HUD will have to decide which population to consider when it applies the IHBG formula.

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The Consolidated Plan requires that States and other jurisdictions identify the housing needs of large families, the disabled, the elderly, single persons, renters, owners, extremely low-income families, low income families, moderate income families, and poverty level families. It further requires that they consider “the extent that any racial or ethnic group has disproportionately greater need in comparison to the needs of that category as a whole.” The new guidelines raise two questions for the Consolidated Plan: whether to consider persons of multiple race as a separate racial group and whether to base the data for any particular racial group on those who classified themselves as members of that group alone or also to include those who classified themselves as members of that group and one or more other racial groups.

b. What is Non-metro?

A number of HUD applications of long-form type data involve the distinction between metropolitan areas and non-metropolitan areas. For example, by statute, no non-metropolitan income limit can be lower than the same limit calculated for all non-metropolitan areas within a State.⁶¹ The metropolitan/non-metropolitan distinction developed in the era when OMB categorized some places as metropolitan areas and the rest of the country as non-metropolitan. Chapter 4 explained how OMB has established new guidelines that will divide the country into three categories: metropolitan areas, micropolitan areas, and areas outside core-based statistical areas.

OMB has decided that, in the context of the new guidelines, non-metropolitan refers to all places outside of metropolitan areas. Micropolitan areas would, therefore, be included in the non-metropolitan part of the country. Since a number of areas currently classified as metropolitan will be classified as micropolitan under the new guidelines, the shift to the new guidelines will affect some HUD applications.

The shift in terminology and definition from central city to principal city will cause some problems and may necessitate some technical amendments. In general, grandfather provisions governing central cities for the CDBG and HOME programs make these problems minor. Finally, the shifting boundaries of metropolitan areas will create some difficulties for research that tracks conditions in metropolitan areas over time but these difficulties occur with every redefinition of metropolitan areas.

While this Chapter has discussed a number of issues that can affect HUD’s use of ACS data, all of the problems have potential solutions. In fact, the more detailed discussion in Part II of twenty of the twenty-five HUD applications finds that HUD has practical solutions to every significant concern. Despite these issues, the Department will be able to accommodate the ACS and take advantage of the more timely data that it will provide.

⁶¹ Although the statutory floor applies to non-metropolitan areas only, HUD applies it to all areas.

CHAPTER 7: WHICH ISSUES AFFECT WHICH APPLICATIONS

Chapter 6 discussed 13 issues associated with ACS data that might affect HUD applications. In Part II, this Report will explain on a use-by-use basis how these issues affect the most important HUD uses. This Chapter looks across all current HUD uses and develops a matrix that shows which issues affect which applications.

Since all issues potentially affect all applications, judgment is needed to identify the most important concerns for each application. Based on ten meetings with HUD users, two meetings with ACS staff, and hours of analysis, we believe Exhibit 7.1 ignores minor concerns and correctly calls attention to those concerns for which users need to plan.

Exhibit 7.1 confirms that grouping HUD uses by purpose does facilitate analysis. Within each category of applications (formula allocations, program parameters, etc.), there is some consistency in the issues that impact the applications. For example, in the allocation formula category, HUD needs to be concerned in all of its formula applications about variable base periods, the laws and regulations governing the formulas, and the transition period. However, a given issue does not necessarily apply across all applications within a category, as an examination of Exhibit 7.1 shows for the allocation formula category. The Census Bureau will publish both ACS and SAIPE⁶² estimates of poverty. All of the formulas use poverty counts in one way or another so conflicting sources of information is a potential problem for all of them. However, the Indian Housing Block Grant formula and the formulas for the Section 202 and Section 811 fair share count poverty for segments of the population for which there will be no SAIPE estimates. Therefore, conflicting sources of information is not a problem for these formulas.

The most frequently occurring concerns are: Sample size/precision (15 of 25 applications); Variable base period (14 of 25); Problem Variables (13 of 25); Laws and regulations (13 of 25); Transition (13 of 25); Conflicting sources (11 of 25); and New OMB Guidelines (11 of 25).

Since the research and evaluation application includes a wide variety of possible uses of ACS data, one should not be surprised that Exhibit 7.1 cites 9 potential concerns for this use. Another research-type use, the National Urban Policy Report, also faces nine potential concerns. Among programmatic uses, the Consolidate Plan tallied the most potential concerns, nine. The program parameters category involved a large number of potential concerns where calculating income limits with ACS data faces 8 concerns, and calculating fair market rents with ACS data faces 7 concerns. Other applications with more than 5 concerns are: Section 8 fair share, market analyses, GSE oversight, and fair housing enforcement.

Once again we remind readers that this Report focuses on difficulties. The enumeration of problems and allocation of those problems to specific uses does not mean that HUD would be better off if the Census Bureau were to cancel the ACS and retain the long form. This is emphatically not the case. The ACS corrects a problem that has threatened to undermine every

⁶² SAIPE stands for the Census Bureau's Small Area Income and Poverty Estimates that were discussed in the section of Chapter 6 dealing with Alternative Sources for the Same Information.

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HUD use of long-form data, namely doubts about the validity of using information collected years earlier. Despite the differences between the ACS and the long form and the adjustments HUD will have to make to use ACS data, the Department and its clients will be better off with more current data.

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Exhibit 7.1: Matrix Identifying Which Issues Are Relevant to Which HUD Uses

Application	Sample Design	Problem Variables	Continuous Vs. Point-in-Time	Short Form Variables	Conflicting Sources	Block Groups & Tract Parts	Sample Size/Precision	Variable Base Periods	“Unofficial” Vs. “Official” Data	Laws & Regs	Transition	New Uses	New OMB Guide-Lines
Allocation Formulas													
CBGD Formula					X			X		X	X		
HOME Formula		X			X			X		X	X		
Emergency Shelter Grant Formula					X			X		X	X		
Indian Housing Block Grant Formula								X		X	X		X
Section 8 Fair Share		X			X			X		X	X		X
Section 202 Fair Share								X		X	X		X
Section 811 Fair Share		X						X		X	X		X
Eligibility Determinations													
CDBG Target Areas							X			X			
HOME Match					X		X	X		X	X		
Low Income Housing Tax Credit: DDAs & QCTs							X			X			X
Mortgage Revenue Bond: QCTs							X			X			
Areas of economic distress							X		X			X	
Program Parameters													
Fair Market Rents		X	X				X	X	X			X	X
Income Limits		X	X		X		X	X	X			X	X
Program Operations													
Market Analyses		X			X		X	X	X			X	
Site and Neighborhood Standards Determinations				X		X	X		X				
Monitoring and Enforcement													
GSE Oversight		X		X	X		X			X		X	X
Fair housing enforcement	X	X		X		X	X						X
Needs Assessments													
Consolidated Plan		X		X		X	X	X	X	X	X		X
PHA Plans		X		X			X		X		X		
Worst Case Needs Report												X	
Research and Evaluation													
Annual Performance Plan		X	X		X						X		
National Urban Policy Report		X	X	X	X		X	X	X		X		X
CDBG Annual Report													
Research & evaluation	X	X		X	X		X	X	X		X	X	

CHAPTER 8: THE ACS CALENDAR AND HUD'S NEEDS

The Census Bureau began releasing results from the 2000 census in March 2001. The planned release dates for the full set of tabulations run through 2003. The files that most HUD users need are the Summary File 3 (SF3), which was released in August and September 2002, and the Summary File 4 (SF4), which will be released between April and September 2003. HUD users have also ordered special extracts that the Census Bureau plans to deliver in 2003.

The Census Bureau aims for a much quicker distribution of data from the ACS. It plans to begin releasing data in the middle of the year following its collection. So the Census Bureau will begin releasing the 2003 data in mid-2004, starting with State level data and then data for smaller jurisdictions. In the first year, the Census Bureau will release standard tables only for jurisdictions with populations of 65,000 or more. The various releases will occur over a number of months and currently the Census Bureau does not have an estimate of how long this period will be.

The schedule is likely to change over time with the release period becoming more compact. The key to when ACS data becomes available is the “data review process”, an internal check within the Census Bureau to determine if the numbers look right. Once the first couple of years of ACS data are available then this process will become quicker because the earlier year results provide an easy check for later years.

This Chapter first examines the relative timeliness of long-form and ACS data. A simple exhibit shows why the ACS will give HUD information on conditions from the State to the census tract level that is substantially more up-to-date than what has been available from the long form. Then the Chapter constructs a calendar containing the various times when HUD users need the data in order to carry out their analyses in accordance with any statutory or regulatory deadlines. The Chapter concludes by examining the age of the ACS data that would be used in each application.

Timeliness of Data: ACS vs. Long Form

The SF3 file became available in August and September 2002; the time between collection and availability was 28 months. If the SF4 file becomes available on June 1, 2003, then the time between collection and availability would be 38 months.⁶³

The Census Bureau plans to release ACS data between July and December of each year. The tabulation of most interest to HUD users would probably not be available until November or December. Because ACS data are collected throughout the year, one has to consider the average age of the data at the time of release. If one assumes that the information most useful to HUD becomes available on December 31st of the year after the last ACS survey included in the data, then ACS tabulations based on one year of data are on average 18 months old at time of release.

⁶³ Although the Census Bureau collects decennial census data from April through July, respondents are instructed to answer the questions as if they were answering them on April 1st. The 28 month estimate is the period from April 1, 2000 to August 1, 2002; the 38 month estimate is the period April 1, 2000 to June 1, 2003.

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Tables based on three-year moving averages are on average 30 months old at time of release and tables based on five-year moving averages are on average 42 months old at time of release.⁶⁴

Looking at the average time between collection and release, ACS annual data has a shorter processing period than long-form data; ACS three-year moving average data also has a shorter processing period than long-form data; and ACS five-year moving average data has a somewhat longer processing period than long-form data. But this statement fails to take into account the important period between release and use.

From a user's perspective, the ACS data will generally be much more current than the long-form data because the Census Bureau will update ACS data throughout a decade. Exhibit 8.1 shows how long-form data ages compared to ACS data. The Exhibit goes to 2012 because, if the Census Bureau were to do a long-form in 2010, the data typically used by HUD would not be available until 2013. Therefore, in the absence of the ACS, HUD would still be using the 2000 decennial census long-form data in 2012.

Exhibit 8.1: Average Age of Data at Time of Use: ACS vs. Long Form

Date of Use	ACS Annual Data	ACS 3-Year Moving Average	ACS 5- Year Moving Average	Decennial Long Form
January 1, 2003	NA	NA	NA	NA
January 1, 2004	18 months	NA	NA	45 months
January 1, 2005	18 months	NA	NA	57 months
January 1, 2006	18 months	30 months	NA	69 months
January 1, 2007	18 months	30 months	NA	81 months
January 1, 2008	18 months	30 months	42 months	93 months
January 1, 2009	18 months	30 months	42 months	105 months
January 1, 2010	18 months	30 months	42 months	117 months
January 1, 2011	18 months	30 months	42 months	129 months
January 1, 2012	18 months	30 months	42 months	141 months

We include this Exhibit for two reasons. First, it clearly shows how long-form data ages over a decade to the point of uselessness and how the ACS will give users more timely information. But, second, it also shows that the ACS will not be “real time” data. The average age of an ACS table of the type typically used by HUD ranges from a minimum of 18 months to a maximum of 42 months.

⁶⁴ Tables based on annual data released on December 31, 2008 will include information collected between January 1 and December 31, 2007. The average response would have been collected on July 1, 2007 so the average age at release is the 18-month period from July 1, 2007 to December 31, 2008. Three-year moving average data released on December 31, 2007 would have been collected between January 1, 2005 and December 31, 2007. The average response would have been collected on July 1, 2006 so the average age at release is the 30-month period from July 1, 2006 to December 31, 2008. Five-year moving average data released on December 31, 2007 would have been collected between January 1, 2003 and December 31, 2007. The average response would have been collected on July 1, 2005 so the average age at release is the 42-month period from July 1, 2005 to December 31, 2008.

When HUD Needs Data

Exhibit 8.2 examines each of the 25 important HUD applications to determine when during a year the Department will need data from the ACS to perform that function. For each application, the Exhibit furnishes four pieces of information. The second column tells what type of product results from HUD's use of ACS (or long-form) data. The third column tells when HUD typically releases that product. The fourth column tells whether the due date in column three is statutorily imposed or determined by HUD, either through regulations or informally. Some applications involve products that are produced as needed, such as market analyses or site and neighborhood standard determinations. In these cases, there is no due date. The fifth column reports when HUD users will need ACS data in order to prepare the product discussed in the second through fourth columns.⁶⁵

The first row of Exhibit 8.2 deals with the CDBG formula. HUD allocates CDBG funds usually between October and December of each calendar year, depending upon when Congress completes action on the HUD appropriation bill.⁶⁶ HUD determines the allocation date. In order to calculate individual allocations using the appropriate formulas, HUD users need data at least three months before the allocation. For a December 31st allocation date, HUD users need the data on conditions in eligible jurisdictions by September 30th.

The fit, or lack of fit, between when HUD needs ACS data and when the Census Bureau will release it determines how current is the information used by HUD in a particular application. The following example explains how the ACS calendar determines the vintage of the data HUD uses.

Assume Congress appropriates FY 2011 CDBG funds in September 2010 and assume that HUD decides to use five-year moving average data to compute the formula factors. HUD will attempt to allocate these funds to States and entitlement jurisdictions by December 31, 2010. To do this, it needs Census Bureau population data and ACS data on poverty and overcrowding by September 30, 2010. Data on individual jurisdictions are likely to be among the last tables released in each year's stream of ACS products. So we will assume that, by September 30, 2010, the Census Bureau will not have released the ACS tables for data collected between 2005 and 2009 (five-year moving averages). Therefore, HUD will have to rely on the ACS data released by the Census Bureau in 2009, namely, the ACS tables for data collected between 2005 and 2008. The FY 2011 CDBG allocations will most likely be based on data through 2008

⁶⁵ The CDBG annual report is included because the Inventory of Current Uses discussed it. In recent years this annual report has not made use of the long-form, and we do not expect it to make use of ACS data.

⁶⁶ HUD allocates HOME and Emergency Shelter Grant funds at the same time it allocates CDBG funds.

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Exhibit 8.2: Deadlines for HUD Applications and Implications for ACS Input

Application	Type of Product	Due Date	Due Date Requirement	ACS Input Needed
CBGD Formula	Allocation	October – December	HUD determined	July - September
HOME Formula	Allocation	October – December	HUD determined	July - September
Emergency Shelter Grant Formula	Allocation	October – December	HUD determined	July - September
Indian Housing Block Grant Formula	Allocation	January	HUD determined	December
Section 8 Fair Share	Allocation	December	HUD determined	August
Section 202 Fair Share	Allocation	December	HUD determined	August
Section 811 Fair Share	Allocation	December	HUD determined	August
CDBG Target Areas	Data to field offices	January	HUD determined	September
HOME Match	Federal Register Notice	March	HUD determined	September
Low Income Housing Tax Credit: DDAs & QCTs	Federal Register Notice	September	HUD determined	June
Mortgage Revenue Bond: QCTs	Federal Register Notice	September	HUD determined	June
Areas of economic distress	No current requirements	Not applicable	Not applicable	Not applicable
Fair Market Rents	Federal Register Notice	October 1	Statutory deadline	January
Income Limits	Notice to Field	January	HUD determined	July
Market Analyses	A specific market analysis or review of a market analysis, as needed	Not applicable	Not applicable	1 month prior to market analysis
Site and Neighborhood Standards Determinations	A specific site and neighborhood determination, as needed	Not applicable	Not applicable	1 month prior to determination
GSE Oversight	Federal Register Notice	Periodically – HUD sets goals for multiyear periods	HUD determined	18 months prior to Final Notice
Fair housing enforcement	Review of a specific complaint, as needed	Not applicable	Not applicable	At time complaint is received
Consolidated Plan	Data file to clients	Currently not produced annually but could be with ACS data	HUD determined	3 months prior to dissemination
PHA Plans	None – public housing authorities use data from the Consolidated Plan	Not applicable	Not applicable	Not applicable
Worst Case Needs Report	Report to Congress	Annually – no date set	Statutory	6 months prior to submission to Congress
Annual Performance Plan	Report to Congress	September 30 th	Statutory	9 months prior to submission to Congress
National Urban Policy Report	Report to Congress	Biennially – no date set	Statutory	6 months prior to submission to Congress
CDBG Annual Report	Report to Congress	April	Statutory	Not applicable
Research & evaluation	Ad hoc	None	Not applicable	Not applicable

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Exhibit 8.3 extends the analysis in the preceding paragraph to all the applications. If an application has no specific due date or is produced as needed, Exhibit 8.3 sets a hypothetical product release date. All actions are assumed to take place in 2010 to ensure that complete ACS data would be available for use in every application.⁶⁷

Exhibit 8.3: Currency of ACS Data as Used in HUD Applications

Application	Product	Date Product Released	Most Recent Year of ACS Data Used in Product
CBGD Formula	FY 2011 allocation	December 31, 2010	2008
HOME Formula	FY 2011 allocation	December 31, 2010	2008
Emergency Shelter Grant Formula	FY 2011 allocation	December 31, 2010	2008
Indian Housing Block Grant Formula	FY 2011 allocation	December 31, 2010	2009
Section 8 Fair Share			
Section 202 Fair Share			
Section 811 Fair Share			
CDBG Target Areas	Data to field	January 15, 2010	2008
HOME Match	Federal Register Notice	March 1, 2010	2008
Low Income Housing Tax Credit: DDAs & QCTs	Federal Register Notice	September 30, 2010	2008
Mortgage Revenue Bond: QCTs	Federal Register Notice	September 30, 2010	2008
Areas of economic distress	No current requirements	Not applicable	Not applicable
Fair Market Rents	Federal Register Notice	October 1, 2010	2008
Income Limits	Notice to Field	January 15, 2010	2008
Market Analyses	As needed	July 1, 2010*	2009
Site and Neighborhood Standards Determinations	As needed	July 1, 2010*	2009
GSE Oversight	Federal Register Notice	July 1, 2010*	2007
Fair housing enforcement	As needed	July 1, 2010*	2009
Consolidated Plan	Data file to client	January 15, 2010	2008
PHA Plans			
Worst Case Needs	Report to Congress	September 30, 2010*	2009

⁶⁷ The application with the longest lead time determines the year in which all applications become possible. We assume that HUD will issue a new set of housing goals for Fannie Mae and Freddie Mac on July 1, 2010. Because HUD analysts need ACS data 18 months prior to the release of a Final Rule, the analysts will need data on census tracts by December 31, 2008. If the Census Bureau meets its planned schedule; the first wave of ACS data on census tracts will become available in December 2008.

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Application	Product	Date Product Released	Most Recent Year of ACS Data Used in Product
Report			
Annual Performance Plan	Report to Congress	September 30, 2010	2009
National Urban Policy Report	Report to Congress	September 30, 2010*	2009
CDBG Annual Report	Report to Congress	April 1, 2010	Not applicable
Research & evaluation	Not applicable	Not applicable	Not applicable

*Hypothetical date.

Exhibit 8.3 shows that most programmatic HUD applications in 2010 will use ACS data no more current than 2008. In some cases, these applications will use moving average data covering a five-year period from 2004 through 2008. By contrast, without the ACS HUD would be using long-form data from 2000 for these applications.

Applications with due dates toward the end of 2010 will be able to use ACS data through 2009. These include the major reports, Worst Case Housing Needs, Annual Performance, and National Urban Policy. On-demand applications – such as market analyses, site and neighborhood determinations, and fair housing enforcement – should generally be able to use 2009 data because these applications can use the data as it comes from the Census Bureau without extensive processing. As noted earlier, if HUD were to issue a new set of housing goals for Fannie Mae and Freddie Mac in 2010, it would need to rely on ACS data through 2007.

CHAPTER 9: RESOURCE IMPLICATIONS OF THE ACS

In the statement of work governing this project, HUD requested that ORC Macro examine what effect the ACS might have on the level of resources – both staff and contract – that HUD devotes to the functions that depend on ACS-type data. During the course of the research, the ORC Macro team gathered information on the resources currently devoted to these activities and discussed with HUD users how the ACS might affect processes and workloads. This Chapter contains the results of this analysis.

The advent of the ACS could require HUD to set aside more resources for ACS-related functions for four reasons.

- Having new data annually may involve more work for those applications that HUD currently carries out annually, such as allocating funds by formula or setting fair market rents and income limits.
- Having new data available each year may encourage HUD to perform functions more often, for example, to carry out functions annually that are now carried out less frequently, generally only once a decade, such as designating Qualified Census Tracts or providing clients with data on conditions in their communities for use in the Consolidated Plan.
- Having reliable new data available each year for areas with populations at or above 65,000 might induce HUD to expand current reporting activities and analyses to include lower levels of geography. For example, HUD could begin to generate “worst case housing needs” indicators for every metropolitan area. Currently HUD can do this only once a decade for all metropolitan areas and only every four to six years for the 47 largest metropolitan areas.
- Having reliable new data available each year might induce HUD to undertake activities that it has not performed in the past, such as statistical modeling in support of various program operations, such as preparing progress reports for the Annual Performance Plan.

This Chapter analyzes the first three of these possibilities. The first section discusses, application by application, how the ACS might affect process and workload. The second section presents an Exhibit that tallies resources currently devoted to these uses and provides our estimates of what the future resource needs might be. This Chapter finds that HUD will need to devote more HUD staff time and contractor staff time to these functions. As an offset to the need for more staff, HUD will save money on contractor support because it can substitute ACS data for a large share of the \$3 million it spends annually for random digit dialing surveys to calculate fair market rents. The net of these two effects is probably a small savings. But even if the net were negative, the advantages of the ACS would justify additional HUD expenditures.

ACS: Impact on Processes and Workloads

Allocation Formulas

1. Community Development Block Grants

2. HOME Block Grants

3. Emergency Shelter Block Grants

Expected impact of ACS: A small decrease in contract dollars needed to perform the functions; no significant increase in staff resources.

HUD users believe that replacing long-form data with ACS data might not have a demonstrable effect on the resources needed to allocate these program funds. Now HUD obtains annual information from the Census Bureau to update the population factor used to allocate CDBG and EGS funds. There would be no change in the process or work involved for this formula factor. For the other factors, HUD currently buys a special extract from decennial census that it uses until data from the next census are available. The extract, however, is based on the boundaries of places at the time of the extract. So every year HUD must recalculate formula factor values for the numerous boundary changes during the preceding twelve months. When ACS data becomes available, HUD will have to use a new extract every year but that extract will have boundary adjustments built into it. Thus, while the process will change, the total level of effort may not change significantly. For this reason, we assume no increase in the level of effort.

4. Indian Housing Block Grants

Expected impact of ACS: An increase in HUD staff time needed to perform the function.

HUD has announced its attention to revise the IHBG formula through negotiated rule making. Therefore, it is difficult to predict how the advent of the ACS will affect either the process or level of effort required to allocate IHBG funds.

The IHBG allocation process involves three operations: (1) calculating the FCAS component, (2) calculating the need component, and (3) responding to challenges to Census information or corrections of other non-Census formula data. (In response to concerns regarding the accuracy of Census data, recipients have the right to challenge that data used in calculating IHBG allocations.) Determining the FCAS share involves the most work but does not require any census data. Estimating the need factors is relatively straightforward and requires a modest amount of effort. The level of effort required for the challenge process varies from year to year and it can demand substantial staff resources. The resources needs reported in Exhibit 9.1 refer only to the calculation of the need component.

The availability of ACS data may enter into whatever decisions are made to revise the formula. The Census Bureau plans to release ACS data separately for all seven AIAN Area entities for which 1990 decennial census data are available. In addition, the ACS tables will contain data for Hawaiian homelands and state reservations as well. The planned tabulations would also include data for the intersection of these areas with other geographies, e.g., the remainder of a county that contains a reservation.

The ACS could increase the number of challenges because year-to-year instability in the estimates could prompt recipients to challenge the annual revisions. On the other hand, the annual availability of estimates backed by the Census Bureau should make it easier for HUD to judge the merits of challenges by providing up-to-date information on AIAN areas.

5. Section 8 fair share allocations

6. Section 202 fair share allocations

7. Section 811 fair share allocations

Expected impact of ACS: An increase in HUD staff time needed to perform the function.

Currently HUD makes these allocations on a field office or State level using an extract it creates from the decennial census. The ACS will increase workload by requiring the use of new data every year. Since State and field office boundaries do not change, there will be no offsetting savings from not having to make boundary adjustments. The new disability questions used in the 2000 long form and in the ACS may enable HUD to refine the factors used for Section 811 allocations, a one-time effort. Our estimates of resource needs assume that HUD makes these allocations at the State or field office levels. 24 CFR 791.402(d) says that “the Assistant Secretary of Policy Development and Research shall establish housing needs factors for each county and independent city in the field office jurisdiction, and shall aggregate the factors into metropolitan and non-metropolitan totals for the field office.” Because current levels of funding for all three programs are modest, HUD does not implement this provision. If funding were to increase, then more resources would be needed to allocate to lower levels. The ACS would provide the necessary data.

Eligibility Determinations

8. CDBG targeting & urban counties

Expected impact of ACS: Unable to estimate.

Chapter 14 in Part II discusses when and how often HUD might want to certify whether a proposed CDBG target area satisfies the regulatory requirement. Currently this analysis is left to HUD field staff. Unfortunately, the field staff no longer have available an automated tool for determining the eligibility of proposed target areas.⁶⁸ Therefore, it is uncertain how often field staff perform this function now and how much time it requires. If future versions of program software should contain an automated tool, then field staff may increase program oversight and more resources would be needed. Our estimates do not include the extra field staff time for validating target areas.

⁶⁸ The in-house software HUD used until recently to manage its grant programs contained a routine that allowed field staff to enter the numbers of the census tracts that form the proposed target area and the routine would calculate the percentage of low and moderate income persons.

9. HOME match

Expected impact of ACS: An increase in staff needed to make these determinations.

HUD currently determines whether a jurisdiction is eligible for a reduction in the HOME match requirement only once a decade because the necessary information on poverty rates and average per capita income are available only with each new decennial census. The statute directs HUD to make the determination for the “the calendar year for which the most recent data are available from the Census Bureau.” With the ACS new data will become available annually, so HUD will have to carry out the process annually and more resources will be needed.

10. Low Income Housing Tax Credits: Difficult Development Areas & Qualified Census Tracts

Expected impact of ACS: An increase in HUD staff time needed to perform the function.

HUD currently designates Difficult Development Areas annually. HUD reviews the eligibility of all census tracts as Qualified Census Tracts once a decade when new long-form data become available. Because the income test compares tract income to metropolitan median income in the case of metropolitan tracts or state non-metropolitan median income in the case of non-metropolitan tracts, HUD must recalculate eligibility for those tracts affected by OMB designations of new metropolitan areas. This recalculation is done annually when HUD designates Difficult Development Areas. If every year’s output from the ACS is deemed to be part of the decennial census, then HUD would have to designate Qualified Census Tracts annually for the entire country, which would require an increase in resources. Our estimates include designating qualified census tracts annually.

11. Mortgage Revenue Bonds: Qualified Census Tracts

Expected impact of ACS: An increase in HUD staff time needed to perform the function.

The Internal Revenue Code uses the term Qualified Census Tract for the low income housing tax credit and mortgage revenue bond programs but defines the term differently in the two programs. HUD identifies Qualified Census Tracts once a decade using the most recent decennial census. The statute requires the use of the most recent decennial census for which data are available. If every year’s output from the ACS is deemed to be part of the decennial census, then HUD would have to designate Qualified Census Tracts annually. Our estimates include designating qualified census tracts annually.

12. Identifying areas of economic distress, such as, HUB zones, Empowerment Zones and Enterprise Communities, or renewal communities

Expected impact of ACS: Not applicable.

HUD currently has no ongoing responsibility to designate areas of economic distress as part of federal economic development programs. We assume that no resources are needed for this function.

Program Parameters

13. Fair Market Rents & Annual Adjustment Factors

Expected impact of ACS: An increase in HUD and contract staff time needed to perform the function, but a decrease in contract dollars needed.

HUD currently sets FMRs and annual adjustment factors annually. The current process consists of trending the large majority of FMRs forward. Each year HUD receives new information on approximately 80 FMR areas from random digit dialing surveys conducted under contract to HUD, new AHS metropolitan surveys, and surveys conducted by local public housing authorities. HUD also uses random digit dialing surveys to track trends in rent by region. Currently HUD spends \$3 million every year on random digit dialing surveys. Beginning in 2004, HUD will have new information from the ACS every year for every metropolitan area. The availability of the ACS should increase the staff work needed to prepare FMRs but should allow HUD to reduce the amount that it expends on random digit dialing surveys each year.

HUD now makes the determination of whether a metropolitan area with at least 100 census tracts qualifies for an FMR at the 50th percentile once a decade using long-form data from the decennial census. Beginning in 2008, HUD will have new information from the ACS every year for these metropolitan areas. Annual recalculation will increase staff work.

14. Income limits – multiple programs

Expected impact of ACS: An increase in contract staff time needed to perform the function.

HUD currently sets income limits annually. The current process consists of obtaining new wage and salary data from the Bureau of Labor Statistics for all metropolitan areas and non-metropolitan counties and using these data to update baseline income limits obtained from the decennial census or other sources. When the ACS is fully operational, HUD will obtain new data annually on median incomes for all metropolitan areas and non-metropolitan counties. The Department will use the ACS information to set new baseline median incomes but will still need to trend ACS median income estimates forward with wage and salary data from BLS. There will be an extra step with the ACS and therefore a need for more resources.

Program Operations

15. FHA multifamily insurance – market analyses

Expected impact of ACS: An increase in HUD and contract staff time needed to perform the function.

Staff in the Office of Policy Development and Research provide data to the field economists to help them prepare analyses on a periodic basis of the balance between supply and demand in individual housing markets and to help them review analyses of individual projects submitted by market analysts hired by lenders seeking FHA insurance. There will be a modest increase in the work for the PD&R staff because the ACS provides more data to be distributed to the field and because PD&R staff will have to help field staff interpret differences between ACS data and alternative data sources. The estimate in Exhibit 9.1 does not include the time required by field staff to carry out their market analysis work.

16. Site and Neighborhood Standards

Expected impact of ACS: Unable to estimate

Fair Housing specialists and field economists do the analysis needed for making site and neighborhood standards determinations. The ACS provides a different source of information, but using the ACS instead of the long form should not affect the level of effort involved in any one determination. There will be additional work for the HUD headquarters staff who will have to make the ACS available to field staff every year. We were unable to obtain estimates of field staff time devoted to analyzing census data in making site and neighborhood standards determinations. The headquarters support work is included in the estimates for market analysis.

Monitoring and Enforcement

17. GSE oversight

Expected impact of ACS: Increase in HUD and contract staff

Shifting to the ACS would not seem to alter the frequency of either HUD's setting of housing goals (approximately every three years) or HUD's monitoring of GSE compliance with the goals (annually). The process of setting and monitoring goals would be more complicated because HUD would have new information every year for defining underserved areas and for determining whether an activity satisfies the special affordable goal based on the income distribution of the census tract in which the activity takes place. The additional data will require increased HUD and contractor staff time. Exhibit 9.1 does not include the increased work every third year when HUD sets new housing goals. The availability of intercensal data would probably necessitate a reexamination of the definition of underserved areas at this time. This reexamination would require a person year of HUD and contractor staff and approximately \$275,000 in contract funding, \$75,000 of which would be used for a special ACS extract of data for American Indian and Alaskan Native lands. The resources needed for this work are not included in Exhibit 9.1.

18. Fair Housing Enforcement

Expected impact of ACS: Unable to estimate

The ACS will have little effect on the level of effort needed to conciliate fair housing complaints. HUD does not use long-form type data often in fair housing enforcement. Moreover, the Department will likely decide to continue using the short-form data from the decennial census for this purpose. However, there may be new uses for ACS data in fair housing enforcement. We were unable to obtain estimates of the field staff time devoted to using ACS data in carry out fair housing enforcement.

Needs Assessments

19. Consolidated Plan – CHAS

Expected impact of ACS: Included in estimate for CPD administered formulas

Currently HUD prepares special extracts of decennial census data for use by States and local government in preparing their consolidated plans. HUD prepares these extracts now only once a

decade. With the advent of the ACS, HUD will have the option of preparing new extracts annually. While the Department may choose not to prepare a new extract every year, it will probably prepare several extracts each decade.

20. PHA Plans

Expected impact of ACS: Not applicable

HUD encourages PHA's to use data from the special extracts prepared for use in the consolidated plans in putting together their annual PHA plans. Thus the shift to the ACS should not involve any new work at HUD for PHA plans other than the work of preparing more extracts of data for the consolidated plan that was already described in item 19.

21. Worst Case Needs Report

Expected impact of ACS: An increase in HUD staff time needed to perform the function.

HUD now prepares Worst Case Housing Needs Reports annually using either the national or the metropolitan American Housing Surveys. The ACS will allow HUD to expand its discussion of severe housing problems, particularly excessive rent burden, to the State, metropolitan, and jurisdiction levels. Because of the popularity of this report, HUD will probably choose to do this additional analysis.

Research and Evaluation

22. Annual Performance Plan – Goals and Monitoring

Expected impact of ACS: Unable to estimate

In the past HUD has defined many of its performance goals in terms of data expected from the ACS and other sources. Thus manipulating the ACS is already built into HUD's resource needs, at least implicitly. The FY 2003 APP cites the ACS as a source for only one performance indicator. In this case, the APP borrows the concept of underserved areas from HUD's oversight of the Fannie Mae and Freddie Mac so there is no additional ACS work anticipated.

23. National Urban Policy Report

Expected impact of ACS: An increase in HUD and contract staff time needed to perform the function, and an increase in contract dollars needed.

HUD has broad discretion over the content and format for the National Urban Policy Report. Past reports have been based largely on decennial census data and intercensal estimates of employment, income, and poverty. The ACS will greatly expand the range of information that HUD could present on conditions for individual cities and metropolitan areas.

24. CDBG evaluation

Expected impact of ACS: Not applicable

HUD has made little use of long-form data in its annual reports to Congress on the CDBG and other community and economic development programs. The reports focus mainly on the activities on which jurisdictions use the funds and the rate of expenditure of funds. The

availability from the ACS of intercensal information on recipient jurisdictions will most likely not cause any major changes in the format or focus of these reports.

25. General research and evaluation

Expected impact of the ACS: None, since Congress sets research budget.

Research, evaluation, and program monitoring cover a wide range of possible uses. Most, but not all, HUD research activities are carried out by staff in the Office of Policy Development and Research or through contracts let by the Office of Policy Development and Research. Congress determines the level of resources devoted to these activities through the annual appropriation process.

The ACS will be a valuable new source of data that will give HUD information closely related to the Department's mission about conditions in cities and other areas. Within the fixed constraints of the annual appropriation, the ACS will likely have a significant impact on both the nature of the research studies performed by HUD and how HUD carries out this research. To take advantage of the opportunities offered by the ACS, HUD might ask Congress for increased research funding.

This Chapter seeks to alert HUD to any substantial need for new resources to carry out its current responsibilities with ACS data. The Chapter focuses on on-going, programmatic activities in which HUD has to engage in order to carry out its mission. Most research uses are one-time efforts that are outside of this framework and, therefore, are not considered further. Exceptions include the Worst Case Housing Needs Report and the National Urban Policy Report. Exhibit 9.1 does not include these uses despite the relevance of ACS data to how HUD performs them.

Staff and Contract Resource Needs

Exhibit 9.1 contains our estimates of the annual resources that HUD will need to handle on-going programmatic activities that use ACS data. We constructed these estimates using the following conventions and assumptions.

- HUD will begin experiencing rising needs for staff and contract resources to process ACS data in 2004 when the Census Bureau will release the first ACS data. The Exhibit assumes a fully operational ACS that provides long-form type data at all levels of geography each year. 2008 will be the first year that the ACS will provide this amount of information; and, therefore, 2008 will be the first year in which regular activities require the level of resources described in Exhibit 9.1. Between 2004 and 2008, HUD's needs will increase as more ACS data becomes available and as HUD integrates the new data into its activities.
- The third, fourth, and fifth columns of Exhibit 9.1 contain estimates of the resources HUD currently devotes to using long-form data in years other than when the data become available for the first time. We believe that this is the appropriate baseline because it represents HUD's workload in nine out of every ten years.

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- Similarly, the sixth, seventh, and eight columns contain our estimates for the typical year after the ACS becomes fully operational. These columns do not include estimates of the costs of learning how to use the ACS data. HUD should anticipate experiencing extensive learning costs between 2003 and 2010.
- The contract funding estimates in the fourth and seventh columns assume current pricing; we did not adjust them for anticipated inflation between now and 2008.
- We combined the staff and contract costs of CDBG formula, the HOME formula, the ESG formula, CDBG urban counties and target areas, HOME match, and the Consolidated Plan because one Division performs all these functions and it was not possible to account for each function individually.
- We excluded the research and evaluation application because these activities are not routine and because Congress allocates research funding in a separate line.
- We excluded all work not involving the use of census data, e.g., the calculation of the Formula Current Assisted Housing Stock component of the Indian Housing Block Grant.

Exhibit 9.1 shows that HUD will need to devote more HUD staff time and contractor staff time to these functions under a fully operational ACS but will save money on contract funding. The estimate of HUD staff requirements rises by over two staff years from 468 staff weeks to 590 staff weeks. Contractor staff support rises from 172 staff weeks to 211 staff weeks. Despite the increases, total staff weeks devoted to these functions remains modest: 15.4 staff years (801 staff weeks). HUD will save money on contractor support because it can limit its use of random digit dialing surveys in calculating fair market rents.

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Exhibit 9.1: Staff and Contract Resources Need to Process Long-Form and ACS Data

Application	Type of Product	Current Resource Usage			ACS Resource Needs		
		HUD Staff-Weeks	Contract Dollars	Contract Staff-Weeks	HUD Staff-Weeks	Contract Dollars	Contract Staff-Weeks
CBGD Formula	Allocation	130	\$25,000	78	130	\$10,000	78
HOME Formula	Allocation						
Emergency Shelter Grant Formula	Allocation						
CDBG Target Areas							
HOME Match							
Consolidated Plan	Data file to client						
Indian Housing Block Grant Formula	Allocation	4	(included in other formulas)	0	6	\$10,000	0
Section 8 Fair Share	Allocation	2	0	0	3	0	0
Section 202 Fair Share	Allocation	2	0	0	3	0	0
Section 811 Fair Share	Allocation	2	0	0	3	0	0
Low Income Housing Tax Credit: DDAs & QCTs	Federal Register Notice	4	0	0	8	0	0
Mortgage Revenue Bond: QCTs	Federal Register Notice	4	0	0	8	0	0
Areas of economic distress	No current requirements	NA	NA	NA	NA	NA	NA
Fair Market Rents	Federal Register Notice	120	\$3,000,000	30	160	\$1,000,000	32
Income Limits	Notice to Field	40	0	10	40	0	20
Market Analyses	As needed	52	\$50,000	20	65	\$50,000	30
Site and Neighborhood Standards Determinations*	As needed	NE	NE	NE	NE	NE	NE
GSE Oversight	Federal Register Notice	4	0	8	8	0	12
Fair housing enforcement*	As needed	NE	NE	NE	NE	NE	NE
PHA Plans	None	NA	NA	NA	NA	NA	NA
Worst Case Needs Report	Report to Congress	52	0	0	78	0	0
Annual Performance Plan**	Report to Congress	NE	NE	NE	NE	NE	NE
National Urban Policy Report	Report to Congress	52	\$30,000	26	78	\$60,000	39
CDBG Annual Report	Report to Congress	NA	NA	NA	NA	NA	NA
Total	--	468	\$3,105,000	172	590	\$1,130,000	211

*We were unable to obtain estimates of the resources used for this work in the field.

**HUD does not estimate the resources needed to calculate the performance indicators used in the APP. The FY 2003 APP involves no original research involving ACS or long-form data.

CHAPTER 10: CONCLUSIONS AND RECOMMENDATIONS

Based on ten meetings with HUD users, two meetings with ACS staff, and extensive analysis of HUD and Census Bureau documents, we reached three conclusions:

1. The American Community Survey will benefit both HUD and its clients. Having more current data will improve all HUD activities that make use of long-form data and will create opportunities for new uses of these data by both HUD and cities and counties.
2. Using ACS data in place of decennial long-form data will create no problems for current HUD applications that HUD users will not be able solve in a manner consistent with existing practices and program objectives.
3. Substituting ACS data for decennial long-form data will present challenges for some HUD applications and will require the Department to make adequate preparations for the ACS by anticipating problems and devising solutions.

The third conclusion leads us to make three broad recommendations:

1. HUD should ensure that its managers are well informed about the nature and timing of the ACS so that they can provide their technical staff with the resources and guidance they will need to move from the decennial long form to the ACS.
2. HUD should ensure that certain key problems are resolved early on to eliminate confusion and smooth adaptation to ACS data.
3. HUD should investigate options to take fuller advantage of the opportunities offered by the ACS.

This chapter explains the reasoning behind these conclusions and develops the recommendations further to suggest steps that could prevent problems, speed the adoption of ACS data throughout the Department, and establish HUD as a leader in taking advantage of the ACS.

This Chapter does not contain recommendations on how the Department should change the way its uses census data in particular applications. In Part II, we analyze use-by-use how the ACS could affect major HUD functions. In discussing particular problems, we will suggest solutions that appear to be preferable to their alternatives. In some situations, the advantages and disadvantages will suggest no clear preference among alternatives and we will make no recommendation.

As of the printing of this report, Congress had not completed action on the Census Bureau's appropriation request for fiscal year 2003. The Senate Appropriation Bill does not contain sufficient funds for the ACS; the House of Representatives has not finished drafting its appropriation measure. At this time, it appears that the Census Bureau will not be able to move to full implementation of the ACS in 2003.

Conclusion 1: The ACS will benefit HUD and its clients.

The American Community Survey will benefit both HUD and its clients. Having more current data will improve all HUD activities that make use of long-form data and will create opportunities for new uses of these data by both HUD and cities and counties.

We base this conclusion on five observations:

- All HUD activities that make use of long-form data will benefit from having more current data.

The HUD uses studied in this Report rely on long-form data to provide an accurate portrayal of conditions in areas ranging from States to census tracts. Accuracy depends on sample design, sample size, and timeliness. Timeliness is the strength of the ACS. Comparisons of the production schedule for long-form data with the production schedule anticipated for the ACS shows that the ACS is far superior in timeliness. (See Exhibit 8.1.) The average age of ACS data ranges from 18 months for areas with populations of 65,000 or more to 42 months for areas with populations less than 20,000, such as census tracts. The long-form data is competitive in timeliness only at the census tract level and then only in the first two years after release. By the end of a decade, long-form data are so old that their use for almost all HUD activities is justified only by the absence of alternative data.

- No HUD functions will be made worst off by the Census Bureau's decision to replace the long form with the ACS.

The other two aspects of accuracy are sample design and sample size. The ACS and the long form have the same sample design, one that has proved adequate for sixty years. The ACS has a smaller sample size but the Census Bureau will compensate by combining three or five years of ACS data to obtain statistically reliable results. Only at the block group level will the ACS data fail to have enough precision for the Census Bureau to warrant the results. Despite the lower level of precision, the Census Bureau will make block group level data available in its "research product". Only a few HUD activities use block group data and none use data on only a single block group. By combining block groups, HUD and its clients should be able to obtain adequate statistical precision.

- Some of the issues associated with the use of ACS data are also issues associated with the use of long-form data.

Concerns about precision are relevant to the long form as well as the ACS. For many HUD uses, the precision of the long-form sample is questionable. The average long-form sample for a census tract contains 255 households; the average ACS sample contains 192 households. While the long-form sample is larger, sample variation can still create problems for uses such as eligibility determinations. Some HUD uses require subsamples of long-form data. For example, FMRs are based on rents paid by households who live in two bedroom units and who moved into their units within the past year. The CHAS requires jurisdictions to consider the housing needs of various subsets of the populations, such as the

elderly, the disabled, African Americans, etc. Taking subsets of the population reduces sample size and increases the likelihood that sampling variation can recreate problems. Just because precision issues have not been raised in the past about HUD's use of long-form data does not mean that precision has not been a problem. The absence of alternative data sources and the fact the long-form numbers change only every ten years have muted questions about precision.

- Annual availability of ACS data creates new opportunities for HUD.
This research effort focused primarily on the problems associated with using ACS data because HUD wanted to anticipate these problems. We did not explore the opportunities created by having reliable intercensal data for the first time. However, we did note some of the obvious opportunities. If HUD takes steps to make ACS data available in easy-to-use formats, field offices would have much more current information on which to base market analyses, site and neighborhood determinations, and assessments of CDBG target areas. HUD could calculate worst case housing need type-indicators for metropolitan areas and even cities and counties. HUD could employ statistical modeling techniques to improve local estimates and to create new tools to help in program management.
- Cities and counties will have greatly improved information on which to base housing, community development, and economic development decisions.
City and county governments may be the biggest beneficiaries of the ACS. For decades, they have had to make planning and policy decisions on information available only once every ten years. In the future, city and county governments will be able to track conditions at the neighborhood level using moving average ACS data that will be updated annually.

Conclusion 2: No Insurmountable Problems

Using ACS data in place of decennial long-form data will create no problems for current HUD applications that HUD users will not be able solve in a manner consistent with existing practices and program objectives.

We base this conclusion on four observations.

- The ACS is very similar to the decennial long form in content and format.
The ACS covers the same topics that long form covers and uses questions that are virtually identical to those on the long form.
- The Census Bureau will release ACS data in formats consistent with HUD's needs and the Census Bureau is willing to produce special tabulations and provide other assistance to HUD.
Although it will not release ACS data in the formats most familiar to HUD users (those used for the most recent decennial censuses), the Census Bureau has indicated that the same information will be available. For example, the Census Bureau will prepare ACS tables for the seven American Indian/Alaskan Native Area entities covered by the 1990 census and will add tables for Hawaiian homelands and state reservations as well. Tables will also be

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available for the intersections of places with other geographies, such as the part of Atlanta in Fulton County or the parts of a census tract that are in two different jurisdictions.

Subject only to the need to protect the confidentiality of individual responses, the Census Bureau will prepare any special tabulation that HUD would be willing to purchase. In all our discussions with the staff at the Census Bureau, they seemed eager to meet with HUD users to solve their needs and to provide guidance.

- There is sufficient time for all HUD users to prepare for incorporating ACS data into their applications.

Most HUD applications will not begin using ACS data until 2008, giving the Department over five years to prepare. In some cases, the necessary data will not be available until 2008. Designating qualified census tracts and making site and neighborhood determinations require data at the census tract level, which will not be available until 2008. HUD statutes and regulations require the use of decennial census data for some applications. The Census Bureau will consider the 2004 tabulations for areas with populations of 65,000 or more as experimental and will not consider these tabulations as replacements for the 2000 decennial census. The 2008 tabulations will be considered replacements for the 2000 decennial census. Finally, some applications, such as allocation formulas, may want to wait until 2008 when data are available for places of all sizes.

On the other hand, some HUD applications will incorporate ACS data as early as 2004 and the experience of these users will help prepare the way for other HUD applications to adopt the ACS in 2008. HUD has a long history of using data from different sources in calculating fair market rents and income limits and these applications should be among the first HUD uses of ACS data.

- Our analysis in Part II finds that HUD has reasonable options for dealing with the complications that will arise.

The use-by-use analysis of potential problems in Part II shows that HUD has options for dealing with the difficulties that will arise. Choice among the options will involve policy issues as well as technical issues, but reasonable choices seem to exist. In fact, HUD already uses some of the options in others of its current applications.

Conclusion 3: Failure to Prepare Will Create Problems

Substituting ACS data for decennial long-form data will present challenges for some HUD applications and will require the Department to make adequate preparations for the ACS by anticipating problems and devising solutions.

We base this conclusion on four observations.

- The statutes and regulations that govern HUD applications may be inconsistent with the best techniques for using ACS data in some applications.

The statutes and regulations that govern HUD applications were created in an environment in which reliable data became available only once a decade and the data collection procedures were identical for all areas. ACS data will be available annually and the ACS presents data on an annual, three-year moving average, or five-year moving average basis depending upon the size of the area.

Some applications are governed by statutory or regulatory provisions that call for using the most recent decennial census. After 2008, this language could require HUD to redo applications every year. For some uses this may create problems for HUD or its clients. The CDBG statute requires HUD to use data applying to the same time period for all jurisdictions in the CDBG allocation formula. HUD would have to use five-year moving averages for all jurisdictions in the CDBG formulas even though very accurate annual data would be available for States and large cities.

- The smaller sample sizes in the ACS result in a loss of precision sufficient to create problems for some applications.

Estimates derived from the ACS will be less precise than those derived from the long form. The ACS data product that will most directly replace the long-form summary data will be a series of 5-year moving averages for all sizes of geographic areas. The standard errors of any one of these 5-year estimates will typically be about 1.33 times as large as comparable long-form standard errors. Tables developed from a single year of ACS data will be based on samples that are approximately one-sixth as large as long-form samples and will have standard errors approximately 2.5 times larger than long-form standard errors.

Some HUD applications require a level of precision that will tax the limits of the ACS. HUD's designation of qualified census tracts involves determining whether a single census tract crosses an income or poverty level threshold. The identification of CDBG target areas involve a similar threshold decision for, in some cases, a small number of census tracts. Setting fair market rents requires information on rents paid by a small portion of the population, renters who occupy two-bedroom units and who moved into these units within the previous year. In an ACS annual sample from a metropolitan area of 100,000, HUD could expect to find only 48 recent movers in two-bedroom rental units. By past HUD standards, this sample would be too small for setting FMRs.

Precision is likely to be a more visible issue with the ACS than with the long form. In fact, precision was rarely an issue with long-form data precision for two reasons. First, there was no alternative source of information, particularly for small areas. In contrast, the 2000 long form and other vintages of ACS data are alternatives in the case of the ACS. Second, long-form data have been available only at ten-year intervals. Changes between decennial censuses were more likely to be considered real rather than statistical flukes. The same numerical difference appears larger when only one year has intervened between two measurements than when ten years have intervened.

- Choosing between annual data and three-year or five-year moving average data can create problems for some applications.

With the ACS, HUD users, who want to compare places of different sizes, face a choice: either to use the most current information and compare places using data covering different time periods or to use data covering the same time period for all places even if reliable, more current information is available for some places. Choosing moving averages when reliable annual data are available could affect how HUD treats its largest clients because moving averages behave differently than annual data. Moving averages tend to “smooth” changes in time series variables. Moving averages are always behind a trend and their smoothing effect may hide a turning point.

- Annual availability of data will increase the workload for HUD users and can create complications in some applications.

The advent of the ACS could require HUD to set aside more resources for ACS-related functions. Having new data annually might involve more work for those applications that HUD currently carries out annually, such as allocating funds by formula or setting FMRs and income limits. Having new data available each year might cause HUD to carry out functions annually that it now carries out less frequently, perhaps only once a decade, such as designating qualified census tracts or providing clients with data on conditions in their communities. Having new small area data available each year might induce HUD to expand current activities to include lower levels of geography. For example, HUD could begin to generate a worst case housing needs type indicator for every metropolitan area. Having reliable new data available each year might induce HUD to undertake activities that it has not performed in the past, such as statistical modeling in support of various program operations.

Annual availability of data can affect HUD and its programs in two additional ways. First, as noted previously, redoing applications annually tends to call attention to the effects of sampling variation. Second, there are applications where too frequent recalculation of numbers could impose a burden on the clients HUD is trying to serve. Eligibility determinations, for example, permit local governments or private entities to conduct certain activities in certain areas. The planning and execution of these activities takes time. If areas became ineligible before these activities could be carried out, then the goals of the affected programs would be frustrated. Similarly HUD asks jurisdictions to conduct needs assessments and plan their HUD-supported activities to address these needs. Frequent redefinition of needs could complicate the planning process.

Recommendation 1: Bring Managers into the Process

HUD should ensure that its managers are well informed about the nature and timing of the ACS so that they can provide their technical staff with the resources and guidance they will need to move from the decennial long form to the ACS.

There is a danger that HUD managers will perceive the issues identified in this Report as purely technical matters. The transition from the long form to the ACS may appear as a minor concern because the questionnaires are so similar and because the Census Bureau is the supplier of data in both cases. Moreover, except for an occasional new issue, HUD managers have had to devote almost no attention to the functions discussed in this Report. In the applications that make the most intensive use of decennial long-form data, HUD users follow well-established procedures for acquiring and processing the data. HUD has allocated CDBG funds by formula since 1974 and HUD has set fair market rents and income limits since 1974. The procedures followed in these applications have evolved over the years but are generally so routine that the HUD technical staff need little or no oversight. In the applications that make less use of decennial census data, the decisions about whether to use the data and how to use them are often left entirely to technical staff.

This perception could plant the seeds for serious management mistakes. Chapter 6 describes how the ACS will differ from the long form on important technical dimensions and how these differences can create problems for specific HUD applications. Because these problems ultimately affect HUD clients, they are policy as well as technical concerns. Beyond technical differences, the availability of new data from the ACS each year, rather than once a decade, is a fundamental change in the way HUD users do business. Chapter 9 explains how annual availability can put a strain on the resources available for these functions. In addition, annual updating of data may complicate some programs for HUD or its clients by creating instability. Determinations that formerly lasted a decade could now change annually, disrupting program planning and implementation at both the national and local levels.

With this in mind, it is essential that technical staff have ready access to managers for the policy guidance and resource support that they will need. Both needs are critical. Technical staff will usually be able to find solutions to issues created by the ACS, such as those discussed in Chapter 6. But they will often need policy approval because a solution may affect how a program operates and how it impacts clients. They may also need additional resources to implement the solution without missing program deadlines.

Failure to get management attention promptly can lead to program delays or choices that fail to incorporate policy concerns. For example, in 2000, HUD technical staff wanted to make a small adjustment in the algorithms used to set income limits to eliminate a problem that was affecting low income tax credit projects in a number of States. The correction was straightforward but it took over six months to obtain the necessary policy clearance, despite many internal efforts to resolve the question and several pleas from a key member of the Senate leadership.

With this in mind, we recommend the following steps:

- a. In early 2003, HUD should hold a briefing that would explain to Principal Staff and Senior Executives what the ACS is and why they need to pay attention to it. Program managers should be encouraged to follow up by meeting with their technical staff on transition issues that might affect the individual managers.
- b. By early 2003, technical staff should review the discussion of their specific applications in Part II and should obtain updated information from the Census Bureau on when they can expect ACS data and the format in which the data will come. Based on this information they should determine what changes will be needed in their procedures for acquiring and processing census data. They should also prepare a list of issues that could arise during the transition to the ACS.
- c. By mid-2003, technical staff and program managers should meet to discuss the issues. Technical staff should indicate what policy guidance may be needed and when it might be required. If technical staff believe that they will need additional resources, they should request it at this time.
- d. In developing HUD's FY 2004 budget and subsequent budgets, HUD should set aside additional funds to provide contract staff to augment HUD technical staff and to support acquisition of special extracts from the Census Bureau or outside processing of ACS releases. Additional in-house resources staff will be needed as well. Chapter 9 provides estimates of the additional resources that will be needed in the long run.

Recommendation 2: Resolve Key Issues

HUD should ensure that certain key problems are resolved early on to eliminate confusion and smooth adaptation to ACS data.

This Report has identified several issues that affect multiple programs and that should be resolved prior to dealing with other transition issues. Four of these issues are important enough to receive Department-wide attention.

- a. Which ACS products are considered part of the decennial census and which, if any, are not considered part of the decennial census?
For many HUD applications, statutes direct the Department to use the most recent decennial census. HUD may not be allowed to use ACS products that are not considered part of the decennial census for these applications. If all ACS products are considered part of the decennial census, then HUD may have to use each new release. Determining the relationship between the ACS and the decennial census will affect how the Department uses ACS data and the frequency with which it employs new ACS data.

The Census Bureau ACS staff believes that in 2008 the ACS will replace the 2000 census and will become the "most recent decennial census". They also believe that the 2009 ACS will replace the 2008 ACS and become the "most recent decennial census". HUD needs to determine whether this view is the view of the Census Bureau and whether the Census Bureau's view is determinative for the purposes of HUD's statutes.

b. Will micropolitan areas be considered metropolitan or non-metropolitan?

Various HUD applications involve dividing the nation into two mutually exclusive parts, metropolitan areas and non-metropolitan areas. OMB's new guidelines for designating core base statistical areas introduce the new concept of micropolitan areas, which are concentrations of populations smaller than metropolitan areas. OMB staff told us that these areas are to be considered non-metropolitan. This determination needs to be confirmed because it will affect how some program funds are allocated, how some eligibility determinations are made, and how some floors and caps are calculated.

c. Should HUD institute procedures to promote year-to-year stability in applications that use ACS data?

Generally this Report favors making policy on an application-by-application basis rather than attempting to formulate Department-wide policy to apply to all applications. However, year-to-year stability is an issue that deserves some Departmental attention. Estimates based on the ACS will be less precise than estimates based on the long form at all levels of geography. Moreover, sampling variation will be more apparent for estimates based on the ACS because a given change appears larger when it occurs over one year than when it occurs over ten years. Therefore, we believe that HUD's Principal Staff should decide whether, at least for some uses, steps should be taken to minimize year-to-year changes. HUD applications could use various techniques to obtain year-to-year stability. These include: using new ACS data less frequently than annually, using moving average ACS data even when annual data are available, and making a change only when the new data are statistically different from the old data.

d. When should HUD applications begin using ACS data, given that the data will be available for areas with populations of 65,000 or more in 2004, for places with populations between 20,000 and 65,000 in 2006, and for places with populations less than 20,000 in 2008. The Census Bureau will consider the ACS to "officially" replace the long form in 2008, but HUD may decide to use the data before that time.

This issue is a second case where we believe that Department-wide guidance could be helpful. This does not mean one answer for all applications; different answers may be appropriate for different applications. The potential impact on clients of shifting to ACS data is significant enough to warrant some attention to when and how the process should begin, depending upon the characteristics of an application.

Recommendation 3: Taking Full Advantage of the ACS

HUD should investigate options to take fuller advantage of the opportunities offered by the ACS.

Discussion with OMB and the Census Bureau indicates that HUD is the only agency that has engaged in systematic planning for the ACS. HUD should build upon this good start by taking steps to ensure that it maximizes the potential of the ACS. HUD could be the leader among federal agencies in taking advantage of the ACS. Here are three suggestions:

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- a. Before 2003 HUD should contract with the Census Bureau for all the special abstracts and tabulations of ACS data that the Department will need for its various applications. By contracting early, HUD will give Census Bureau staff time to design the tabulations, do the necessary programming, and test the results on the 2003 ACS.
- b. HUD should consider providing funding to the Census Bureau for new staff within the ACS unit to be dedicated solely to HUD needs.
Having “HUD” staff at the Census Bureau provides the Department with several advantages. Census Bureau staff have access to information not available to the general public, including the individual responses. Having access to the microdata opens many opportunities for special analyses. The Census Bureau would maintain control over the information released to the Department but, as long as the output does not contain information on individual respondents, the Bureau’s confidentiality rules should not conflict with the Department’s interests.
- c. HUD should direct the Assistant Secretary of Policy Development and Research to study how the Department could use ACS data in new ways to enhance program operations.
In the past 20 years, small area estimation has become a hot topic in statistical research. Small area estimation involves the construction of models that (a) improve the reliability of sample estimates and (b) extend sample estimates to lower levels of geography. The ACS will provide a rich database for new small area estimation efforts. Spatial regression is another tool that analysts have begun to apply effectively to microdata sets. Spatial regression makes use of information about the proximity of observations in calculating how one variable depends upon a set of other variables. Possible HUD applications of these techniques include using ACS data to check the accuracy of important information provided by HUD clients such as appraisals and comparable rents. In addition, HUD may find productive ways to match program data with ACS data. Because HUD has addresses for most of the households it supports through its assisted housing programs, it would be possible to match the 4.5 million households receiving assistance with the 3 million households surveyed by the ACS. An annual match could expect to find 127,000 households assisted by HUD and interviewed by the ACS. A match of this nature could provide substantial information to HUD on the characteristics of its assisted households. Similar matches may be possible for other programs.

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CHAPTER 11: CPD ALLOCATION OF FUNDS BY FORMULA

HUD's Office of Community Planning and Development allocates funds by formula for three programs::

1. Community Development Block Grants (CDBG)
2. HOME Investment Partnerships (HOME)
3. Emergency Shelter Grants (ESG)

The first part of the Chapter provides background information on these three programs and explains how the allocation formulas operate. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified five issues that could present problems for HUD in using ACS data in one or more of these formulas. The second part of the Chapter will discuss how these five issues affect the three formula allocations.

The ACS should improve allocation of funds for these three programs by providing HUD with more up-to-date information on conditions in recipient jurisdictions. The principal issues involve whether to mix annual and moving average data and when to begin using ACS data. The CDBG statute appears to dictate answers to these questions for the CDBG and ESG programs. None of the issues is sufficiently serious to call into question the superiority of the ACS over the long form for formula allocation purposes.

Description of Formula Allocations

Community Development Block Grants

Purpose: The Community Development Block Grant (CDBG) program provides States and large cities and counties with funds that they can use for a wide variety of community and economic development activities. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of community and economic development.

Statute: Title 1 of Housing and Community Development Act of 1974 as amended; 42 U.S.C. 5301 et seq.

Regulations: 24 CFR 570

FY 2001 Appropriation: \$5.295 billion with \$4.399 billion for formula allocation

Why Census-Type Data Are Needed: The CDBG program attempts to distribute funds annually among States and large cities and counties on the basis of need. Census variables are used as proxies for various types of need.

What Census-Type Variables Are Used: HUD constructs the factors used in the CDBG formulas from the following variables: population, household income, poverty counts, number of persons in household, number of rooms in housing unit, and year housing unit was built. Population is obtained annually from regular Census Bureau tabulations. The other variables are obtained from the long form in the most recent decennial census.

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How the Census-Type Variables Are Used: Section 106 provides detailed instructions on how to allocate funds by formula. After subtracting funds set aside for Indian tribes, special purpose grants under Section 107 of the statute, and other small programs, HUD splits the remainder of the annual CDBG appropriation into two parts for distribution by formula; 70 percent goes to entitlement jurisdiction and 30 percent to States for use in non-entitlement jurisdictions. Entitlement jurisdictions include the central cities of metropolitan areas, non-central cities with populations greater than 50,000, and “urban counties”. Urban counties are counties with large populations that have the power to carry out community development activities. Section 102 (a)(6) sets out the various ways in which counties can qualify to receive CDBG funds.

HUD constructs the allocation formulas in the following manner:

Using data from the Census Bureau, HUD calculates the following variables:

For cities:

Pop_c = population of the city/population of all metropolitan areas⁶⁹

Pov_c = number of persons in the city living in households with incomes less than the poverty level/number of persons in all metropolitan areas living in households with incomes less than the poverty level

$OverCrowd_c$ = number of housing units in the city with 1.01 or more persons per room/ number of housing units in all metropolitan areas with 1.01 or more persons per room

$GrowthLag_c$ = GL_c /the sum of GL_c for all metropolitan cities

where

GL_c = [(population of the city in 1960 *⁷⁰ average population growth rate of all metropolitan cities between 1960 and the most recent population count) - population of the city in the most recent count] if > 0
= 0 otherwise

$AgeHous_c$ = number of housing units in the city constructed in 1939 or earlier/ number of housing units in all metropolitan areas constructed in 1939 or earlier

For urban counties:

Pop_{uc} = population of the urban county/population of all metropolitan areas

Pov_{uc} = number of persons in the urban county living in households with incomes less than the poverty level/number of persons in all metropolitan areas living in households with incomes less than the poverty level

⁶⁹ “/” is used throughout this report to indicate division.

⁷⁰ “*” is used throughout this report to indicate multiplication.

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$OverCrowd_{uc}$ = number of housing units in the urban county with 1.01 or more persons per room/ number of housing units in all metropolitan areas with 1.01 or more persons per room

$GrowthLag_{uc}$ = GL_{uc} /the sum of GL_j for all metropolitan cities and GL_{uc} for all urban counties

where

GL_{uc} = [(population of the urban county in 1960 * average population growth rate of all metropolitan cities between 1960 and the most recent population count) - population of the urban county in the most recent count] if > 0
= 0 otherwise

$AgeHous_{uc}$ = number of housing units in the urban county constructed in 1939 or earlier/ number of housing units in all metropolitan areas constructed in 1939 or earlier

For States:

Pop_s = population of the non-entitlement areas in that State/population of the non-entitlement areas in all States.

Pov_s = number of persons in the non-entitlement areas in that State living in households with incomes less than the poverty level/number of persons in the non-entitlement areas in all States living in households with incomes less than the poverty level

$OverCrowd_s$ = number of housing units in the non-entitlement areas in that State with 1.01 or more persons per room/number of housing units in the non-entitlement areas in all States with 1.01 or more persons per room

$AgeHous_s$ = number of housing units in the non-entitlement areas in that State constructed in 1939 or earlier/number of housing units in the non-entitlement areas in all States constructed in 1939 or earlier

24 CFR 570.4(d) calls for eliminating contributions of Indian tribes to the various formula factors for urban counties and States and allows the Secretary to make estimates for this purpose.

Using these factors, HUD allocates funds to metropolitan cities using following procedure.

If $E = 70$ percent of the appropriation after subtractions for Indian tribes, Section 107 grants, and other small programs, then each metropolitan city is entitled to the larger of the amounts computed by the following two formulas:

I $E * (Pop_c + 2*Pov_c + OverCrowd_c)/4$

II $E * (GrowthLag_c + 1.5*Pov_c + 2.5*AgeHous_c)/5$

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HUD allocates funds to urban counties using the following procedure.

Each urban county entitled to the larger of the amounts computed by the following two formulas:

$$I \quad E * (\text{Pop}_{uc} + 2 * \text{Pov}_{uc} + \text{OverCrowd}_{uc}) / 4$$

$$II \quad E * (\text{GrowthLag}_{uc} + 1.5 * \text{Pov}_{uc} + 2.5 * \text{AgeHous}_{uc}) / 5$$

Section 106(f) allows HUD to pro-rate up or down the allocations to individual cities and urban counties so that the sum of the allocations equals E.

HUD allocates funds to States using the following procedure:

If NE = 30 percent of the appropriation after subtractions for Indian tribes and Section 107 grants, then each State is entitled to the larger of the amounts computed by the following two formulas:

$$I \quad NE * (\text{Pop}_s + 2 * \text{Pov}_s + \text{OverCrowd}_s) / 4$$

$$II \quad NE * (\text{Pop}_s + 1.5 * \text{Pov}_s + 2.5 * \text{AgeHous}_s) / 5$$

Section 106(f) allows HUD to pro-rate up or down the allocations to States so that the sum of the allocations equals NE.

HOME Investment Partnerships Act

Purpose: To establish partnerships with State and local governments and to provide those governments with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance.

Statute: Title II of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12704 et seq.)

Regulations: 24 CFR 92

FY 2001 Appropriation: \$1.737 billion

Why Census-Type Data Are Needed: The HOME program attempts to distribute funds annually among States and large cities and counties on the basis of need. Census variables are used as proxies for various types of need.

What Census-Type Variables Are Used: HUD constructs the factors used in the HOME formula from the following variables: population, tenure, occupied/vacant status, income of householder, household income, family income, poverty counts, number of persons in household, number of rooms in housing unit, complete kitchen facilities, complete plumbing, gross rent (contract rent plus tenant paid utilities), and year housing unit was built. Population is obtained annually from regular Census Bureau tabulations. The other variables are obtained from the long

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form in the most recent decennial census. One of the factors uses the ratio of the cost of producing housing in a jurisdiction divided by the national cost. This information is obtained from private sources.

How the Census-Type Variables Are Used: After subtracting funds set aside for Indian tribes and insular areas, HUD splits the remainder of the annual HOME appropriation into two parts for distribution by formula: 60 percent goes to general local governments and 40 percent to States. General local governments include cities, towns, counties, and consortia of these entities. Population size is important because the statute instructs HUD not to distribute funds below a minimum amount to units of general local governments.

HUD computes six factors from the variables listed above:

$VadjPoorRU_i$ = number of rental units in government jurisdiction or state i in which the income of the householder is below the poverty level * (national vacancy rate/vacancy rate in i)

$RUwPrb_i$ = number of occupied rental units in government jurisdiction or state i with at least one of four problems: 1.01 or more persons per room; incomplete plumbing; incomplete kitchen; or gross rent exceeding 30 percent of household income.

$OldPoorRU_i$ = number of rental units in government jurisdiction or state i built before 1950 and occupied by families with incomes below the poverty level

$AdjRUwPrb_i$ = $RUwPrb_i$ * (cost of producing housing in government jurisdiction or state i /national cost of producing housing)

$PoorFam_i$ = number of families in government jurisdiction or state i with incomes below the poverty level

$AdjPop_i$ = population of government jurisdiction or state i * [(national per capita income - poverty threshold for a three person family)/ (per capita income in government jurisdiction or state i - poverty threshold for a three person family)]

Because of the minimum grant requirement, HUD computes the allocations for units of general local government iteratively, dropping the jurisdiction with the lowest grant each time until all grantees receive at least \$500,000 (\$335,000 if the annual appropriation is less than \$1.5 billion).

The formula used is:

where LG = 60 percent of the appropriation after subtractions for Indian tribes and insular areas

$$\$i = LG * (0.1 * VadjPoorRU_i / \sum VadjPoorRU_i + 0.2 * RUwPrb_i / \sum RUwPrb_i + 0.2 * OldPoorRU_i / \sum OldPoorRU_i + 0.2 * AdjRUwPrb_i / \sum AdjRUwPrb_i + 0.2 * PoorFam_i / \sum PoorFam_i + 0.1 * AdjPop_i / \sum AdjPop_i)$$

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where the sums are taken over all the units of general local government being considered in that iteration.

After the allocation of funds to the units of general local government, HUD allocates funds to States. The sequence in which HUD computes the HOME allocations is important because one of the two formulas used is defined over the portions of States not receiving allocations to units of general local government.

Let $S = 40$ percent of the appropriation after subtractions for Indian tribes and insular areas

States receive the sum of the following two formulas:

$$S_i = 0.2 * S * (0.1 * \text{VadjPoorRU}_i / \sum \text{VadjPoorRU}_i + 0.2 * \text{RUwPrb}_i / \sum \text{RUwPrb}_i + 0.2 * \text{OldPoorRU}_i / \sum \text{OldPoorRU}_i + 0.2 * \text{AdjRUwPrb}_i / \sum \text{AdjRUwPrb}_i + 0.2 * \text{PoorFam}_i / \sum \text{PoorFam}_i + 0.1 * \text{AdjPop}_i / \sum \text{AdjPop}_i)$$

where the factors are defined over the entire State and the sums are taken over all States.

$$S_i = 0.8 * S * (0.1 * \text{VadjPoorRU}_i / \sum \text{VadjPoorRU}_i + 0.2 * \text{RUwPrb}_i / \sum \text{RUwPrb}_i + 0.2 * \text{OldPoorRU}_i / \sum \text{OldPoorRU}_i + 0.2 * \text{AdjRUwPrb}_i / \sum \text{AdjRUwPrb}_i + 0.2 * \text{PoorFam}_i / \sum \text{PoorFam}_i + 0.1 * \text{AdjPop}_i / \sum \text{AdjPop}_i)$$

where the factors are defined over all units of general local government in the State that do not receive a grant and the sums are taken over all States.

Emergency Shelter Grants

Purpose: Emergency Shelter Grants (ESG) awards grants for the rehabilitation or conversion of buildings into homeless shelters. It also funds certain related social services, operating expenses, homeless prevention activities, and administrative costs. It supplements State, local, and private efforts to improve the quality and number of emergency homeless shelters.

Statute: Stewart B. McKinney Homeless Assistance Act (42 U.S.C. 11301 et seq.)

Regulations: 24 CFR 576

FY 2001 Appropriation: approx \$150 million

Why Census-Type Data Are Needed: HUD allocates ESG funds by formula. Census variables serve as proxies for need.

What Census-Type Variables Are Used: HUD constructs the factors used in the ESG formulas from the following variables: population, household income, poverty counts, number of persons in household, number of rooms in housing unit, and year housing unit was built. Population is obtained annually from regular Census Bureau tabulations. The other variables are obtained from the long form in most recent decennial census.

How the Census-Type Variables Are Used: Section 413(a) of the statute specifies that HUD should allocate ESG funds to metropolitan cities, urban counties, and States (for reallocation) in

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proportion to CDBG allocations. Section 413(b) imposes a minimum allocation of 0.05 percent of the appropriation. If a jurisdiction's calculated grant is below 0.05 percent, the funds are reallocated to the State in which that jurisdiction is located.

Examination of Issues

Statutory and Regulatory Requirements

Statutory and regulatory language place clear limits on the discretion that HUD has in using ACS data in these three formulas.

Community Development Block Grants

The statute (Section 106) gives HUD very limited discretion. The statute defines the factors and the formulas (including the weights). The definitions of the population, overcrowded housing, and age of housing factors in Sections 102(a)(8), (10), and (12) specifically reference "data compiled by the United States Bureau of the Census." The statute does not refer to the Census Bureau in its definition of poverty but HUD's regulations do (24 CFR 570.3).

Section 102 calls for each factor to be calculated for all recipients "referable to the same point or period in time." The smallest central city receiving CDBG funds is Rantoul IL which is part of the Champaign-Urbana metropolitan area. In 2000, Rantoul had a population of 12,857. Therefore, the Census Bureau will provide ACS data on Rantoul (and any other entitlement jurisdictions with a population of less than 20,000) only on a five-year moving average basis. Thus the legislative language would seem to require HUD to use five-year moving average data for all jurisdictions.

HUD calculates the factors used in the formulas that distribute the State non-entitlement funds by subtracting the entitlement totals from State totals. This procedure would seem to require that HUD also use five-year moving average data in the State formulas as well.

HOME Investment Partnership Act

The HOME statute provides only general guidance regarding the formula. Section 217(b)(1)(A) indicates that HUD should use objective measures of inadequate housing supply, substandard housing, the number of low-income families in housing likely to be in need of rehabilitation, the costs of producing housing, poverty, and the relative fiscal incapacity of the jurisdiction to carry out housing eligible activities. The actual variables and weights are not specified. Section 217(b)(1)(C) specifies using "a standard source" for the data "that are available ... 90 days prior to the beginning of the fiscal year." Section 217(b)(1)(D) specifies using the same formula twice to compute the State grants, once using States' totals for 20 percent and once using non-recipient totals for 80 percent. Section 217(b)(1)(F) required HUD to consult with its committees in Congress and organizations representing States and units of general local government in developing the HOME formula. Presumably changes to the formula would entail similar consultation.

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HUD's regulations, however, do limit HUD's discretion. 24 CFR 92.50 establishes the HOME formula by defining the factors and specifying the data source. For several of the variables used in the factors, the regulations cite "data available from the U.S. Census Bureau."

Emergency Shelter Grants

The statute gives HUD very limited discretion. HUD must use the CDBG formula to allocate funds and the CDBG statute defines the variables, the data source (the Census Bureau), and the formulas. The Section 102 language requiring the data to be "referable to the same point or period in time" would mandate the use of five-year moving average data.

Variable Base Periods and Transition

All three allocation formulas have to deal with the issue of variable base periods. The official ACS data will be available for jurisdictions with populations less than 20,000 only on a five-year moving average basis, for jurisdictions with populations between 20,000 and 65,000 on both a three-year and five-year moving average basis, and for jurisdictions over 65,000 on an annual, a three-year moving average basis, and a five-year moving average basis. In implementing these formulas with ACS data, HUD will have to decide whether to use the same data-collection periods for all places or to mix annual, three-year moving average, and five-year moving average data. HUD will also have to decide whether to begin using ACS data for larger jurisdictions before it becomes available for smaller jurisdictions.

In some cases, Congress has already made the decision for HUD. As noted previously, statutory language compels the use of five-year moving average data to allocate Community Development Block Grant funds and Emergency Shelter Grant Funds.

The statutory and regulatory language allows HUD greater choice in allocating HOME funds. In particular, there is no requirement that the base period be the same for all recipients.

The minimum grant size requirement in HOME would seem to provide an opportunity to use three-year moving average data for all places. Currently the smallest grantee is Johnstown PA with a 1990 population of 28,134. However, jurisdictions do form consortiums, an option allowed in the HOME statute, in order to satisfy the minimum grant size requirement. Because some components of a consortium have populations less than 20,000, HUD would be able to construct formulas factors for many consortiums only by using five-year moving average data.

Chapter 6 examined the trade-offs between using moving average and annual data. Moving averages smooth data by distributing the impact of erratic movements in variables, caused either by real conditions or sampling variation, across three or five years. Moving averages lag behind trends and may even miss the turning point in time series such as poverty rates.

Mixing annual and moving average data would mean treating recipients differently. Large recipients, such as New York City and Los Angeles, may argue for using annual data because annual data provides the most current picture of conditions in any jurisdiction. For large jurisdictions, ACS data will provide an accurate annual picture. In 2000, New York City had a

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population of 8,008,278 with 3,021,588 households. The ACS's annual sample (approximately 2.5 percent) would survey 75,540 households.

It is important to consider the nature of the HOME variables. Some are complicated and, therefore, annual data would provide reasonably accurate measurement only for very large jurisdictions. For jurisdictions with 400,000 residents, the annual ACS survey would include approximately 3,831 households. A sample of almost 4,000 households would provide good estimates for simple variables such as the HOME variable, PoorFam, which counts the number of families with incomes below the poverty level. The level of precision will be less for more complicated HOME variables such as OldPoorRU, the number of rental units built before 1950 and occupied by families with incomes below the poverty level. Based on the 1999 American Housing Survey, only 10 percent of households live in rental units constructed before 1950.

The statute directs HUD to wait until 2008 to begin using ACS data for the Community Development Block Grant and the Emergency Shelter Grant programs because 2008 will be the first year when data "referable to the same point or period in time" will become available.

HUD has more discretion under the statutes and regulations with HOME allocations. Since some factors used in the HOME formula involve multiple segmentations of the population, annual data would allow HUD to construct reasonably precise estimates only for the largest jurisdiction, such as those with populations over one million. Nevertheless, HUD has the option to mix annual, three-year moving average, and five-year moving average data using population cutoffs larger than the 65,000 and 20,000 used by the Census Bureau. If HUD were to choose this option, then it could conceivably begin using ACS data in allocation for the FY 2006 HOME using the 2003 annual ACS data released in 2004 and long-form data for other places.

Problem Variables

The HOME formula makes use of the vacancy rate in one factor. As explained in Chapter 6, there are two concerns about the ACS measurement of vacancy. The first concern arises from the ACS use of the current resident standard compared to the usual resident standard used by the decennial long form. Both standards are reasonable approaches to surveying and lead to acceptable concepts of vacancy. In most places, there should be little difference between vacancy rates measured under the two standards when the standards are rigorously applied. There may be some differences in places with large seasonal populations. In practice, the Census Bureau has found that respondents tend to answer the questionnaires in ways that blur the distinction between the two standards. The real concern is that the ACS measures the vacancy rate according to its standard with a downward bias. Simulations have shown that the ACS estimates a rental vacancy rate 1.2 percentage points lower than the true rate.

The HOME formula uses vacancy in the VadjPoorRU factor. It enters as the ratio of the national vacancy rate to the local vacancy rate. Using the ratio probably minimizes the impact of the downward bias. However, HUD should analyze how substituting the ACS data into this factor affects allocations compared to the use of the long-form data. On the basis of this comparison, HUD should decide whether to change the factor.

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Conflicting Sources of Data

HUD users will have to choose between alternative sources of information to construct factors in three allocations: Community Development Block Grants, HOME, and Emergency Shelter Grants.

The CDBG formulas use a count of the persons in poverty. The Census Bureau will release two sets of poverty numbers, ACS estimates and small area income and poverty estimates (SAIPE). The ACS estimates will be available annually after 2008 for all areas. The SAIPE estimates will be available biennially for States and counties. Section 102 requires HUD to use data “referable to the same point or period in time.” This language would seem to mandate the use of ACS data because SAIPE data will not be available for all recipients.

The HOME formula also uses a count of person in poverty in the PoorFam factor. Again the Census Bureau provides both ACS and SAIPE estimates.⁷¹ In the HOME case, the statutory language would not preclude using the SAIPE estimates. However, the ACS estimates seem preferable for two reasons: they will be available for all areas and they will be recalculated every year.

Because Congress requires HUD to allocate Emergency Shelter Grant funds in proportion to CDBG allocations, the same comments about the SAIPE poverty estimates apply to this program.

⁷¹ Other HOME factors count the number of poor persons that meet certain criteria, such as living in rental units. The SAIPE estimates are not an alternative for these factors.

CHAPTER 12: PIH ALLOCATION OF FUNDS BY FORMULA

HUD's Office of Public and Indian Housing allocates funds by formula for the Indian Housing Block Grants (IHBG) program. The first part of the Chapter provides background information on this program and explains how the allocation formula operate. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified four issues that could present problems for HUD in using ACS data in the Indian Housing Block Grant formula. The second part of the Chapter will discuss how these four issues affect the formula allocations in this program.

The ACS should improve allocation of funds for the IHBG program by providing HUD with more up-to-date information on conditions in areas served by qualified recipients. The principal issues involve whether to mix annual and moving average data and when to begin using ACS data. The new OMB guidelines on racial classifications raise issues for the use of both long form and ACS data. None of the issues is sufficiently serious to call into question the superiority of the ACS over the long form for formula allocation purposes.

Description of Formula Allocations

Indian Housing Block Grants

Purpose: To provide Indian tribes and Alaskan Native villages with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance.

Statute: Native American Housing Assistance and Self-Determination Act of 1996 (NAHASDA) (25 U.S.C. 4101-4212)

Regulations: 24 CFR 1000

FY 2001 Appropriation: \$641 million

Why Census-Type Data Are Needed: The Indian Housing Block Grant (IHBG) program attempts to distribute funds annual among Indian tribes and Alaskan native villages on the basis of need. Census variables are used as proxies for certain types of need.

What Census-Type Variables Are Used: HUD derives the IHBG formula factors from the following census variables: population, race, household income, gross rent, household size, number of rooms, complete plumbing, and complete kitchen.

How the Census-Type Variables Are Used: The IHBG program consolidates funding from several sources, including sources that provide on-going support to assisted housing already under contract. The IHBG formula consists of two components: (a) Formula Current Assisted Housing Stock (FCAS) and (b) Need. FCAS provides the funding to maintain the already assisted inventory. Its computation involves counting units under contract and multiplying the count by an average per unit subsidy. The FCAS component is computed first. The remaining funds are then distributed according to the Need component. In FY 2002, 44 percent of the funds were distributed by the FCAS component and 56 percent by formula.

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The need component includes seven factors. The factors are computed for a “formula area” which is the geographical area over which an Indian tribe could exercise court jurisdiction or is providing substantial housing services (see 24 CFR 1000.302 for a complete definition.)⁷²

$CostBurden_k$ = number of American Indian and Alaskan Native (AIAN) households in formula area k paying gross rents that exceed 50 percent of annual income.

$ProbHous_k$ = number of AIAN households in formula area k living in units with 1.01 or more persons per room or which have incomplete plumbing or which have incomplete kitchen facilities.

$HousShort_k$ = number of AIAN households in formula area k that have income less than 80 percent of area median income minus the number of current assisted units and minus units developed under NAHASDA

$PoorFam_k$ = number of AIAN households in formula area k with annual incomes less than or equal to 30 percent of area median income

$NearPoorFam_k$ = number of AIAN households in formula area k with annual incomes between 30 percent and 50 percent of area median income

$LowIncFam_k$ = number of AIAN households in formula area k with annual incomes between 50 percent and 80 percent of area median income

$AIANPop_k$ = number of AIAN persons in formula area k

The IHBG funds remaining after the FCAS distribution are distributed among eligible tribes by the following formula, where

N = IHBG funds remaining after the FCAS distribution

TDC_k = ratio of total development costs for a moderately designed house in formula area k divided by the national total development costs for a similar house (TDC is calculated as the average of at least two national housing cost indices, which are provided by private not Census Bureau sources)

⁷² Formula areas include the seven areas for which the Census Bureau tabulates data – reservations, tribal trust lands, individual trust lands, Alaskan Native Regional Corporations, Alaskan Native Village Statistical Areas, Tribal Jurisdiction Statistical Areas, and Tribal Designated Statistical Areas. They also include congressionally mandated service areas, Department of the Interior near-reservations service areas and fee-simple land where tribes have provided substantial housing assistance in the past and future. Census tabulations for the remainder of counties are used to approximate the latter three areas.

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$$\begin{aligned} \$_k = & N * TDC_k * (0.22 * CostBurden_k \sum CostBurden_k + 0.25 * ProbHous_k \sum ProbHous_k + \\ & 0.15 * HousShort_k \sum HousShort_k + 0.13 * PoorFam_k \sum PoorFam_k + \\ & 0.07 * NearPoorFam_k \sum NearPoorFam_k + 0.07 * LowIncFam_k \sum LowIncFam_k + \\ & 0.11 * AIANPop_k \sum AIANPop_k) \end{aligned}$$

where the sums are taken over all formula areas.

It should be noted that the allocation of funds for the FASC portion of the formula is adjusted by the TDC and the greater of the Allowable Expense Level or the Fair Market Rent. The Fair Market Rent is derived, at least in part, from census type data. However, its derivation is independent of the allocation of funds for IHBG and, therefore, is not an ACS issue in this context of the formula. The chapter on Program Parameters will explain how Fair Market Rents are dependent on long-form data.

Examination of Issues

Statutory and Regulatory Requirements

The formula was developed in negotiated rulemaking and is defined in detail in 24 CFR 1000 subpart D. The regulation states that HUD will use the most recent decennial census.

The Omnibus Indian Advancement Act (approved December 27, 2000) amends the Current Assisted Stock portion of the formula. Because of this change and regulatory language requiring the IHBG formula be revised within 5 years of issuance,, HUD announced on July 16, 2001 that it would enter into negotiated rulemaking to revise the formula.

Variable Base Periods

The official ACS data will be available for jurisdictions with populations less than 20,000 only on a five-year moving average basis, for jurisdictions with populations between 20,000 and 65,000 on both a three-year and five-year moving average basis, and for jurisdictions over 65,000 on an annual, a three-year moving average basis, and a five-year moving average basis. In implementing these formulas with ACS data, HUD will have to decide whether to use the same data-collection periods for all places or to mix annual, three-year moving average, and five-year moving average data.

The need to obtain adequate sample sizes would seem to argue for using five-year moving average data in the Indian Housing Block Grant formula. HUD must calculate IHBG formula variables for some small entities, such as Alaskan Native Villages or the parts of a county that contain a reservation, for which the Census Bureau will only release five-year moving average data. Annual data will be available for some large entities, such as the Navaho reservation. However, the current formula uses some complicated factors, such as, ProbHous, which is the number of AIAN households living in units with 1.01 or more persons per room or which have incomplete plumbing or which have incomplete kitchen facilities. Reasonably precise estimation of these factors requires large sample sizes.

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Transition Concerns

The major transition issue is when should HUD begin using ACS data in its allocation formulas and, if ACS data are available for some areas before 2008, should the Department use long-form data for these areas. The previous discussions of statutory and regulatory provisions and variable base periods answer this question.

The need to obtain adequate sample sizes would seem to require HUD to wait until 2008 to beginning using ACS data in the allocation of Indian Housing Block Grant funds. Since ACS data will become available for all areas at that time, there will be no need to mix long-form and ACS data.

New OMB Guidelines

On October 30, 1997, the Office of Management and Budget (OMB) published "Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity" (Federal Register, 62 FR 58781 - 58790). The new guidelines impose two key requirements: the ability to choose more than one race and making race and ethnicity into separate questions. Before the 1997 guidelines, persons were forced to classify themselves as members of only one racial group; now individuals can claim multiple races. The new practice has had a large impact on the American Indian or Native Alaskan category. In the 2000 census, 2,475,956 persons classified themselves as American Indian or Native Alaskan only but 4,119,301 persons classified themselves as either American Indian or Native Alaskan only or American Indian or Native Alaskan and another race – a 66 percent increase.

The formula used to allocate Indian Housing Block Grant funds uses various factors defined over the American Indian and Native Alaskan population. This population totals either 2.5 million persons or 4.1 million persons nationwide, depending on whether one counts persons of multiple races. HUD will have to decide which population to consider when it applies calculates the formula factors. Although the difference between the two tallies would appear to be a serious problem, one would need to examine the 2000 census tabulations to see how serious the problem actually is in the context of the IHBG formula. HUD calculates formula factors for areas identified as heavily American Indian and Native Alaskan. It may be that most of the persons who identified themselves as American Indian or Native Alaskan and another race live in other areas.

During the negotiated rule-making, HUD should calculate factors using both bases so that the parties involved can determine which basis works best.

CHAPTER 13: PD&R ALLOCATION OF FUNDS BY FORMULA

HUD's Office of Policy Development and Research allocates funds by formula for three programs:

- Section 8 Housing Vouchers (Section 8)
- Section 202 Supportive Housing for the Elderly (Section 202)
- Section 811 Housing for Persons with Special Needs (Section 811)

The first part of the Chapter provides background information on these three programs and explains how the allocation formulas operate. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified six issues that could present problems for HUD in using ACS data in one or more of these formulas. The second part of the Chapter will discuss how these six issues affect the three formula allocations.

The ACS should improve allocation of funds for fair share purposes by providing HUD with more up-to-date information on conditions in competition areas. The principal issues involve whether to mix annual and moving average data and when to begin using ACS data. The new OMB guidelines on racial classifications raise issues for the use of both long form and ACS data. None of the issues is sufficiently serious to call into question the superiority of the ACS over the long form for formula allocation purposes.

Description of Formula Allocations

Section 8 Housing Vouchers

Purpose: The Section 8 voucher program (now known as the Housing Choice Voucher Program) provides low-income households with vouchers that can be used to obtain decent, safe, and sanitary housing in the private rental market. The vouchers cover the difference between 30 percent of the household's income and the lower of the gross rent of the unit or the program standard rent for the locality.

Statute: The United States Housing Act of 1937 as amended in 1974 and subsequently (12 U.S.C. 1437)

Regulations: 24 CFR 982

FY 2001 Appropriation: \$12.943 billion

Why Census-Type Data Are Needed: Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available in sub-national groupings and to allocate funds among the groupings according to a formula.

“the Secretary shall allocate assistance referred to in subsection (a)(1) the first time it is available for reservation on the basis of a formula that is contained in a regulation prescribed by the Secretary, and that is based on the relative needs of different States, areas, and communities as reflected in data as to population,

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poverty, housing, overcrowding, housing vacancies, amount of substandard housing, and other objectively measurable conditions specified in the regulation.”

Regulations for implementing fair share can be found at 24 CFR 791.402.

Fair share allocations differ from the other formula allocations. For CDBG, HOME, ESG, and IHBG, the end result of the formula allocation is the calculation of the amount going to a particular recipient, e.g., to Phoenix or to the State of Arizona. In the case of Section 8, Section 202, and Section 811, the end result is the calculation of the funds available for recipients within a given field office jurisdiction or State to apply for from HUD. In the case of Section 8, local housing authorities have to apply and the sum of all applications may be greater than or less than the funds allocated to that area. In the case of Section 202 and Section 811, developers can apply to HUD for assistance and the sum of applications may be greater than or less than the funds allocated to that area. HUD approves applications case-by-case on the merits of the application and the availability of funds.

What Census-Type Variables Are Used: HUD constructs the factors used in the Section 8 fair share formula from the following variables: population, housing stock, tenure, household income, poverty counts, occupied/vacant status, length of time vacant, number of persons in household, number of rooms in housing unit, and year housing unit was built. Population is obtained annually from regular Census Bureau tabulations. The other variables are obtained from the long form in the most recent decennial census.

How the Census-Type Variables Are Used: Using data from the Census Bureau, HUD constructs the following variables for use in the fair share formula:

$Renters_k$ = number of persons living in rental units in area k⁷³

$PoorRenters_k$ = number of renter households in area k with incomes below the poverty level

$OverCrowdRenters_k$ = number of rental occupied housing units in area k with 1.01 or more persons per room

$TightMkt_k$ = [(number of rental housing units in area k) * 7 percent - number of vacant rental housing units in area k] if difference > 0; = 0 otherwise

$AgeHous_k$ = number of housing units in area k constructed in 1939 or earlier

$WorstCase_k$ = number of rental households in area k with income less than 50 percent of area median income and living in units with at least one of the following conditions: 1.01 or more persons per room; incomplete plumbing; incomplete kitchen; or gross rent exceeding 30 percent of household income

$LongVac_k$ = number of rental units vacant more than 2 months

⁷³ $Renters_k$ is updated in proportion the change in population since the most recent decennial census.

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HUD currently calculates fair share allocations for Section 8 at the State level using the following formula.

If BA is budget authority for the year, then a State's fair share allocation is:

$$\$ = BA * (0.2 * \text{Renters}_k / \Sigma \text{Renters}_k + 0.2 * \text{PoorRenters}_k / \Sigma \text{PoorRenters}_k + 0.1 * \text{OverCrowdRenters}_k / \Sigma \text{OverCrowdRenters}_k + 0.05 * \text{TightMkt}_k / \Sigma \text{TightMkt}_k + 0.2 * \text{AgeHous}_k / \Sigma \text{AgeHous}_k + 0.2 * \text{WorstCase}_k / \Sigma \text{WorstCase}_k + 0.05 * \text{LongVac}_k / \Sigma \text{LongVac}_k)$$

where the sums are taken over all States.

Section 202 Supportive Housing for the Elderly

Purpose: Section 202 expands the supply of supportive housing that is designed to accommodate the special needs of elderly persons and provides a range of services that are tailored to the needs of elderly persons.

Statute: Housing Act of 1959 Title II – Housing for the Elderly or Handicapped (12 U.S.C. 1701)

Regulations: 24 CFR 891 Subpart B

FY 2001 Appropriation: \$676 million

Why Census-Type Data Are Needed: Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available in sub-national groupings and to allocate funds among the groupings according to a formula. The regulations for implementing fair share can be found at 24 CFR 791.402. See also 24 CFR 891.110

What Census-Type Variables Are Used: HUD constructs the factors used in the Section 202 fair share formula from the following variables: population, age, housing stock, tenure, household income, number of persons in household, and number of rooms in housing unit. These are obtained from the long form in the most recent decennial census.

How the Census-Type Variables Are Used: HUD uses only one factor to make the fair share allocation of Section 202 funds to the 51 field offices that perform multifamily processing.. The factor is:

WorstCaseEld_k = number of one-person and two-person renter households in area k (1) with a member 62 years old or older, (2) with an annual income less than 50 percent of area median income and (3) living in units with at least one of the following conditions: 1.01 or more persons per room; incomplete plumbing; incomplete kitchen; or gross rent exceeding 30 percent of household income.

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HUD allocates budget authority among the 51 HUD field offices that perform multifamily processing in proportion to the field office jurisdiction's share as calculated by this formula.⁷⁴

$$BA_k = C * (\text{WorstCaseEld}_k / \sum \text{WorstCaseEld}_k)$$

where C is an adjustment for differences in the relative cost of providing housing among the Field Office jurisdictions and the sums are taken over all field offices.

Section 811 Housing for Persons with Special Needs

Purpose: Section 811 expands the supply of supportive housing that is designed to accommodate the special needs of persons with disabilities and provides the supportive services that address the individual health, mental health, and other needs of such persons.

Statute: Cranston-Gonzalez National Affordable Housing Act Title VIII – Housing for Persons with Special Needs (42 U.S.C. 8013)

Regulations: 24 CFR 891 Subpart C

FY 2001 Appropriation: \$217 million

Why Census-Type Data Are Needed: Section 213(d) of the Housing and Community Development Act of 1974 establishes a fair share requirement that compels HUD to make funds available in sub-national groupings and to allocate funds among the groupings according to a formula. The regulations for implementing fair share can be found at 24 CFR 791.402. See also 24 CFR 891.110

What Census-Type Variables Are Used: HUD constructs the factor used in the Section 811 fair share formula from the following variables indicating individuals' disabilities: age, long lasting condition, and difficulty in doing certain activities. These are obtained from the long form in most recent decennial census.

How the Census-Type Variables Are Used: HUD uses two factors to make the fair share allocation of Section 811 funds to the regional level. The factors are:

WorkMobDisb_k = number of persons in area k age 16 or older with a work disability and a mobility or self-care limitation

MobOnlyDisb_k = number of persons in area k age 16 or older having a mobility or self-care limitation but having no work disability

HUD delegates budget authority to the 51 HUD field offices that perform multifamily processing. If BA is the total budget authority available, then field office k's share is computed by the following formula.

⁷⁴ Large States will have multiple field offices that perform multifamily processing. The Denver office covers six States.

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$$BA_k = C * (\text{WorkMobDisb}_k / \sum \text{WorkMobDisb}_k + \text{MobOnlyDisb}_k / \sum \text{MobOnlyDisb}_k) / 2,$$

where C is an adjustment for differences in the relative cost of providing housing among the Field Office jurisdictions and the sums are taken over all field offices.

Examination of Issues

Statutory and Regulatory Requirements

Statutory and regulatory language place limits on the discretion that HUD has in using ACS data in these three formulas.

Section 8 Fair Share Allocation

The statute (Section 213(d)) provides only a general description of the variables to be used in the formula: “population, poverty, housing, overcrowding, housing vacancies, amount of substandard housing, and other objectively measurable conditions specified in the regulation.” The regulations (24 CFR 791.402(b)) describe six formula factors. The factors used in actual practice are these six plus LongVac_k. The “7-percent” parameter in TightMkt_k and the “50-percent” parameter in WorstCase_k are not specified in the regulation. 24 CFR 791.402(d) specifies the weights for the six factors. HUD split the weight of TightMkt_k between itself and LongVac_k.

24 CFR 791.402(a) states that “this determination shall be based upon data from the most recent, available decennial census and, where appropriate, upon more recent data from the Bureau of the Census or other Federal agencies, or from the American Housing Survey.”

Section 202 Fair Share Allocation

Section 213(d) of the Housing and Community Development Act of 1974 establishes the fair share requirement. It provides general guidance that HUD should consider the purpose of a program in constructing an allocation formula.

“The Secretary shall apply the formula, to the extent practicable, in a manner so that the assistance under the program is allocated according to the particular relative needs ... that are characteristic of and related to the particular type of assistance provided under the program.”

The program regulations (24 CFR 891.110) indicate separate allocations for Section 202 and Section 811.

The fair share regulations (24 CFR 791.402(c)(1)) indicate that for the Section 202 elderly program, “the data shall use the criteria specified in (b)(1) and (6) of this section, as modified to apply specifically to the needs of the elderly population.” (6) is the WorstCase factor.

24 CFR 791.402(a) states that “this determination shall be based upon data from the most recent, available decennial census and, where appropriate, upon more recent data from the Bureau of the Census or other Federal agencies, or from the American Housing Survey.”

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Section 811 Fair Share Allocation

Section 213(d) of the Housing and Community Development Act of 1974 establishes the fair share requirement. It provides general guidance that HUD should consider the purpose of a program in constructing an allocation formula.

“The Secretary shall apply the formula, to the extent practicable, in a manner so that the assistance under the program is allocated according to the particular relative needs ... that are characteristic of and related to the particular type of assistance provided under the program.”

The program regulations (24 CFR 891.110) indicate separate allocations for Section 202 and Section 811.

24 CFR 791.402(a) states that “this determination shall be based upon data from the most recent, available decennial census and, where appropriate, upon more recent data from the Bureau of the Census or other Federal agencies, or from the American Housing Survey.”

Variable Base Periods

All three allocation formulas have to deal with the issue of variable base periods. The official ACS data will be available for jurisdictions with populations less than 20,000 only on a five-year moving average basis, for jurisdictions with populations between 20,000 and 65,000 on both a three-year and five-year moving average basis, and for jurisdictions over 65,000 on an annual, a three-year moving average basis, and a five-year moving average basis. In implementing these formulas with ACS data, HUD will have to decide whether to use the same data-collection periods for all places or to mix annual, three-year moving average, and five-year moving average data.

The three fair share allocation formulas may be able to use annual data. The modest level of appropriation of Section 8, Section 202, and Section 811 funds in recent years has led HUD to allocate these funds no lower than a State (Section 8) or field office jurisdiction (Sections 202 and 811) level.

The factors used in the Section 8 fair share allocation formula are sufficiently simple that annual ACS State data should provide reasonably precise estimates. The Section 202 factor involves multiple segmentations of the population but the population of each of the 51 HUD field office jurisdictions that do multifamily processing should be large enough to produce reasonably precise estimates with annual data. The Section 811 fair share factors are simpler and, once again, the population of each of the 51 HUD field office jurisdictions that do multifamily processing should be large enough to produce reasonably precise estimates with annual data. HUD uses county lines to delineate field offices and the populations of many of these counties will be too small for the Census Bureau to release annual data. Therefore, the Department would need to purchase special tabulations of the annual ACS data to construct field office jurisdiction totals for the Section 202 and Section 811 allocations.

Transition Concerns

The major transition issue is when should HUD begin using ACS data in its allocation formulas and, if ACS data are available for some areas before 2008, should the Department use long-form data for these areas. The previous discussions of statutory and regulatory provisions and variable base periods answer this question.

HUD can begin using ACS data to allocate Section 8 funds in 2004. If the Department purchases special tabulations of ACS data for the 51 field offices that do multifamily processing, HUD could begin using ACS data to allocate Section 202 and Section 811 funds in 2004 as well. There would be no need to mix long-form and ACS data in these allocations.

Problem Variables

The Section 8 allocation formula makes use of the vacancy rate in two factors. As explained in Chapter 6, there are two concerns about the ACS measurement of vacancy. The first concern arises from the ACS use of the current resident standard compared to the usual resident standard used by the decennial long form. Both standards are reasonable approaches to surveying and lead to acceptable concepts of vacancy. In most places, there should be little difference between vacancy rates measured under the two different standards when the standards are rigorously applied. There may be some differences in places with large seasonal populations. In practice, the Census Bureau has found that respondents tend to answer the questionnaires in ways that blur the distinction between the two standards. The real concern is that the ACS measures the vacancy rate according to its standard with a downward bias. Simulations have shown that the ACS estimates a rental vacancy rate 1.2 percentage points lower than the true rate.

The Section 8 allocation uses the vacancy rate in two factors: TightMkt and LongVac. This downward bias is particularly worrisome for the TightMkt factor which is calculated as the difference between (number of rental housing units in area k) * 7 percent and number of vacant rental housing units in area k if this difference is greater than 0, and is equal to 0 otherwise. The downward bias will cause more places to have a positive score on this factor and will inflate that score. HUD should consider modifying this factor. The simplest solution would be to replace 7 percent with 5.8 percent but HUD may want to consider other options as well.

The LongVac factor will also be biased downward. Since the downward bias will affect all jurisdictions, the combined effect on allocations may be minor. HUD should analyze how substituting the ACS data into this factor affects allocations compared to the use of the long-form data. On the basis of this comparison, HUD should decide whether to change the factor.

Exhibit 7.1 indicates that problem variables may also be an issue for the Section 811 fair share allocation. The Section 811 allocation currently uses factors based on 1990 long-form questions related to disability. The 2000 long form and the ACS use a more extensive battery of questions. The matrix entry was intended simply to remind HUD that it may want to refine these factors based on the new questions.

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Conflicting Sources of Data

HUD users will have to choose between alternatives sources of information to construct factors in Section 8 fair share allocation formula.

The Section 8 allocation uses the vacancy rate in two factors: TightMkt and LongVac. Currently HUD calculates Section 8 allocations at the State level. Beginning in 2004, the Census Bureau will release two sets of estimates of State vacancy rates, the ACS estimates and Housing Vacancy Survey (HVS) estimates. HUD's choice between the two sources will not be simple. The ACS estimates will be based on much larger samples than the HVS estimates. However, as mentioned in the previous section and discussed in detail in Chapter 6, the ACS estimates have a downward bias. Also the HVS annual estimates will be available several months before the ACS estimates.

New OMB Guidelines

The modest level of appropriation of Section 8, Section 202, and Section 811 funds in recent years has led HUD to allocate these funds no lower than a State (Section 8) or field office jurisdiction (Sections 202 and 811) level. However, if greater funding were available for one or more of these programs, HUD would have to implement 24 CFR 791.402(d), which says that PD&R should establish factor scores for each county and independent city in a field office jurisdiction and should aggregate the factors into metropolitan and nonmetropolitan totals for each field office.

Note that the ACS contains sufficient information at the appropriate levels of geography to enable HUD to implement this provision. As explained in Chapter 6, OMB's new guidelines for defining core based statistical areas create a new concept, micropolitan areas. Currently OMB appears to believe that these micropolitan areas should be considered non-metropolitan. In Chapter 10, we recommend that HUD clarify that this is the case.

CHAPTER 14: CDBG URBAN COUNTRIES & TARGET AREAS

In administering the Community Development Block Grant program (CDBG), HUD's Office of Community Planning and Development has to determine if recipients who apply as urban counties meet the eligibility requirements and to validate whether the target areas proposed by recipients satisfy program requirements.

The first part of the Chapter provides background information on these functions. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified two issues that could present problems for HUD in using ACS data for these functions. The second part of the Chapter will discuss how these two issues affect these functions.

The ACS should improve these eligibility determinations by providing HUD with more up-to-date information on conditions in areas seeking eligibility. Neither the precision issue or the laws and regulation issue is sufficiently serious to call into question the superiority of the ACS over the long form for making eligibility determinations.

Description of Functions

Purpose: The CDBG program provides States and large cities and counties with funds that they can use for a wide variety of community and economic development activities. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of community and economic development.

Statute: Title 1 of Housing and Community Development Act of 1974 as amended; 42 U.S.C. 5301 et seq.

Regulations: 24 CFR 570

FY 2001 Appropriation: \$5.295 billion with \$4.399 billion for formula allocation

Why Census-Type Data Are Needed: HUD uses census data in the CDBG program to determine the eligibility of places to receive annual formula allocations (entitlement jurisdictions) and to determine whether areas selected by States and entitlement jurisdictions for spending program funds satisfy the targeting requirements of the program.

Cities qualify as entitlement communities if (1) OMB designates them as the central city of a metropolitan area or (2) if they have a population of 50,000 or more. Population is obtained annually from regular Census Bureau tabulations; therefore, this determination is not based on long-form data.

Urban counties are counties with large populations that have the power to carry out community development activities. Section 102 (a)(6) sets out the various ways in which counties can qualify to receive CDBG funds. Long-form data enter into the determination of urban county status under Section 102(a)(6)(A)(ii)(I) which states that "in the case of counties having a combined population of less than 200,000, the areas and units of general local government must

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include the areas and units of general local government which in the aggregate have the preponderance of the persons of low and moderate income who reside in the county.”⁷⁵

Section 104(b) requires grantees to make certain certifications. Section 104(b)(3) requires a certification that “the projected use of funds has been developed to give maximum feasible priority to activities which will benefit low-and moderate-income families.” 24 CFR 570.208 provides criteria for satisfying this requirement. 24 CFR 570.208 (a)(2) through (4) specify activities which qualify if certain conditions are met. 24 CFR 570.208 (a)(1) indicates that any activity eligible for CDBG funding will satisfy this requirement if the activity takes place in an area “where at least 51 percent of the residents are low and moderate income persons” and the benefits of the activity are available to all residents.

What Census-Type Variables Are Used: To make these determinations, HUD uses household income.

How the Census-Type Variables Are Used: It is our understanding that HUD tries to match the area presented to the Department by the county seeking designation as an urban county or by the entitlement jurisdiction or State seeking to establish an acceptable target area with a set of census block groups. Then, using census block group data, HUD determines whether the proportion of low and moderate-income persons meets the requirements of the act – “a predominance” for urban county designation and 51 percent for target area acceptability.

24 CFR 570.208 (a)(1)(ii) provides an additional test for qualifying target areas in places (generally suburban entitlement communities), in which it is difficult to find areas satisfying the 51 percent test. Because the 51 percent test is based on area-wide median income, central cities have an easier time finding areas that satisfy the requirements than do suburban jurisdictions. Provision (a)(1)(ii) provides a test relative to the recipient community alone, that is, the designated areas “will also be considered to meet the objective of benefiting low and moderate income persons where the proportion of low and moderate income persons in the area is within the highest quartile of all areas in the recipient’s jurisdiction in degree of concentration of such persons”

24 CFR 570.208 (a)(1)(vii) allows non-residential areas in Empowerment Zones or Enterprise Communities to qualify as a target area and allows residential areas in these places to qualify if their low and moderate income percentage is “no less than the percentage computed by HUD pursuant to paragraph (a)(1)(ii) of this section or 70 percent, whichever is less....”

Examination of Issues

Statutory and Regulatory Requirements

This issue concerns whether HUD regulations might require annual redesignation of urban counties and annual recertification of target areas and, if so, whether annual updates might

⁷⁵ Section 102(a)(6)(D)(iv) has provisions to designate urban counties that involve housing stock, age of residents, and source of income which are variables available from the long form. The Inventory of Current Uses does not discuss these provisions because they were intended to designate a few specific counties.

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impose hardships upon HUD clients. Eligibility determinations permit local governments or private entities to conduct certain activities in certain areas. The planning and execution of these activities takes time. If areas became ineligible before these activities can be carried out, then the goals of the affected programs could be frustrated.

Urban counties: The statute (Section 102) provides explicit direction in most respects as to how HUD should determine the eligibility of metropolitan cities and urban counties. ACS data enter into the determination of urban county status under Section 102(a)(6)(A)(ii)(I) which states that “in the case of counties having a combined population of less than 200,000, the areas and units of general local government must include the areas and units of general local government which in the aggregate have the preponderance of the persons of low and moderate income who reside in the county.”⁷⁶

The statute does not define the phrase “preponderance of the persons of low and moderate income who reside in the county” or explain how HUD should make this determination. The definition of urban county in 24 CFR 570.3 indicates that HUD will make this determination based on data from the most recent decennial census.

As explained in Chapter 6, the Census Bureau believes that the 2008 tables would be considered replacements for the 2000 decennial census in the sense that the Census Bureau would maintain that these tables are the best and most recent information available. The Census Bureau staff indicated that the 2009 tables would be considered as replacements for the 2008 tables. Under this interpretation, HUD regulations would require HUD to use each new year of data from the ACS, beginning at least in 2008, to apply the “preponderance of the persons of low and moderate income” test.⁷⁷ However, Section 102(a)(6)(B) states “any county that was classified as an urban county for at least 2 years pursuant ... shall remain classified as an urban county....” Therefore, annual recalculation of whether a county qualifies under “preponderance of the persons of low and moderate income” test should result only in the designation of new counties not the elimination of old counties. Under these circumstances, annual redesignation should not present problems to HUD clients.⁷⁸

Target areas: The CDBG statute does not require HUD to update its approval of target areas whenever new data are available. HUD’s own regulations would seem to require this. In determining whether an area meets the 51-percent requirements of (a)(1)(i), (ii), and (vii), 24 CFR 570.208 (a)(1)(vi) says, “the most recently available decennial census information must be used to the fullest extent feasible.”

⁷⁶ Section 102(a)(6)(A)(ii) also has population tests for urban county eligibility. However, the ACS does not measure population. Population estimates come from the Census Bureau’s intercensal population estimates program.

⁷⁷ Census Bureau staff were uncertain whether the Census Bureau would treat the 2006 tables as replacements for the 2000 decennial census.

⁷⁸ Section 102(a)(6)(B) contains an exception to this “grandfathering” of the urban county designation. If a county fails to pass the population or preponderance of persons of low and moderate income tests of subsection (A) because a unit of general local government has withdrawn from the county for purposes of participating in the CDBG program, the county would no longer be eligible to be an urban county.

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Practical concerns may argue for less frequent designations. Typically there is a long delay between award of CDBG funds and the expenditure of those funds. It takes communities time to budget the funds across competing needs, to decide on specific uses within needs, to draw up plans, to obtain citizen input, and to complete work. Whether annual designation will be a problem depends in part on whether communities CDBG expenditures are evaluated in terms of what was an acceptable target area when the funds were awarded or what is an acceptable target area when the funds are expended. If HUD chooses to assess compliance with the CDBG targeting requirement on a “when expended” basis, some jurisdictions may be judged non-compliant because the acceptable target area has changed between project planning and project completion. On the other hand, if HUD tries to measure compliance on the basis of the target area in effect when a project were planned, monitoring compliance could become very difficult if the delineation of target areas changes over time and if a project receives CDBG support in multiple years.

The seriousness of this concern depends upon the likelihood that HUD would find a target area qualified in year n but not qualified in year n+1 due to sampling variability in the ACS data. The next section examines this possibility.

Sample Size/Precision

This issue concerns whether jurisdictions will challenge HUD’s certification of target areas when the agency uses ACS data. It is related to the issue of the regulatory requirement to recertify these areas annually once ACS data become official replacements for the decennial census. The analysis in this section shows that the ACS provides adequate precision and HUD should not be concerned about receiving many challenges.

Jurisdictions proposed target areas on the basis of their understanding of local conditions. Occasionally data from the decennial long form contradicts local perceptions. Even when this happens, jurisdictions are unlikely to challenge the long-form data because they do not have an alternative data source and because it is usually easy to redraw the boundaries of the target area to satisfy CDBG program requirements.

However, there is reason to believe that challenges might be more frequent when HUD begins using ACS data. Sampling variation will be more apparent for estimates based on the ACS because a given change appears larger when it occurs over one year than when it occurs over ten years. Moreover, estimates based on the ACS will be less precise than estimates based on the long form at all levels of geography.

To examine the precision of the ACS for certifying CDBG target errors, we constructed an example using what we believe would be a relatively small target area. The precision of the ACS would be even greater for larger target areas.

Assume an entitlement jurisdiction proposed to expend its CDBG funds in a target area of 5 census tracts.⁷⁹ On average 5 census tracts would contain approximately

⁷⁹ The jurisdiction may delineate its target area in terms of block groups rather than census tracts. This would not present a hardship because the Census Bureau plans to release information on income by block group.

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20,000 persons or 7,663 households. The 2008 ACS data would be based on a sample of 958 households. The 2000 long form would be based on a sample of 1,277 households. To qualify as a target area, 51 percent of these households would have to have incomes less than 80 percent of area median income. 51 percent of 958 would be 489 households; 51 percent of 1,277 would be 651 households.

Exhibit 14.1 shows how the probability of the target area being certified as meeting the requirements of 24 CFR 570.208 varies with the true percentage of qualifying households. Notice that marginally qualified areas are likely not to qualify using either the ACS or the long form. However, even with a true percentage of only 55 percent, a proposed target area is virtually assured of qualifying using either the ACS or the long form. Even if one assumed a target area of only 3 census tracts, the probably of qualifying when the true percentage is 55 percent, would be over 97 percent for the ACS and over 98 percent for the long form.

Exhibit 14.1 Comparison of Precision of ACS and Long Form

True Percentage	51%	52%	55%	60%
ACS	Need 489 households to qualify			
Expected number of qualifying households	489	498	527	575
Probability of at least 489 qualifying households	50.0%	73.2%	99.4%	100.0%
Long Form	Need 651 households to qualify			
Expected number of qualifying households	651	664	702	766
Probability of at least 651 qualifying households	50.0%	76.3%	99.8%	100.0%

We now expand the example to see how annual availability of ACS data affects the likelihood of challenges.

The 2009 ACS data would be based on a sample that includes four of the five years included in the 2008 ACS data plus one new year of data. (The 2009 ACS data would be based on samples drawn from 2004 through 2008 while the 2008 ACS data would be based on samples drawn from 2003 through 2007.) Therefore, there would be 766 households included in both samples and 192 new households. To simplify the analysis, we assume that the number of qualifying households among 766 households found in both samples equals the product of 766 and the true percentage of qualifying households.⁸⁰ Exhibit 14.2 show how many qualifying households must be found among the 192 households in the new sample in order for the proposed target area to qualify and computes the probability of finding at least that number of households.

⁸⁰ More realistically, one would have to assume that the 766-household sample might contain more or less than 489 qualifying households. This creates a joint probability problem.

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Exhibit 14.2: Probability of Failure to Qualify in Year n+1 after Qualifying in Year n

True Percentage	51%	52%	55%	60%
Number of qualifying households in 766 households in both samples	391	398	421	460
Number of qualifying households needed in new sample of 192	98	90	67	29
Probability of finding at least 489 households in both samples	50.0%	91.7%	100.0%	100.0%

In the example, when 52 percent is the true percentage of qualifying households, the 766 household sample contains (by assumption) 398 qualifying households. Therefore, the new sample of 192 households must contain at least 90 qualifying households if the proposed target area is to continue to qualify. Under these assumptions, the probability of finding at least 90 qualifying households among the 192 households is 91.6 percent.

Exhibit 14.2 shows that if an area qualifies in one year, it is highly unlikely that it will fail to qualify in the next year.⁸¹ Since only one-fifth of the sample changes each year, the likelihood of large year-to-year changes is reduced. Notice, however, if a jurisdiction proposes a target area that just qualifies, that is, the true percentage of qualifying households is exactly 51 percent. Then HUD can expect a great deal of year-to-year instability in judging the eligibility of such an area. This does not seem to be a serious problem as a jurisdiction should be able to eliminate this instability by modifying its proposed target area to increase the percentage of qualifying households a percentage point or two.

Based on this analysis, we conclude that the ACS provides adequate precision to determine the eligibility of CDBG target areas and that there will be acceptable year-to-year stability in the determinations of eligibility.

⁸¹ The results using joint probabilities would have indicated a higher probability of failing in year n+1 after qualifying in year n. However, the differences would have been small. For example, if the true percentage were 55 percent, then the 766-household sample could contain less between 400 and 405 qualifying households almost 6 percent of the time. If the 192-household sample, found fewer than 89 qualifying households, then the proposed target area could not qualify. The probability of finding fewer than 89 qualifying households is approximately 1 percent. So the combined probability of finding between 400 and 405 in the 766-household sample and less than 89 in the 192-household sample is approximately one-half of one percent. To calculate the true probability of qualifying in one year and not qualifying in the next year, one would have to perform this type of calculation a large number of times.

CHAPTER 15: HOME MATCH

In administering the HOME program, HUD's Office of Community Planning and Development has to determine if recipients are eligible for a reduction in the matching funds requirement.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified five issues that could present problems for HUD in using ACS data for this function. The second part of the Chapter will discuss how these five issues affect this function.

The ACS should improve the HOME match eligibility determination by providing HUD with more up-to-date information on conditions in areas seeking eligibility. None of the five issues is sufficiently serious to call into question the superiority of the ACS over the long form for making this eligibility determination.

Description of Functions

Purpose: The HOME program seeks to establish partnerships with State and local governments and to provide those governments with resources to expand the supply of decent, safe, sanitary, and affordable housing. The block grant structure provides recipients with the flexibility and assured funding needed to undertake on-going programs of housing assistance. In return, State and local governments are expected to provide matching funds from their own resources equal to 25 percent of the HOME funds expended by the State or local government within a fiscal year.

Statute: Section 220 of Title II of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12704 et seq.)

Regulations: 24 CFR 218 - 222

FY 2001 Appropriation: \$1.737 billion

Why Census-Type Data Are Needed: Section 220 instructs HUD to reduce the matching requirement by 50 percent for States and local governments in "fiscal distress" and by 100 percent for States and local governments in "severe fiscal distress".⁸² The statute provides criteria stated in terms of census long-form data for determining whether local governments are in "fiscal distress" or "severe fiscal distress". The regulations provides criteria, some of which are stated in terms of census long-form data, for determining whether States are in "fiscal distress" or "severe fiscal distress"

What Census-Type Variables Are Used: Poverty rate and per capita income.

How the Census-Type Variables Are Used: Units of local government receive a 50 percent reduction in the matching requirement if either of the following conditions is satisfied:

⁸² The statute also allows HUD to waive up to 100 percent of the matching requirement for officially designated disaster areas.

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1. The average poverty rate in the participating jurisdiction equals or exceeds 125 percent of the national poverty rate during the calendar year for which the most recent data are available from the Census Bureau.
2. The average per capita income in the participating jurisdiction was less than 75 percent of the national per capita income during the calendar year for which the most recent data are available from the Census Bureau.

If both conditions are satisfied, the participating jurisdiction receives a 100 percent reduction in the matching requirement.

For States, the regulations establish a third criterion:

3. The average personal income growth rate in the State over the most recent four quarters for which data are available was less than 75 percent of the average national personal income growth rate during that period, as determined according to information from the Bureau of Economic Analysis.

States receive a 50 percent reduction in the matching requirement if any of the three criteria are satisfied. States receive a 100 percent reduction in the matching requirement if any two of the three criteria are satisfied.

Examination of Issues

Statutory and Regulatory Requirements

This issue concerns whether HUD regulations might require the Department to reexamine eligibility for reduced matching annually and, if so, whether annual updates might impose hardships upon participating jurisdictions. This does not appear to be a serious problem for three reasons.

First, the regulations do not appear to require HUD to reexamine eligibility annually. Section 220(d)(3) of the statute sets criteria (1) and (2) for units of local governments and directs that HUD determine poverty rate and per income according to information of the Census Bureau. The statute lets HUD decide how to define fiscal distress and severe fiscal distress for States. 24 CFR 92.222 defines the rules and criteria for determining distress and severe fiscal distress for States. The regulations make the Census Bureau the source for criteria (1) and (2), using the following language: “as determined according to information from the Bureau of the Census.” The regulations do not indicate how often HUD should reexamine eligibility.

Second, loss of eligibility would affect the matching requirement only as it applies to future HOME allocations. There would be no change in the matching requirement for funds already received and, therefore, no disruption to activities planned by participating jurisdictions.

Third, the size of participating jurisdictions ensures an adequate sample size for making these determinations. Year-to-year stability should not be a concern. The next section examines this issue.

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Because the regulations are silent on the frequency with which HUD is to examine eligibility, HUD will have to decide how frequently to carry out this function. It will also have to decide whether to use the same base period for all jurisdictions.

Conflicting Sources

HUD users will have to choose between alternative sources of information in determining eligibility under criterion (1). While this issue is potentially of concern to HUD, we believe HUD has a simple decision to make.

Criterion (1) uses the poverty rate. The Census Bureau will release two sets of poverty numbers, ACS estimates and small area income and poverty estimates (SAIPE). The ACS estimates will be available annually after 2008 for all areas. The SAIPE estimates will be available biennially for States and counties. We believe the ACS estimates are preferable for two reasons: they will be available for all areas and they will be recalculated every year.

Sample Size/Precision

This issue concerns whether the ACS provides an adequate sample to enable HUD to make the HOME match determinations accurately and, if HUD chooses to reexamine the determination annually, whether it would be likely that a jurisdiction that qualifies in year n would fail to qualify in year n+1 simply because of sampling variation.

Currently the smallest grantee is Johnstown PA, with a 1990 population of 28,134 with 12,536 households. The Census Bureau will publish ACS data on a three-year moving average basis for Johnstown PA. The ACS 3-year moving average sample size would be 940 households. HUD could choose to use the 5-year moving average, with a sample size of 1,567. The decennial census estimate was based on a sample of 2,089 households.

According to the 2000 census, the poverty rate for the United States was 12.4 percent. To satisfy criterion (1), a jurisdiction would have to have a poverty rate of 15.1 percent. Exhibit 15.1 examines how accurately the ACS could determine whether a jurisdiction as small as Johnstown satisfied criterion (1).⁸³

Exhibit 15.1: Comparison of Precision of Three-Year Moving Average ACS, Five-Year Moving ACS, and Long-Form in Determining Eligibility for Reduce HOME Match under the Poverty Rate Criterion (125% of nation rate = 15.1%)⁸⁴

True Poverty Rate	15.6%	16.1%	17.1%	18.1%
3-year moving average ACS	73.7%	89.4%	99.3%	100.0%
5-year moving average ACS	79.3%	94.7%	99.9%	100.0%
Long form	82.7%	96.9%	100.0%	100.0%

⁸³ The 2000 census found a poverty rate of 24.6 percent for Johnstown PA. The ACS would have had no difficulty in determining the eligibility of Johnstown.

⁸⁴ Standard errors are calculated based on the number of persons sampled rather than the number of households sampled because being in poverty is a characteristic of individuals rather than households.

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Exhibit 15.1 shows that all three surveys would be virtually errorless if the true poverty rate were two percentage points higher than the cutoff. When the true poverty rate is within one percentage point of the cutoff, sample size is important. If 20 jurisdictions the size of Johnstown had a poverty rate of 16.1 percent, the three-year moving average ACS would deny eligibility to two of the twenty. The five-year moving average ACS would deny eligibility to one. The decennial long form would also deny eligibility to one.

Exhibit 15.2 examines year-to-year stability.

Exhibit 15.2: Probability of Denying Eligibility in Year n+1 after Granting Eligibility in Year n, Based on Criterion (1) Only

True Poverty Rate	15.6%	16.1%	17.1%	18.1%
3-year moving average ACS	13.6%	1.5%	0.0%	0.0%
5-year moving average ACS	3.4%	0.0%	0.0%	0.0%

Exhibit 15.2 shows that if an area qualifies in one year, it is highly unlikely that it will fail to qualify in the next year.⁸⁵ Since only a portion of the sample changes each year, the likelihood of large year-to-year changes is reduced. For the five-year moving average, the likelihood of a reversal due simply to sampling variation is virtually nil even if the true poverty rate is only one-half percentage point above the true poverty rate.

This analysis, which only focused on criterion (1), shows that both the three-year and five-year moving average ACS data provide a high level of precision. The five-year moving average ACS provides a level of precision for this function that is almost identical to the long form. Moreover, year-to-year stability should not be problem, particularly if HUD chooses to use the five-year moving average ACS.

Variable Base Period

Neither the HOME statute nor HUD's regulations for the program provide definitive guidance as to whether HUD should use the three-year or five-year moving average data. For large jurisdictions, HUD also has the option of using annual ACS data.

The analysis in the Exhibits 15.1 and 15.2 showed that both the three-year and five-year moving average ACS data provide a high level of precision. HUD could choose to use either. However, the five-year moving average has greater accuracy and would result in HUD's making fewer mistakes.

The preceding analysis did not answer whether HUD could use annual data for some determinations. Johnstown PA was chosen as the basis for the preceding analysis because it is the smallest jurisdiction receiving HOME funds. The five-year moving average provides a high

⁸⁵ This analysis makes the simplifying assumption that the percentage of poor persons in the samples common to both years n and n+1 equal the true poverty rate. Realistically, one would have to assume that the common samples measure a higher or lower poverty rate than the true poverty rate. This more realistic assumption transform the problem into a complicated conditional probability problem. The likelihood of denying eligibility in year n after granting eligibility in year n+1 would be higher using conditional probabilities. However, the differences would have been small.

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level of precision for places the size of Johnstown. The annual ACS data would provide the same level of precision for jurisdictions with populations greater than 140,000. Of course, the three-year and five-moving averages would provide even greater precision for these larger places.

The issues of precision and variable base period come together in the issue of what to do during the transition period. We make our recommendation in our discussion of that issue.

Transition Period

This issue concerns when HUD should begin using ACS data to determine the eligibility of HOME jurisdictions for a lower matching funds rate.

The two preceding sections point out that HUD would make the fewest mistakes with the five-year moving average ACS data. For large jurisdictions, HUD could obtain a high level of precision with the annual data. A decision to wait for the five-year moving average data could affect some large jurisdictions adversely. For example, a jurisdiction with a population of 400,000 may become eligible for a reduced matching rate on the basis of the 2004 ACS data based only on the 2003 ACS survey. Waiting until 2008 when the five-year moving average data first become available would deprive such a jurisdiction of four years of reduced matching rates. Of course, use of annual data could also result in a large jurisdiction losing its eligibility four years earlier than it would have if HUD chose to use only the five-year moving average ACS data.

If HUD chooses to use only the five-year moving average ACS data, it will receive appeals from large jurisdictions who would qualify earlier based on the annual data or on three-year moving average data.

We recommend that HUD decide this issue on the basis of consistency in precision and not consistency in procedure. The design of the ACS will result in data with varying levels of precision for jurisdictions of different sizes. Using the same version of the ACS for all jurisdictions will result in a failure to act in a timely manner in the case of larger jurisdictions, whether the action favors the jurisdiction (granting eligibility for reduced matching rates) or disfavors the jurisdiction (removing eligibility).

HUD could establish its own standards for precision and use those standards to decide when to use the annual ACS data, the three-year moving average data, or the five-year moving average data. HUD could also rely on the Census Bureau's judgment and begin using data when the Census Bureau believes it is appropriate to treat ACS data as a substitute for the decennial census data.

CHAPTER 16: LOW INCOME HOUSING TAX CREDITS AND MORTGAGE REVENUE BONDS

In designating qualified census tracts for the low income housing tax credit program and the mortgage revenue bond program, HUD's Office of Policy Development and Research (PD&R) has to determine eligibility on a census tract by census tract basis. PD&R also designates difficult development areas for the low income housing tax credit program.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified three issues that could present problems for HUD in using ACS data with the low income housing tax credit program and two issues in using ACS data with the mortgage revenue bond program. The second part of the Chapter will discuss how these issues affect this function.

The ACS should improve the HUD's eligibility determinations under Sections 42 and 143 of the Internal Revenue Code by providing the Department with more up-to-date information on conditions in the census tracts being evaluated. Determinations will be less precise than those made using long-form data and too frequent reassessments of eligibility could be disruptive. Nevertheless, having more current information will allow HUD to make determinations more consistent with the intent of Congress.

Description of Functions

*Low Income Housing Tax Credits*⁸⁶

Purpose: The Low Income Housing Tax Credit promotes the construction and rehabilitation of housing for lower income families by providing tax credits to investors. State and local housing finance agencies allocate tax credits to investors in accordance with statutory requirements and rules set by the Internal Revenue Service (IRS).

Statute: The Tax Reform Act of 1986 as amended. (Section 42 of the Internal Revenue Code)

Regulations: None

Appropriation: \$3.310 billion in tax expenditures in FY 2001

Why Census-Type Data Are Needed: In 1989, Congress amended Section 42 to provide additional tax credits in two circumstances. To encourage the construction or rehabilitation of housing in low-income areas, Congress increased the credits available by up to 30 percent to projects located in Qualified Census Tracts. Congress also recognized that the original credit approach provided insufficient subsidy to attract investors in areas with high housing costs relative to area median income. Therefore, Congress increased by up to 30 percent the credit allowed to projects in Difficult Development Areas. Section 42(d)(5)(C) contains these

⁸⁶ HUD provides a thorough description of the techniques it uses to designate Qualified Census Tracts and Difficult Development Areas in *Statutorily Mandated Designation of Difficult Development Areas and Qualified Census Tracts for Section 42 of the Internal Revenue Code of 1986* which was published in the Federal Register on September 11, 2001 and which is also available at www.huduser.org/datasets/qct.html.

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provisions. In this section, Congress assigned HUD the responsibility of designating Qualified Census Tracts and Difficult Development Areas.

What Census-Type Variables Are Used: HUD currently uses population, household income, and poverty counts to designate Qualified Census Tracts. HUD bases the determination of Difficult Development Areas on a formula that uses fair market rents and income limits – variables that are based on census long-form data.

How the Census-Type Variables Are Used: In 1989, Section 42(d)(5)(C) defined Qualified Census Tracts as tracts in which 50 percent or more of the households have annual incomes less than or equal to the 60 percent of area median income. In 2001, Congress amended Section 42(d)(5)(C) to add census tracts that have poverty rates higher than 25 percent. By statute, Qualified Census Tracts can contain no more than 20 percent of the population in each metropolitan area and no more than 20 percent of the population in the non-metropolitan area of each State.

HUD calculates the percentage of households in every tract with annual incomes from the last decennial census that are 60 percent or less than area median income for the same year.⁸⁷ For any metropolitan area or the non-metropolitan part of any State, if the population of the eligible tracts is less than 20 percent of the population of the metropolitan area or non-metropolitan part of the State, HUD adds tracts with poverty rates greater than 25 percent that have not already been designated under the low income criterion, beginning with the tracts with the highest poverty rates, until the 20 percent limit has been reached or until all the tracts that qualify under either criteria have been exhausted. But, if the population of all the tracts that qualify under the low income criterion exceed 20 percent of the population of the metropolitan area or the non-metropolitan part of the State, HUD removes the designation from tracts, beginning with the qualifying tracts that have the lowest proportion of households with incomes less than or equal to 60 percent of area median income, until the 20 population cap is met. If the addition (or elimination) of a particular tract puts the combined population above (below) 20 percent, HUD will look for the next tract in the order with a population small enough to qualify and still satisfy the 20 percent cap.

HUD reviews the eligibility of all census tracts as Qualified Census Tracts once a decade when new long-form data become available. Because the income test compares tract income to metropolitan median income in the case of metropolitan tracts or state non-metropolitan median income in the case of non-metropolitan tracts, HUD must recalculate eligibility for those tracts affected by OMB designations of new metropolitan areas. This recalculation is done once a year when HUD designates Difficult Development Areas.

Section 42(d)(5)(C) provides a general definition of Difficult Development Areas. The statute identifies them as places where the high cost of providing housing relative to the income of the households makes operation of the low-income housing tax credit difficult. The logic behind this provision is simple. The owner of a project is allowed to charge a maximum rent that is limited to 30 percent of 60 percent of area median income. The subsidy provided is a credit

⁸⁷ In making this comparison, HUD makes an adjustment for the average household size in each tract.

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equal in present value to 70 percent of the non-land costs of construction. In places where housing costs are high relative to incomes, the subsidy may not cover the difference between full operating costs and the maximum allowable rent. Section 42(d)(5)(C) allows larger subsidies in these places. However, the section places a cap on the population of Difficult Development Areas. Metropolitan Difficult Development Areas can contain no more than 20 percent of the metropolitan population of the United States and non-metropolitan Difficult Development Areas can contain no more than 20 percent of the non-metropolitan population of the United States.

In designating Difficult Development Areas, HUD focuses on whole metropolitan areas and non-metropolitan counties.⁸⁸ For each metropolitan area and each non-metropolitan county, HUD calculates the ratio of the area's fair market rent to 30 percent of 60 percent of median family income.⁸⁹ (The numerator of this ratio measures the cost of housing in the area; the denominator measures the maximum rent allowed in the assisted units in low income housing tax credit projects.) HUD ranks separately all metropolitan areas and all non-metropolitan counties by this ratio from the highest to the lowest. Beginning with the highest ratios, it designates metropolitan areas as Difficult Development Areas until the addition of one more metropolitan area would push the population of the designated areas above 20 percent. At this point it looks for next area or areas on the list that could be designated without pushing the population above 20 percent.⁹⁰ The same procedure is followed for non-metropolitan counties. The 20 percent caps are applied nationwide, not State-by-State.

Mortgage Revenue Bonds

Purpose: State and local housing finance agencies can issue tax exempt bonds and use the proceeds to make low interest rate loans to assist first-time homebuyers become homeowners.

Statute: Section 143 of the Internal Revenue Code

Regulations: 26 CFR 6a.103. In addition, a 1993 Department of the Treasury memorandum establishes guidelines for designation of areas of chronic economic distress⁹¹

FY 2001 Appropriation: \$800 million in tax expenditures in FY 2001

⁸⁸ Because of the size of the New York metropolitan area, HUD has made these calculations for discrete counties within the metropolitan area whenever the addition of New York pushed the population of designated areas above 20 percent.

⁸⁹ Typically fair market rents and income limits apply to entire metropolitan areas. Occasionally, HUD will calculate separate fair market rents and income limits for counties far from the center of the metropolitan area. In these cases, HUD treats these outlying counties as separate metropolitan areas in calculating this ratio. By special exception inserted into the Housing Act of 1937, Westchester and Rockland counties in the New York metropolitan area have income limits and fair market rents calculated for their specific counties. This special exception requires HUD to calculate the Difficult Development Area ratio for these counties as if they had their own fair market rents but had low income housing tax credit maximum rents based on metropolitan wide median income.

⁹⁰ If a large metropolitan area is the last addition to the list of designated areas and if its addition pushes the combined population only slightly above 20 percent and if the failure to include the area would leave the combined population substantially below 20 percent, HUD will include the area and consider the excess population as de minimis.

⁹¹ Memorandum from Robert G. Woodward, Tax Legislative Counsel, to E. Leon Kennedy, Chief, Estate and Gift, Administrative Provisions, and Government Obligations Branch, December 14, 1993.

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Why Census-Type Data Are Needed: Section 143(j) identifies certain targeted areas. State and local housing finance agencies are required to place at least 20 percent of the proceeds from any tax-exempt bond issue into mortgages in these areas. In addition, certain program requirements are liberalized in these areas. Section 143(e) prohibits mortgages on properties whose prices exceed 90 percent of the average area purchase price; this limit is 110 percent in targeted area. Section 143(f) limits mortgage financing to borrowers whose incomes are 115 percent of area median gross income or less; this limit applies to only two-thirds of the proceeds in targeted areas and, for the two-thirds subject to the limitation, the percentage is 140 percent of area median gross income or less.

What Census-Type Variables Are Used: HUD uses household income, age of the housing unit, complete plumbing, complete kitchen, poverty counts, unemployment rates, receipt of welfare, and per capita income to designate targeted areas.

How the Census-Type Variables Are Used: Section 143(j) defines two types of targeted areas: Qualified Census Tracts and area of chronic economic distress. Two separate HUD offices make these determinations.

Section 143(j)(2)(A) defines a Qualified Census Tract as a census tract in which 70 percent or more of the families have an income which is 80 percent or less of the statewide median family income. (Note that the Internal Revenue Code uses the term Qualified Census Tract for the low income housing tax credit and mortgage revenue bond programs but defines the term differently in the two programs.) The Office of Policy Development and Research (PD&R) identifies Qualified Census Tracts once a decade using the most recent decennial census. PD&R simply calculates a household income distribution for each tract in the country and applies the test State-by-State.⁹²

Section 143(j)(3) establishes a two-stage process for determining areas of chronic economic distress. Each individual State sets up its own standards for identifying these areas. Then the State brings the areas to HUD for approval. The Office of Housing makes these determinations on a case-by-case basis. In recent years, HUD has processed approximately one request for designation per year.

Section 143(j)(3)(B) lists four standards that HUD must use in approving areas of chronic economic distress and the Treasury memorandum lists variables to be considered with respect to the first three standards.

1. Condition of the housing stock – which is to be judged by
 - a. Percentage of residential units constructed before 1940 [available on the long form]
 - b. Percentage of abandoned residential units
 - c. Percentage of substandard residential units [the long-form variables that report complete kitchen facilities and complete plumbing can be used to identify substandard residential units]

⁹² In making this comparison, HUD makes an adjustment for the average household size in each tract.

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2. Need of area residents for owner-financing – which is to be judged by
 - a. Average per capita income [long form]
 - b. Percentage of families in poverty [long form]
 - c. Percentage of families receiving welfare benefits [long form]
 - d. Unemployment rate [long form]
3. Potential for subsidized owner-financing to improve housing conditions – which is to be judged by
 - a. Percentage of owner-occupied units that are substandard [long-form variables can be used to construct this percentage]
 - b. Percentage of families that are low or moderate income renters [long form]
4. Existence of a housing assistance plan that provides a displacement program and a public improvements and services program required by CDBG.

The Treasury guidance requires that the area must be worse off than the State average for each of the variables listed above that can be statistically measured.⁹³

Examination of Issues

Statutory and Regulatory Requirements

This issue concerns whether the statutes governing these programs might require annual redesignation of urban counties and annual recertification of target areas and, if so, whether annual updates might impose hardships upon HUD clients. Eligibility determinations permit local governments or private entities to conduct certain activities in certain areas. The planning and execution of these activities takes time. If areas became ineligible before these activities can be carried out, then the goals of the affected programs could be frustrated.

Low Income Housing Tax Credits: With respect to Qualified Census Tracts, Section 42(d)(5)(C) provides exact definitions for each of the two qualifying criteria. The statute does not specify how to combine the two criteria. HUD has chosen to give priority to the low-income criterion, qualifying tracts on that criterion before considering the poverty criterion.

The statute gives HUD only general directions on how to designate Difficult Development Areas. The Conference Report for the 1989 amendments provides more guidance and includes as an option a description of the procedure actually used by HUD. Section 42(d)(5)(C)(iv) does require HUD to use “the most recent decennial census for which data are available” to determine population for both Qualified Census Tracts and Difficult Development Areas. Section 42(d)(5)(C)(ii)(I) requires HUD to use “the most recent year for which census data are available on household income in such tract” for Qualified Census Tracts.

⁹³ §6a.103A-2(b)(5)(iii) provided for an alternative means for satisfying the four legislative criteria that involves certifications related to HUD programs that are no longer active.

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Mortgage Revenue Bonds: Section 143(j)(2)(A) defines Qualified Census Tracts for mortgage revenue bonds precisely with no room for interpretation. Section 143(j)(2)(B) requires the use of the most recent decennial census for which data are available.

Section 143(j)(3)(B) provides guidance as to how HUD should approve areas of chronic economic distress but, even when suggesting variables to be considered, the statute does not require HUD to use them in any particular manner.⁹⁴ This subsection does not have a similar requirement to use the most recent decennial census. The Treasury memorandum does establish standards for designating areas of chronic economic distress.

Both the tax credit and the mortgage revenue bond statutes require the use of the most recent decennial census data. As Chapter 6 explains, the Census Bureau believes that the 2008 tables would be considered replacements for the 2000 decennial census in the sense that the Census Bureau would maintain that these tables are the best and most recent information available. The Census Bureau staff indicated that the 2009 tables would be considered as replacements for the 2008 tables. Under this interpretation, HUD regulations would require HUD to use each new year of data from the ACS, beginning at least in 2008, to designate qualified census tracts under both programs.⁹⁵

If the legislation did not require HUD to make annual designation, would there be any programmatic advantages in making less frequent designations? The answer to this question is both institutional and empirical. It takes time for developers to select a site for a project, acquire the land, obtain permission to construct, and petition a State housing finance agency for an allocation of credits. If the site ceases to be a Qualified Census Tract before the developer gets an allocation of tax credits, the developer may abandon the project due to the loss of the extra subsidy. Only experience can determine whether annual designations will result in the shift of a substantial number of tracts from being eligible to being ineligible each year.

Experience with the Difficult Development Areas indicates that annual designations can produce some operational problems. Whenever HUD has been late in designating difficult development areas, it has received complaints from some States that the late designations caused projects that needed the extra credit to lose it and did not give States time to adjust to the change in designation.

Sample Size/Precision

This issue concerns whether State housing finance agencies or others will challenge HUD's certification of qualified census tracts when the Department uses ACS data. It is related to the issue of the regulatory requirement to recertify these areas annually once ACS data become official replacements for the decennial census.

Institutions and individuals select sites for these tax benefits based on their understanding of local conditions. Occasionally data from the decennial long form contradicts local perceptions.

⁹⁴ HUD's Office of Housing works with the Internal Revenue Service on areas of chronic economic distress.

⁹⁵ Census Bureau staff were uncertain whether the Census Bureau would treat the 2006 tables as replacements for the 2000 decennial census.

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Even when this happens, the institutions and individuals are unlikely to challenge the long-form data because they do not have an alternative data source. However, there is reason to believe that challenges might be more frequent when HUD begins using ACS data. Sampling variation will be more apparent for estimates based on the ACS because a given change appears larger when it occurs over one year than when it occurs over ten years. Moreover, estimates based on the ACS will be less precise than estimates based on the long form at all levels of geography. In addition, institutions and individuals can use the 2000 long form or ACS data from other years to challenge HUD’s determinations.

To examine the precision of the ACS for designating qualified census tracts for the low income housing tax credit program, we constructed an example using an average size tract (4,000 residents), a census tract with 2,000 residents, and a census tract with 1,500 residents. The precision of the ACS would be greater for larger tracts.

Exhibit 16.1: Precision of the ACS for Designating Qualified Census Tracts for the Low Income Housing Tax Credit Program, Using the Household Income Criterion

True Percentage of Households with Incomes Less Than 60% of Median Income	50%	51%	52%	55%	60%
Probability of qualifying for census tract with 4,000 residents	50.0%	60.9%	71.0%	91.8%	99.8%
Probability of qualifying for census tract with 2,000 residents	50.0%	57.8%	65.2%	83.7%	97.7%
Probability of qualifying for census tract with 1,500 residents	50.0%	56.7%	63.3%	80.3%	95.8%

Exhibit 16.1 shows that HUD will make mistakes in designating qualified census tracts. Even when the true percentage of households with incomes less than 60 percent of median income is as high as 55 percent, HUD will fail to certify 8 out of 100 such tracts of average size. The likelihood of not designating eligible tracts increases as the population of the tract decreases. While most tracts have populations above 3,000, there are a substantial number between 2,000 and 3,000 and many between 1,500 and 2,000.

Designations using the long form did not avoid this problem. Exhibit 16.2 repeats the analysis in Exhibit 16.1 but assume the use of the long form. The larger sample sizes in the long form reduce the likelihood of errors but not substantially. When the true percentage of households with incomes less than 60 percent of median income is as high as 55 percent, HUD will fail to certify only 6 out of 100 such tracts of average size.

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Exhibit 16.2: Precision of the Long Form for Designating Qualified Census Tracts for the Low Income Housing Tax Credit Program, Using the Household Income Criterion

True Percentage of Households with Incomes Less Than 60% of Median Income	50%	51%	52%	55%	60%
Probability of qualifying for census tract with 4,000 residents	50.0%	62.5%	73.9%	94.6%	99.9%
Probability of qualifying for census tract with 2,000 residents	50.0%	58.9%	67.5%	87.2%	98.9%
Probability of qualifying for census tract with 1,500 residents	50.0%	57.8%	65.2%	83.7%	97.7%

As explained in the discussion of statutory and regulatory requirements, the tax credit statute will require HUD to redesignate qualified census tracts annually beginning in 2008 or earlier. The ACS will use five-year moving averages to describe census tracts. The 2008 ACS data on a particular census tract will contain information collected from 2003 through 2007 while the 2009 ACS data on a particular census tract will contain information collected from 2004 through 2008. Data collected during the four years from 2004 through 2007 will be common to both the 2008 ACS sample and the 2009 ACS survey. Because both 80 percent of both samples will be identical observations, one might expect that sampling variation alone would cause a tract that qualified in 2008 not to qualify in 2009. Exhibit 16.3 provides a simple example to test this supposition.

Exhibit 16.3 Failure to Qualify in Year n+1 after Qualifying in Year n, the Low Income Tax Credit Program⁹⁶

True percentage of households with incomes less than 60% of median income	50.0%	51.0%	52.0%	55.0%	60.0%
Expected number of qualifying households among 153 households in both samples	77	78	80	84	92
Number of qualifying households needed in 38 households in year n+1 sample	19	18	16	11	4
Probability of finding 96 qualifying households in both samples	50.0%	73.2%	89.2%	99.9%	100.0%

Exhibit 16.3 indicates that sharing observations does make it less likely that a census tract that qualified in year n would not qualify in year n+1.⁹⁷ If the true percentage were 51 percent, then three out of four tracts of average size would qualify. If the true percentage were 55 percent, then almost every tract that qualified in year n would qualify again in year n+1.

⁹⁶ The sum of the second and third rows do not always add to 96 due to rounding.

⁹⁷ Exhibit 16.3 uses the simplifying assumption that the sample common to both surveys produces the expected number of qualifying households, that is the product of the true percentage and the number of households common to both surveys. Realistically, the common sample would produce a few more or a few less qualifying households. Taking this into consideration would require using a joint probability distribution to compute the probability of qualifying in year n+1 after qualifying in year n. Using the more realistic assumption would lower the likelihood of qualifying but not substantially.

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Tables 16.4, 16.5, and 16.6 repeat the same analysis for qualified census tracts as defined in the mortgage revenue bond program. The results differ because, as explained earlier in the Chapter, the mortgage revenue bond program defines qualified census tracts differently.

Exhibit 16.4: Precision of the ACS for Designating Qualified Census Tracts for the Mortgage Revenue Bond Program

True Percentage of Households with Incomes Less Than 80% of Median Income	70.0%	71.0%	72.0%	75.0%	80.0%
Probability of qualifying for census tract with 4,000 residents	50.0%	62.0%	73.1%	94.5%	100.0%
Probability of qualifying for census tract with 2,000 residents	50.0%	58.5%	66.9%	87.1%	99.3%
Probability of qualifying for census tract with 1,500 residents	50.0%	57.4%	64.7%	83.6%	98.3%

Exhibit 16.5: Precision of the Long Form for Designating Qualified Census Tracts for the Mortgage Revenue Bond Program

True Percentage of Households with Incomes Less Than 80% of Median Income	70.0%	71.0%	72.0%	75.0%	80.0%
Probability of qualifying for census tract with 4,000 residents	50.0%	63.8%	76.2%	96.8%	100.0%
Probability of qualifying for census tract with 2,000 residents	50.0%	59.8%	69.3%	90.4%	99.8%
Probability of qualifying for census tract with 1,500 residents	50.0%	58.5%	66.9%	87.1%	99.3%

Exhibit 16.6 Failure to Qualify in Year n+1 after Qualifying in Year n, the Mortgage Revenue Bond Program

True percentage of households with incomes less than 80% of median income	70.0%	71.0%	72.0%	75.0%	80.0%
Expected number of qualifying households among 153 households in both samples	107	109	110	115	123
Number of qualifying households needed in 38 households in year n+1 sample	27	25	24	19	11
Probability of finding 134 qualifying households in both samples	50.0%	75.2%	91.6%	100.0%	100.0%

In comparing each of these Exhibits with the matching Exhibit for the low income housing tax credit program, one finds that the likelihood of qualifying a census tract is slightly higher in the mortgage revenue bond program.⁹⁸

⁹⁸ Notice that both sets of tables use the same percentage point changes: one percentage point, two percentage points, five percentage points, and ten percentage points. A one percentage point change is a two percent change when the baseline true probability is 50 percent. But, when the baseline true percentage is 80 percent, then a one

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The six Exhibits tell the same qualitative story for both programs:

- HUD can expect to misclassify some census tracts using ACS data. Some tracts will be designated as qualified census tracts that do not deserve the designation and some tracts will not be designated that deserve to be designated.
- Errors are most likely for tracts that have one or both of two characteristics:
 - ◆ the true percentage of households with the requisite income is very close to the cutoff or
 - ◆ the tract has a small population.
- Errors are unlikely for tracts in which the true percentage of households with the requisite income is five percentage points or more higher the cutoff percentage.
- In considering these probabilities, it is important to remember that HUD makes designation decisions under these two programs for every census tract. There are approximately 70,000 census tracts. If only 5 percent of all census tracts have a true percentage of qualifying households within two percentage points of one of these cutoffs, then HUD will run a non-negligible risk of misclassifying 3,500 census tracts.
- In the past, HUD has most likely misclassified tracts using the decennial long-form data. In fact, the likelihood of misclassifying tracts is only slightly greater using ACS data than using long-form data.
- Designations using the ACS should show strong year to year stability, that is, if HUD designates a tract in one year then there is a strong probability that HUD will redesignate the tract in the next year unless underlying conditions change. Sampling variation by itself will result in relatively few shifts in designation status.

Before discussing how HUD should respond to these risks, attention should be given to the special situation of census tracts with very small populations. Although it is unusual, there are many tracts that have fewer than 500 residents and there are some with fewer than 100 residents. The ACS will provide the information necessary to make the qualified census tract designations for these small tracts. However, the technique used by the Census Bureau to protect the confidentiality of respondents in small tracts may call into question the validity of the ACS data for these tracts. (Note that the decennial census uses the same technique to protect the confidentiality of respondents in small tracts.)

To prevent users from being able to derive information about individual respondents from ACS tabulations, the Census Bureau will use a “swapping” technique in which information for persons within an area are swapped with information for similar persons outside the area. The details of the swapping procedure – the size threshold that triggers swapping, the percentage of persons whose information is swapped, and the variables swapped – are confidential. The general rule is that if you have enough information to identify a person, then the information for that person is probably not the information from that person. This technique has been designed to prevent changing the basic character of an area. Swapping will not make a poor area appear rich.

percentage point change is a 5 percent change compared to the complement of the baseline, 20 percent (100%-80%). This explains why the tables show higher probabilities for the mortgage revenue bond program.

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However, it is not known how significantly swapping might affect the percentage of households in a tract that have income below some standard.

In responding to these risks, HUD has two choices: it can interpret the statutes as requiring the Department to use the estimates from the ACS (and the long form) without consideration of sampling error or it can develop protocols that would allow the Department to take sampling error into consideration.

We recommend that HUD should not take sampling error into consideration for three reasons. First, the statutes and legislative history do not provide any encouragement for HUD to consider sampling error. Sampling error has always been present in the decennial census and, as the Exhibits show, the risks of misclassifying tracts are only slightly greater with the ACS. Second, it is impossible to eliminate errors. In fact, any procedures developed to reduce the risk of not designating tracts that deserve to be designated will increase the risk of designating tracts that do not deserve to be designated.⁹⁹ Third, in the low income housing tax credit program, there is a 20-percent cap applied to the population of designated tracts. The cap is applied to each metropolitan area and to the non-metropolitan area of each state. Efforts to take sampling variation into account could create additional complications in areas where the 20-percent cap is binding.

Throughout this section we have discussed how sampling variation affects the adequacy of the ACS for making designations of qualified census tracts. The mortgage revenue bond program defines another class of census tracts that are eligible for special treatment under that program, areas of chronic economic distress. The statute, regulations, and an internal Department of Treasury memorandum provide guidance but not strict rules for making these determinations. The guidance calls for HUD to compare data on age of housing, homeownership, units without adequate kitchens or plumbing, poverty, receipt of welfare assistance, and similar variables for these area to State averages. The same considerations about the adequacy of sample size discussed with respect to making designation of qualified census tracts apply to these determinations. There is one important distinction. States can propose areas of economic distress that are larger than a census tract. HUD will experience lower probabilities of misclassifying areas if their populations are larger than the typical census tract.

Finally, this discussion has not dealt with designating difficult development areas. The difficult development area designations are based on fair market rents and income limits. While these parameters will be based on ACS data, HUD calculates fair market rents and income limits without consideration of their use for this purpose. Therefore, in the context of the low income housing tax credit program, there is no need to discuss precision concerns related to these two parameters.

⁹⁹ This is the statistical principal that, given a fixed sample size and a statistical test, one can only reduce type I error by increasing type II error.

New OMB Guidelines

The designation of difficult development areas and the designation qualified census tracts within the low income housing tax credit program involve the distinction between metropolitan areas and non-metropolitan areas. By statute, HUD applies population caps separately in designating metropolitan difficult development areas and non-metropolitan difficult development areas. Also, in designating qualified census tracts, HUD applies a population cap to each metropolitan area and to the non-metropolitan area of each state. To carry out these functions, HUD needs a clear definition of what constitutes a metropolitan area and what constitutes a non-metropolitan area.

The metropolitan/non-metropolitan distinction developed in the era when OMB categorized some places as metropolitan areas and the rest of the country as non-metropolitan. Chapter 4 explained how OMB has established new guidelines that will divide the country into three categories: metropolitan areas, micropolitan areas, and areas outside core-based statistical areas. OMB has decided that, in the context of the new guidelines, non-metropolitan refers to all places outside of metropolitan areas. Micropolitan areas would, therefore, be included in the non-metropolitan part of the country. Since a number of areas currently classified as metropolitan will be classified as micropolitan under the new guidelines, the shift to the new guidelines will affect how HUD designate difficult development areas and qualified census tracts.

HUD currently makes the difficult development area designation in non-metropolitan areas on a county by county basis. In the future, HUD will have to decide whether to treat micropolitan areas as single entities within the non-metropolitan part of a State or to evaluate each county in these areas separately. Treating them as single entities would seem to be more consistent with the economic interdependence that led OMB to classify them as micropolitan areas.

CHAPTER 17: FAIR MARKET RENTS

HUD's Office of Policy Development and Research (PD&R) calculate fair market rents (FMRs) and annual adjustment factors annually. In connection with FMRs, PD&R also determines which areas are eligible for the special 50th percentile FMR and which parts of a fair market rent area are eligible for exception rents.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified seven issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

In the last 15 years, HUD has made significant enhancements in the process it uses to set FMRs. The advent of the ACS should enable the Department to make even more impressive improvements over the next five years. The ACS will provide HUD *every year* with new data to set fair market rents for metropolitan areas with populations of 400,000 or more and to calculate State minimums. The large majority of Section 8 vouchers are used in metropolitan areas with 400,000 or more persons or in areas using State-minimum FMRs. For smaller metropolitan areas and other places not using State minimums, the ACS provides HUD with more data than it has had in the past to track changes in FMRs over time. The ACS comes at a fortunate time for HUD. For the past decade, HUD has relied on random digit dialing surveys to update FMRs in key areas. Rising telemarketing activity has reduced the public's willingness to respond to telephone surveys and has driven up the cost of random digit dialing surveys. The ACS questions on seasonal occupancy (and the eliminated questions on assisted housing) could also improve HUD's estimates of FMRs.

Description of Functions

Purpose: Since 1974, HUD has used the Section 8 housing choice voucher program to help households obtain better rental housing and reduce the share of their income going to rent. A key parameter in the operation of the voucher program is the fair market rent (FMR). (See the Box on the next page for the definition of FMR.)

Statute: The United States Housing Act of 1937 as amended in 1974 and subsequently (12 U.S.C. 1437)

Regulations: 24 CFR 982

FY 2001 Appropriation: \$12.943 billion (the Section 8 appropriation)

Why Census-Type Data Are Needed: Local housing authorities set what is called the "program standard". A voucher program household finds a unit in the private market and receives a subsidy equal to the lesser of (a) the difference between the unit's gross rent and 30 percent of the household's monthly income, or (b) the difference between the "program standard" and 30

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percent of the household's monthly income. Local housing authorities can choose any program standard between 90 percent of the FMR and 110 percent of the FMR.¹⁰⁰

The FMR is the 40th (or 50th) percentile of gross rents for typical, non-substandard rental units occupied by recent movers in a local housing market.

40th percentile: The 40th percentile is that point in a distribution of numbers such that 40 percent of the numbers are less than or equal to the 40th percentile and 60 percent of the numbers are greater than or equal to it. In the set of numbers {\$395, \$458, \$486, \$517, \$675}, \$458 would be the 40th percentile. The 40th percentile is similar in concept to a median; the median is the 50th percentile.

Gross rents: Gross rent is the sum of the rent paid to the owner plus any utility costs incurred by the tenant. Utilities include electricity, gas, water and sewer, and trash removal but not telephone. If the owner pays for all utilities, then gross rent equals the rent paid to the owner.

Typical, non-substandard rental units: In developing the FMR, the following units are excluded: public housing, rental units built in the last two years, rental units considered to be substandard in quality, seasonal rentals, and rental units on 10 or more acres. The definition excludes public housing units to prevent subsidized rents from skewing the distribution. Similarly, rental units built in the last two years are excluded to eliminate the higher end of the market units from the distribution. Since Section 8 seeks to improve the quality of housing occupied by lower income families, substandard units are eliminated from the distribution. Finally, seasonal units and units on large plots are not part of the market intended for Section 8 recipients.

Occupied by recent movers: The definition recognizes that owners often charge new tenants more than current tenants with leases. For this reason, the definition limits the distribution used to calculate the FMR to units occupied by recent movers. HUD has found that recent mover units typically rent for around 6 percent more than other units. However, this relationship can vary widely. In markets where demand is bidding up the price of rental housing, the spread between recent mover rents and other rents can be much higher. HUD has also observed markets where recent movers pay less than current tenants with leases because the demand for rental units has failed to keep up with supply.

In a local housing market: FMRs should be calculated in the context of the housing market in which certificate and voucher recipients shop. HUD generally uses OMB metropolitan area definitions to define local housing markets in urban contexts. Since OMB defines metropolitan areas on the basis of commuting patterns, they represent the housing market available to households working within the area. As commuting patterns have broadened, HUD has had to construct narrower local housing markets in a few metropolitan areas. For example, when OMB redefined the Washington DC metropolitan area after the 1990 census, it added two counties in West Virginia and some distant, primarily rural counties in Virginia. HUD subsequently deleted these counties from the Washington DC fair market rent area. In non-metropolitan areas, HUD uses the county as the local housing market.

FMRs are set for rental units of different bedroom sizes and Section 8 rules, which are based on household size and the age and sex of children, determine what size unit a household can choose.

(This text was copied from "Fair Market Rents" in the February 1999 issue of *U.S. Housing Market Conditions*.)

¹⁰⁰ Under special circumstances, the program standard can be set outside of this 90-percent/110-percent of FMR range.

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Each year HUD must estimate FMRs for 354 metropolitan areas, 2,366 counties in non-metropolitan areas, and 16 counties dropped by HUD from the OMB definition of 6 metropolitan areas. HUD also publishes annually a related parameter called the “annual adjustment factor” which determines the rent increase that landlords, who have signed multiyear contracts with Section 8 recipients, are allowed to receive.

What Census-Type Variables Are Used: HUD uses the following census long-form variables in calculating FMRs: population; tenure (rental status); gross rents, which the Census Bureau computes from contract rent and utility costs; number of bedrooms; complete plumbing; and complete kitchen facilities. A useful variable not available from the long-form but available on the ACS is assisted status, that is, whether the household receives any rental subsidies.

How the Census-Type Variables Are Used: HUD uses census long-form data in three ways related to FMRs: (1) to calculate the 40th (or 50th) percentile, (2) to determine which areas are entitled to a 50th percentile FMR, and (3) to set “exception rents.” Annual adjustment factors are derived as part of the first use (calculating FMRs).

Calculating FMRs: HUD follows a four-step procedure in setting FMRs. First, it finds the most recently available data set that is sufficiently large and detailed to allow HUD to calculate an accurate 40th (or 50th) percentile gross rent for two bedroom units in accordance with all the elements in the definition. Second, HUD trends this baseline two-bedroom 40th (or 50th) percentile to the most recent month possible. Third, HUD projects the trended number forward to the middle (April 1) of the fiscal year for which HUD is setting the FMR. Fourth, HUD applies ratios to calculate the FMRs for efficiencies, one bedroom, three bedroom, and larger units.¹⁰¹ For example, HUD might use the 1999 American Housing Survey to calculate a 40th percentile gross rent for two-bedroom units in the Los Angeles metropolitan area, then use the local consumer price index for the Los Angeles Consolidated Metropolitan Statistical Area to trend this 40th percentile gross rent to December 2000, then project the trended rent to April 1st of 2002 to compute the FY 2002 two-bedroom FMR for the Los Angeles metropolitan area. Finally, HUD would use the ratio of one-bedroom to two-bedroom rents in 1990 to calculate the one-bedroom FMR and make similar calculations for units with more than two bedrooms.

HUD uses four types of data for setting baselines. From the Census Bureau, HUD has obtained a special extract of the 1990 Census with data on gross rents for every county and major civil division (MCD). HUD used this extract to calculate the 40th and 50th percentiles for every metropolitan area and every non-metropolitan county in the nation. The extract separates recent movers from all renters and eliminates units with incomplete plumbing and incomplete kitchen facilities. From its American Housing Survey (AHS), HUD has data on gross rents for 47 metropolitan areas, for one or more years since 1990. HUD also gathers data every year on gross rents for 50 to 60 metropolitan areas or non-metropolitan counties using random digit dialing

¹⁰¹ HUD introduced state minimums in 1996. For FY 1996, HUD set a minimum FMR for the metropolitan areas and non-metropolitan counties in each state that is the lesser of the average non-metropolitan FMR for the state or \$450. Since 1996, HUD has continued to use state minimums, updating the \$450 limit with overall inflation in rents.

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(RDD) telephone surveys. Finally, from the public comment process, HUD has information provided by local housing authorities and others for specific FMR areas.

Of these four sources, the census extract contains the largest samples and provides consistent data for all FMR areas. However, the census extract is the least current of the data sources. The AHS provides consistent data that are collected 1 to 7 years prior to the fiscal year for which FMRs are being estimated. Although the AHS data are more recent than the long-form data, a problem is that sample sizes among recent movers can be small in AHS samples for some areas. RDD surveys provide data on gross rents for January through July of the year in which the FMRs become effective on October 1. Publicly provided data are generally current but are idiosyncratic and often unusable.

In calculating FMRs, HUD uses census long-form data in the first step, establishing a baseline. When the decennial long-form results are first released, HUD uses this source to set the baseline for all metropolitan areas and non-metropolitan counties. Later in the decade, it incorporates information from other sources such as the AHS and RDD surveys. The trending and projecting steps use other data sources. Trending is important because the baseline data source quickly becomes dated. Because the ACS will be available annually, trending may be less important in an ACS environment. The fourth step uses information from the decennial census to translate the two-bedroom FMR into FMRs for units with different numbers of bedrooms. From its long form extract, HUD calculates ratios of rents for units of various bedroom sizes occupied by recent movers in a specific area to the rent of two bedroom units occupied by recent movers in the same area, but HUD puts restrictions on the ranges of the ratios based on analysis of the ratios across the country.

Annual Adjustment Factors: HUD derives the annual adjustment factors from the trending step in the FMR process. HUD sets the annual adjustment factor equal to the percentage change in rents for the most recent 12-month period for which it has trending data. This is usually either local consumer price index information on rent and utilities or regional random digit dialing surveys.

Determining Eligibility for 50th Percentile FMRs:¹⁰² On October 2, 2000 (65 FR 58870), HUD published an interim rule (effective December 1, 2000) that provides authority for HUD to set 50th percentile FMRs in metropolitan areas where a higher FMR (i.e., exceeding the 40th percentile FMR) is needed to promote residential choice, help families move closer to areas of job growth, and deconcentrate poverty. The rule provides (Sec. 888.113(c)) that HUD will set FMRs at the 50th percentile rent for all unit sizes in each metropolitan FMR area that meets all of the following criteria:

¹⁰² This use of census long-form data could have been included as part of the discussion of eligibility determinations. It is more convenient to include it in the chapter on program parameters.

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1. The FMR area contains at least 100 census tracts;
2. 70 percent or fewer of the census tracts with at least 10 two bedroom rental units are census tracts in which at least 30 percent of the two bedroom rental units have gross rents at or below the two bedroom FMR set at the 40th percentile rent;¹⁰³ and
3. 25 percent or more of the tenant-based rental program participants in the FMR area reside in the 5 percent of the census tracts within the FMR area that have the largest number of program participants.¹⁰⁴

HUD uses 1990 long-form data to test whether an area satisfies criterion number two. The analysis is based on all rental units, not just rental units occupied by recent movers, to ensure sufficient sample size at the census tract level.¹⁰⁵ Currently 39 metropolitan areas satisfy all three criteria and have FMRs based on the 50th percentile gross rent.

“Exception Rents”: By statute, HUD can increase the FMR by up to 20 percent for a portion of an FMR area. This provision allows HUD to respond to situations where an area-wide 40th percentile FMR does not provide the desired range of choice among units or neighborhoods. There are three limitations on exceptions (24 CFR 982.504): (1) all exception areas combined can contain no more than the 50 percent of the population of the overall FMR area, (2) the exception FMR must equal the 40th percentile rent within each exception area, and (3) each exception must respond to problems observed in operating the Section 8 program in the exception area or be part of an active effort to provide housing opportunities outside poverty areas.

HUD uses census population counts to determine whether the first limitation is satisfied. HUD provides local housing authorities with two options for estimating the 40th percentile rent within a proposed exception area. They can either conduct a survey or they can use the last decennial census to compute a 40th percentile by multiplying the area-wide FMR by the ratio of median gross rents in the exception area to area-wide median gross rents.

Discretion Given to HUD: The authorizing statute does not define FMRs; it mentions “the fair market rental established by the Secretary periodically but not less than annually...” in Section 8(c)(1). This section provides instruction regarding the process of setting FMRs. They must be set at least annually, they “shall be published in the Federal Register with reasonable time for public comment”, and they shall be “based on the most recent available data trended so the rentals will be current for the year to which they apply.” Congress did not fix the percentile until after the 1993 budget reform legislation made it advantageous to lower the FMR from the 45th to

¹⁰³ This criterion uses census data to identify metropolitan areas where rents vary significantly across submarkets within the metropolitan area. In such a market, voucher holders might experience difficulty in large portions of the metropolitan area finding units renting for less than the FMR.

¹⁰⁴ This criterion uses program data to identify metropolitan areas in which voucher holders have not dispersed throughout the area. Lack of dispersion is taken as evidence that voucher holders are having difficulty in finding units renting for less than the FMR in large portions of the metropolitan area.

¹⁰⁵ HUD uses program data from its TRACS system to determine whether the third criterion is met.

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the 40th percentile to free up funds for other purposes. Congress put the 40th percentile definition into an Appropriation Bill.

24 CFR 888 Subpart A defines FMRs. It codifies the process that HUD uses to set FMRs, including random digit dialing surveys, bedroom size adjustments, standards for public comments, and the practice of setting FMRs for metropolitan areas and non-metropolitan counties.

Examination of Issues

Problem Variables

The 2000 C2SS form of the ACS contained two questions related to housing subsidies. The first question asks whether any Federal, State, or local program is paying part of the rent and then asks whether the assistance is “Section 8” or “some other government program.” The second question asks whether the unit is in a public housing project or is part of a government housing project. Unfortunately, the assisted housing question will not be asked in the first full ACS survey in 2003 and currently there are no plans to include the question in future ACS's. If HUD is interested in this information, the Department will need to convince the Census Bureau that there is a statutory or regulatory requirement for the information.

These questions are potentially valuable to HUD in calculating FMRs. As explained in the preceding section, HUD should eliminate assisted housing in calculating the 40th percentile of the distribution of gross rents to set fair market rents. Until now HUD has had to estimate the effect of eliminating assisted housing by using relationships developed in the American Housing Survey. These questions would give HUD a direct method for eliminating assisted housing.

However, past experience has shown that respondents make many mistakes in answering questions of this nature. Some respondents have difficulty determining whether or not they receive any rental assistance and, of those that do identify themselves as assisted, many misidentify the type of assistance they receive. ORC Macro is now working with HUD to devise the best way to gather this information from people.

The ACS contains a three-part question designed to determine first whether some or all of the household members live elsewhere during the year and second, if all live elsewhere sometime during the year, whether they consider the residence being reported on in the ACS as a primary residence or as a vacation home, a school residence, a work residence, or other residence. The Census Bureau added this question to help it investigate seasonal population flows.

HUD users who plan to purchase special tabulations from the Census Bureau may want to consider using this variable. It could potentially be used to distinguish high season rents from low season rents for setting fair market rents in resort areas or for separating high-income temporary residents from permanent residents in determining whether an area satisfies the CDBG targeting requirements. The practical value of this variable for these and similar purposes may be limited by the requirement that a household member reside in the units for at least two months in order to be counted.

Continuous Vs. Point-in-Time Data Collection

The Census Bureau collects ACS data over a period of time and then summarizes the results when it believes that the sample size is adequate. The Census Bureau uses three periods, 12 months, 36 months, and 60 months. For areas with populations over 65,000, the Census Bureau will tabulate the rents reported by respondents over the twelve months during which data were collected. A household reporting a contract rent of \$800 in January might actually be paying \$850 in December. The standard table would record this household as having a rent of \$800. The standard Census Bureau tables for areas under 20,000 will tabulate rents reported by respondents over a sixty-month period. A household reporting a contract rent of \$800 in the January of the first year might actually be paying \$1,070 in December of the fifth year. The standard table would record this unit as having a rent of \$800.

HUD will have to find a procedure to compensate for any trends in rent during the period of data collection. The simplest approach would be to center the 40th (or 50th) percentile calculated from the published tables or special abstracts in the center of the period. This technique has two advantages. First, if rents experienced a uniform trend over the period, then it produces the true 40th percentile for that point in time. Second, it facilitates other adjustments that HUD needs to make by giving the Department a fixed point from which to project. In setting FMRs, HUD tries to estimate the 40th (or 50th) percentile of the gross rent distribution that will be in effect in the middle of the fiscal year to which the FMRs apply. To do this HUD calculates the 40th percentile rent for a particular point in time and then projects that rent forward to April 1st of the fiscal year.

Sample Size/Precision

Sample size will present problems to HUD because the definition of FMR requires HUD to focus on a narrow part of the population, namely, households who rent two-bedroom units and who moved into the unit within the preceding twelve months (recent movers). These problems are serious in the sense that HUD users must exercise care to avoid substantial errors caused by sampling variation. However, one must understand that sample sizes will be adequate for areas with populations above 400,000 and these areas account for a very large proportion of all Section 8 activity. For small non-metropolitan areas, HUD has always had sample size problems. The decennial long form did not provide adequate sample sizes for many of these places. HUD's policy of setting a minimum FMR greatly reduces the impact of small sample sizes in non-metropolitan areas.

Ideally HUD would like to use annual ACS data to set FMRs and income limits. Most metropolitan areas have populations greater than 65,000. The Census Bureau will release its standard tables for areas of this size annually.¹⁰⁶ Taking 80,000 as the population of a small metropolitan area,¹⁰⁷ HUD could expect data based on 766 households annually ((80000/2.61 persons per household) * 0.025 sampling rate). HUD could expect to sample 39 households living in a two-bedroom rental unit who were also recent movers, that is, the household had lived in that rental unit for less than one year (39 = 766 * 0.051(the ratio from the 1999 AHS of recent

¹⁰⁶ Metropolitan areas are built around population nuclei of at least 50,000 and include surrounding areas that are connected via employment.

¹⁰⁷ For example, the population of the Great Falls MT metropolitan area was 80,357 in 2000.

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mover renters living in two bedroom units to all occupied units)). For its random digit dialing surveys, HUD generally likes to have a sample size of 200.¹⁰⁸ A metropolitan area would have to have a population of 400,000 to produce this sample size with annual data.

HUD appears to have several options for incorporating the ACS into the setting of FMRs at the metropolitan area level.

1. It can use the annual ACS data to set the baseline two-bedroom FMR for all metropolitan areas regardless of sample size.
2. It can use only three- or five-year moving average ACS data (with larger sample sizes due to the combination of multiple years) to set the baseline two-bedroom FMR for all metropolitan areas.
3. It can set a minimum sample size requirement for setting the baseline two-bedroom FMR and use annual or moving average data depending on what is needed to obtain the necessary sample size.
4. For smaller metropolitan areas, it can use the 2000 decennial long-form data to set the baseline and use annual ACS data for trending.¹⁰⁹
5. It can investigate using sophisticated statistical techniques on multiple-years ACS data to take into account the trend information contained in the annual samples.
6. It can switch from using recent mover rental to using all renters.¹¹⁰ (This would probably involve changing the percentile, e.g., from the 40th percentile to the 50th percentile.)

At the non-metropolitan county level, the sample size problem is serious. There are many counties with populations below 20,000 so the Census Bureau will release standard tables for these areas only on a five-year moving average basis. While HUD could use the annual data for these counties, the lack of precision would be serious. For a county with a population of 20,000, the annual ACS sample would be 192, of which only 10 would be recent mover renters who live in two bedroom rental units. Even a five-year moving average would produce only 49 recent mover renters who live in two bedroom rental units.

The sample size problem for FMR purposes is not unique to the ACS. When HUD used the 1990 decennial census to benchmark FMRs, it found many counties where the sample size using the long-form data was too small to make precise estimates. HUD adopted a minimum FMR procedure for these cases. Since then HUD has adopted a different approach, setting minimums on a State by State basis. State minimums have lessened the severity of the sample size problem

¹⁰⁸ HUD permits the inclusion of one-bedroom rental units in RDD samples. If HUD were to include one-bedroom units in its ACS extract, the sample size in this example would increase from 39 to 66.

¹⁰⁹ Note that for trending purposes, HUD could use all renters who were recent movers, not just those who rented two bedroom units. This would produce a sample of 88 in a metropolitan area of 80,000 population.

¹¹⁰ On average, the sample size for all two-bedroom renters will be 2.8 times larger than the sample size for recent mover two-bedroom renters.

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for FMRs. In FY 1999, 1,721 of 2,382 counties¹¹¹ (72%) used the State minimum FMR instead of their own FMR.

The small number of recent mover renters in the ACS samples for non-metropolitan areas will force HUD to make adjustments. While HUD has several options to choose, individually they would appear to have limited effectiveness in small non-metropolitan counties.

1. It could continue to use data from the long form in the 2000 census to set the baseline for these counties and use the ACS to trend the FMRs forward.¹¹²
2. It could return to the practice it followed in setting FMRs prior to the 1990 census of combining non-metropolitan counties to obtain a minimum population of 250,000.¹¹³
3. It could switch from using recent mover renters to using all renters.¹¹⁴ (This would probably involve changing the percentile, e.g., from the 40th percentile to the 50th percentile.)
4. It could set a minimum sample size for setting FMRs and combine non-metropolitan counties until it achieved the minimum size.
5. It could set a minimum sample size for setting FMRs and use moving average data over several years until it achieved the minimum size.
6. It could investigate using statistical modeling to improve the estimates for small areas.
7. It could use a combination of the preceding options.

HUD must also consider the year-to-year stability of the procedures it uses to calculate FMRs. Sampling variation could cause erratic changes from year to year which, in turn, could interfere with the smooth operation of the Section 8 program and undermine confidence in HUD's process for setting FMRs.

To study the possible seriousness of year-to-year instability, we will construct an example.

In a preliminary paper, we reported results from nine random digit dialing surveys.¹¹⁵ The fair market rents ranged from \$520 to \$1,226; the sample sizes from 199 to 208, and the coefficient of variation from 0.013 to 0.033. For our example, we will use a FMR of \$725, a sample size of 200, and a coefficient of variation of 0.023.

¹¹¹ This includes the 2,366 non-metropolitan counties and the 16 counties in metropolitan areas for which HUD calculates separate FMRs.

¹¹² This option is available now but, of course, there will be no long form in the 2010 census.

¹¹³ A group of non-metropolitan counties with a combined population of 250,000 would produce a sample of 122 recent mover renters who live in two-bedroom units. (This estimate is based on a 2.5 percent sampling ratio; the Census Bureau indicates that the sampling ratio will be higher in less populated areas.)

¹¹⁴ On average, the sample size for all two-bedroom renters will be 2.8 times larger than the sample size for recent mover two-bedroom renters.

¹¹⁵ *Issues in Using ACS Data to Set Program Parameters*, February 2002.

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Between 2002 and 2001, rent increased nationally at a 4.5 percent rate. Assume that a survey identical to the annual ACS survey had measured the 40th percentile correctly as \$725 in 2000. By 2001, the 40th percentile would have risen to \$758. The probability that a new survey would produce a FMR less than the \$725 of the previous year would be only 3 percent.¹¹⁶ In a less inflationary environment, the risk of obtaining a lower FMR in the second year survey would be greater. For example, if rents had risen by only 2 percent, then the probability of a new FMR less than \$725 would increase to almost 20 percent.

While the probabilities of artificial drops in FMRs are lower, they are not negligible. Therefore, HUD should consider ways to smooth the year-to-year changes. HUD already has procedures to deal with this problem. It will not change the current FMR if the current FMR is within the confidence limits of the new 40th percentile determined by a random digit dialing survey or derived from the AHS.¹¹⁷ This procedure gives precedence to the current estimate. In the ACS context, the new estimate and the current estimate may be indistinguishable on the basis of statistical accuracy. Choosing the current estimate would imply that HUD favors stability.

“Unofficial” vs. “Official” Data

As explained in Chapter 3, the Census Bureau has developed its plans for tabulating ACS data to ensure that the official tables have an acceptable level of accuracy. Taking into account the ACS's sampling rate, the Census Bureau insisted on combining annual waves of ACS data for smaller places to obtain satisfactory sample sizes. Even then the Census Bureau will include 90-percent confidence intervals in the official tables so that users understand the precision of the estimates.

Nevertheless the Census Bureau recognizes that the annual data for small places will be valuable for some users. Therefore, the Census Bureau has decided to provide a separate tabulation annually that will contain the standard tables for all places based on one year of data only. This release is intended for “expert” users only because it contains information on smaller areas that the Census Bureau considers too imprecise to release to the general public. For this reason these tables will not be available on the Internet like the official ACS tables; they will only be available in a file.

The statutes and regulations impose no constraints on HUD as to what data it chooses to use in calculating FMRs. After 2008, HUD could choose to use annual data for places with populations less than 65,000 even though the Census Bureau does not “publish” these data for general users.

¹¹⁶ The example assumes that the FMR in year n is equal to the true 40th percentile. Realistically the estimated FMR in year n might be less than or greater than \$725. Introducing this possibility makes the calculation of the probability of obtaining a FMR in $n+1$ lower than the FMR in n into a more complicated joint probability distribution problem. Using this approach, the probability of obtaining a lower FMR would be greater but not substantially greater.

¹¹⁷ HUD makes an exception to this policy for random digit dialing surveys submitted by local housing authorities. If the 40th percentile in the random digit dialing survey is higher than the current FMR, HUD accepts the survey estimate as the new baseline even if the current FMR is within the confidence interval around the 40th percentile estimated by the random digit dialing survey.

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The discussion of sample size and precision suggests that HUD would not want to exercise this option. Because HUD will use only a small part of the ACS sample to calculate FMRs, it needs to have large sample sizes and therefore cannot afford to use the annual numbers for places with populations less than 65,000. In fact, for places with populations between 65,000 and 400,000, HUD may want to combine annual ACS data to obtain a minimum sample size to estimate FMRs.

There are, however, two situations in which HUD may want to consider using annual data even when the Census Bureau does not treat these data as “official”. The Census Bureau would consider the annual data for small metropolitan areas official. While HUD may want to use moving averages in setting the FMR rent in these areas, it could use the annual data to detect shifts in rent trends. HUD could use this information in responding to comments from local public housing authorities or in deciding whether to seek new information through a random digit dialing survey. Secondly, HUD may be able to use annual data in setting “exception rents”. Ideally HUD would want to use five-year moving average data to set FMRs for these smaller areas. However, if the Department believes that rents within an exception area have risen sharply in the last year or two, it could use annual data for this purpose if the exception area were large enough. In this case, HUD would probably compare median rents for all two-bedroom units in the exception area to median rents in the entire metropolitan area in order to develop a factor with which to adjust the area-wide FMR. Use of all two-bedroom units would increase effective sample size.

Variable Base Periods

It is likely that the ACS will become the basis for FMRs throughout the country. If so, HUD will probably use annual ACS data for metropolitan areas larger than 400,000, three-year moving average data for metropolitan areas with populations between 133,000 and 400,000, and five-moving average data for all other areas in order to ensure adequate sample sizes in all areas.

This raises the question as to whether it is fair to use different bases for different sized jurisdictions. Chapter 6 explained how annual data behaves differently than moving average data. In particular, moving averages are always behind a trend and their smoothing effect may hide a turning point.

Here, as elsewhere in the report, we believe that consistency in precision is more important than consistency in procedure. HUD has a long history of using various data sources to set FMRs. The Department’s goal has always been to use the data most likely to produce an accurate FMR. If annual data provide sufficient precision, HUD should use them because they provide the most current picture of conditions in an area. If annual data do not provide enough precision, HUD should combine ACS surveys to obtain adequate precision even though this means treating some area differently.

New Uses

In discussing sample size and precision, this Report has raised the possibility that HUD consider employing more sophisticated statistical techniques to take full advantage of the ACS. Specifically, we have suggested:

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- Investigating the use of sophisticated statistical techniques on multiple-years ACS data to take into account the trend information contained in the annual samples.
- Investigating the use of statistical modeling to improve the estimates for small areas.

There may be other ways that the Department can take advantage of all the information contained in the ACS. We have not had the time or the resources to investigate the practicality of developing new techniques. However, in the recommendations chapter, we did recommend that PD&R study how the Department could use ACS data in new ways to enhance program operations.

New OMB Guidelines

HUD sets minimum FMRs by State using the average FMR in the non-metropolitan counties within the State. To calculate these minimums, HUD needs a clear definition of what constitutes a metropolitan area and what constitutes a non-metropolitan area.

The metropolitan/non-metropolitan distinction developed in the era when OMB categorized some places as metropolitan areas and the rest of the country as non-metropolitan. Chapter 4 explained how OMB has established new guidelines that will divide the country into three categories: metropolitan areas, micropolitan areas, and areas outside core-based statistical areas. OMB has decided that, in the context of the new guidelines, non-metropolitan refers to all places outside of metropolitan areas. Micropolitan areas would, therefore, be included in the non-metropolitan part of the country. Since a number of areas currently classified as metropolitan will be classified as micropolitan under the new guidelines, the shift to the new guidelines will affect how HUD calculates FMRs in non-metropolitan areas and how HUD sets the State minimums.

HUD currently calculates FMRs in non-metropolitan areas on a county-by-county basis. In the future, HUD will have to decide whether to treat micropolitan areas as single entities within the non-metropolitan part of a State or to evaluate each county in these areas separately. Treating them as single entities would seem to be more consistent with the economic interdependence that led OMB to classify them as micropolitan areas and with the way HUD treats metropolitan areas.

Including micropolitan areas with the non-core based counties will result in higher State minimums than HUD estimates under its current procedures. HUD is under no statutory or regulatory requirement to include micropolitan areas when it calculates State minimums but including them would be consistent with OMB guidance. Excluding the micropolitan areas would result in lower State minimums than HUD estimates under its current procedures.

CHAPTER 18: MEDIAN INCOME AND INCOME LIMITS

HUD's Office of Policy Development and Research (PD&R) calculate income limit annually for all HUD assisted housing programs and assisted housing programs of the Department of Agriculture, the Internal Revenue Service, and the financial regulatory agencies.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified eight issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS will greatly enhance the data that HUD has available to estimate median incomes and set income limits. Having this additional information will enable HUD to further improve a process that been operating smoothly and with little controversy for years.

Description of Functions

Purpose: HUD and other agencies provide assisted housing to households with annual incomes below certain levels. These "income limits" vary by program, by location, and by size of household.

Statute: Section 3(b) of the United States Housing Act of 1937 as amended (12 U.S.C. 1437) defines income limits for public housing and Section 8. See also Section 16(a) and (b) of the United States Housing Act of 1937 as amended and Section 567 of the Housing and Community Development Act of 1987. Statutes governing other programs cite these limits or define their income limits in relation to the limits of these other programs. In some cases, statutes define income limits in relation to HUD's median income estimates.

Regulations: none

FY 2001 Appropriation: \$27.524 billion including all FY 2001 appropriations for major HUD assisted housing programs with income limits and estimated revenue losses in FY 2001 for the low income housing tax credit and mortgage revenue bond programs.

Why Census-Type Data Are Needed: HUD must estimate income limits for more than eight programs each year for 354 metropolitan areas, 2,366 counties in non-metropolitan areas, and for 16 counties dropped by HUD from the OMB definition of 6 metropolitan areas.

What Census-Type Variables Are Used: HUD uses family status and family income in calculating median incomes and income limits.

How the Census-Type Variables Are Used: HUD's method for calculating income limits can be explained as a four-step process. First, HUD calculates median income for metropolitan areas and non-metropolitan counties. Second, it calculates the very low-income limit for a four-person household for each of these areas by multiplying median income by 50 percent and applying various caps and floors. Third, it calculates other income limits for a four-person household for

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each of these areas by applying ratios to the very low-income estimates. For example, the income limit that applies to most low income housing tax credit projects is 60 percent of median income. HUD calculates this income limit by taking 120 percent of the very low-income limit.¹¹⁸ Fourth, it calculates income limits for different household sizes by applying ratios to the four-person income limits.

HUD does not use census-type variables in the third and fourth steps and uses them only indirectly (through the FMR) in applying the caps and floors of the second step. Therefore, for the purposes of learning how income limits are dependent on long-form data, this discussion need only consider how HUD calculates median family income for metropolitan areas and non-metropolitan counties.

HUD estimates median family income using a three-step process. First, HUD uses the most recent decennial census to calculate baseline median family income for an area.¹¹⁹ Second, HUD uses the Census Bureau's P-60 income series and wage and salary data from the Bureau of Labor Statistics (BLS) to trend the estimate from the decennial census to most recent year for which data are available. Third, HUD projects the trended median family income estimates forward to the middle (April 1st) of the fiscal year for which HUD is setting income limits.

In calculating median family income, HUD uses census long-form data only in the first step. The trending and projecting use other data sources.¹²⁰ As in the case of FMRs, trending is important because the decennial census is the only sufficiently precise and accurate source of information at the desired level of geography. Because it is available only once a decade, trending is needed to ensure that the estimates are current. Because the ACS will be available annually, trending will be less important in an ACS environment.

Discretion Given to HUD: Section 3(b)(2) sets the 50-percent ratio used to calculate the very low-income limit and the 80-percent ratio to calculate the low-income limit, as these terms are used in public housing and Section 8. Section 3(b)(2) says that HUD may adjust these income limits to take into account variations in construction costs or unusually high or low family incomes in an area. Section 3(b)(2) does not mandate these caps or floors and does not explain how HUD should make these adjustments. Section 567 of the Housing and Community Development Act of 1987 sets the state non-metropolitan median family income as a minimum for median family income in non-metropolitan areas. The authorizing statutes for other programs set different ratios but do not tell HUD how to calculate the ratios.¹²¹ We are unaware

¹¹⁸ Basing the other income limits on the very low-income limit builds the floors and caps into these limits as well. *FY 2001 HUD Income Limits Briefing Material* explains the floors and caps.

¹¹⁹ HUD adjusts the long-form estimates to take into account any difference at the national level between the decennial census's estimate of median income and that of the P-60 series.

¹²⁰ The trending process is complicated. The BLS wage data are used to trend forward because they are the only numbers available at the metropolitan area and non-metropolitan county levels. HUD then adjusts the trended income numbers at the census division level to be consistent with the P-60 numbers at those levels. These complications do not involve long-form data.

¹²¹ The relevant issue here is whether to apply the ratio directly to median family income or to apply it indirectly to the very low-income limit, which has all the caps and floors built into it. As note in the earlier discussion, HUD has chosen to apply the ratio indirectly to the very low-income limit.

of any legislation that directs HUD to use a particular data source in setting median incomes or income limits.

Examination of Issues

Problem Variables

The ACS will generate income distributions comparable to those that the Census Bureau releases from the decennial census but HUD users need to be aware of two important differences.

The first difference involves the earnings period reported on by respondents. The long form asks respondents to report their income for the previous calendar year. Income distributions from the 2000 census will represent 1999 income. The ACS asks respondents to report income earned over the past 12 months. Respondents replying in January will be reporting income for the previous calendar year, respondents replying in July will be reporting income earned in the last half of the previous calendar year and the first half of the survey calendar year, and respondents replying in December will be reporting income from the last month of the previous calendar year and the first eleven months of the survey calendar year. Staff at the Census Bureau refer to income information that will be collected in the 2003 ACS as “2002-2003 income.”

The second difference involves the inflation adjustment that the Census Bureau plans to apply to the income information collected in the ACS. The Census Bureau plans to report income in constant dollars. Income information collected in the various months will be adjusted for inflation so that all collected income will be expressed in dollars with the same purchasing power, presumably the purchasing power of dollars in December of the survey year.¹²² For moving average tabulations, all income information will be adjusted for changes in purchasing power over the period used to calculate the moving average. In other words, income reported by a respondent in the first month of a five-year moving average would be adjusted for almost five years of inflation.

These two differences will have important consequences for calculating income limits. HUD adjusts income distributions for growth in income not inflation. Making an inflation adjustment is not the same as trending. The cost of living adjustment assumes that the purchasing power measured at any point in the data collection period remains constant throughout the period. For example, assume that the cost of living rises by 3 percent a year. If a household reports an annual income of \$50,000 in January, a cost of living adjustment to the end of the year would increase this income to \$51,500, the amount needed in December to equal the purchasing power of \$50,000 in January. A trending adjustment makes no assumption about purchasing power. It attempts to tract movements in dollar income. Assume that dollar income is growing at 5 percent a year. Then a trending adjustment to the end of the year would increase the \$50,000 reported in January to \$52,500 in December.

¹²² In a meeting on May 13, 2002, ACS staff indicated that the Census Bureau had not yet determined the point in time that will be the basis for the constant dollar calculation.

Continuous Vs. Point-in-Time Data Collection

The Census Bureau collects ACS data over a period of time and then summarizes the results when it believes that the sample size is adequate. The Census Bureau will report ACS data over three periods: 12 months, 36 months, and 60 months. This process has important implications for the estimation of median income and the calculation of income limits, particularly given the Census Bureau's intention to adjust the income reported by respondents for inflation.

For areas with populations over 65,000, the Census Bureau will tabulate by interval the incomes reported by respondents over a twelve months period. Assume that money incomes are growing by 5 percent per year. A household that reports in January an income of \$50,000 would have reported \$52,500 if the ACS had surveyed it in the following December instead. The Census Bureau adjusts for inflation but not for growth in income. Assume that the rate of inflation is 3 percent per year. The standard ACS income distribution table would record the household that responds in January as having an income of \$51,500 and the household that responds in December as having an income of \$52,500.

If real income is changing, that is, if the rate of change in money income is different than the rate of change in prices, then the difference between a cost of living adjustment and an income growth adjustment will increase as the data collection period lengthens. The standard Census Bureau tables for areas under 20,000 will tabulate by intervals income reported by respondents over a sixty-month period. Again assume that money incomes are growing by 5 percent per year and the cost of living is increasing by 3 percent per year. A household reporting in January of the first year an income of \$50,000 might actually have reported \$63,814 if the ACS had surveyed it in December of the fifth year. The standard table would record this household as having an income of \$57,964.

To calculate median incomes and income limits, HUD will have to find a procedure to eliminate the inflation adjustment and then adjust for any trends in money income during the period of data collection. The Census Bureau does not plan to release unadjusted income information.

Conflicting Sources

HUD users will have to choose between alternatives sources of information in estimating median incomes and calculating income limits. While this issue is potentially of concern to HUD, we believe HUD has a simple decision to make.

The Census Bureau uses the Current Population Survey to estimate median household income, median family income, the number of persons in poverty, and the poverty rate. The Census Bureau's small area income and poverty estimation project (SAIPE) provides estimates of median household income and the poverty rate at the State and county level based on statistical modeling. Currently the Census Bureau derives its SAIPE estimates from the CPS; in the future it will base these estimates on the ACS.

For the purposes of estimating median incomes and calculating income limits, direct estimates of median income from the ACS has the following clear advantages over SAIPE modeling applied to ACS data: (1) ACS estimates of median income will be available for all levels of geography

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whereas the SAIPE estimates will be available only for States, counties, and possibly school districts and (2) the ACS estimates will be available annually between July and December of the year following the data collection period whereas the SAIPE estimates will be available biennially generally 18 months to two years after the end of the calendar year for which estimates are calculated.

Sample Size/Precision

If precision were the only issue, then HUD should be able to estimate median incomes and calculate income limits for all metropolitan areas using only the ACS standard tables based on one year of ACS data collection. For smaller areas, HUD might want to use the three-year or five-year moving averages. However, year-to-year stability is also an important concern, one that may induce HUD to use the moving averages to smooth movements in median income.

Most metropolitan areas have populations greater than 65,000. The Census Bureau will release its standard tables for areas of this size annually.¹²³ Taking 80,000 as the population of a small metropolitan area,¹²⁴ HUD could expect data based on 766 households annually ((80000/2.61 persons per household) * 0.025 sampling rate). Based on the 2000 census, HUD could expect 522 of these households to be family households (522 = 766 * 0.681(the ratio of family households to all households)). Therefore, median income and income limits would be based on a relatively large annual sample, even for small metropolitan areas.

HUD may have to use three-year moving average or five-year moving average data for micropolitan areas and counties that are not part of a core based statistical area. For a county with a population of 20,000, the annual ACS sample would be 192, of which 130 would be family households. A reasonably precise median income could be constructed from 130 family households; however, the standard error would be fairly large so that an estimate median family income for a small area could behave erratically over time. A five-year moving average would increase the sample size to 958, of which 652 would be family households.

HUD users should be careful when using ACS data for places with populations just above 65,000 or just above 20,000. For most purposes, the ACS tables will be completely reliable for these places. However, users should be alert to any sizeable year-to-year swings in measurements for threshold-sized places. In setting income limits, HUD may want to establish automatic edits that highlight large year-to-year swings in median income for counties around 65,000 or 20,000 so that HUD can decide to base the new median income solely on the ACS results or to adjust the new median income in some way.

For non-metropolitan areas, HUD would have several options:

1. It can use the annual datan ACS data to set the median income for all non-metropolitan counties regardless of sample size (this raises the precision problems mentioned above).

¹²³ Metropolitan areas are built around population nuclei of at least 50,000 and include surrounding areas that are connected via employment.

¹²⁴ For example, the population of the Great Falls MT metropolitan area was 80,357 in 2000.

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2. It can use only three- or five-year moving average ACS data to set the median income for all non-metropolitan counties.
3. It can set a minimum sample size requirement for setting the median income and use annual or moving average data depending on what is needed to obtain the necessary sample size.
4. It could set a minimum sample size and combine smaller non-metropolitan counties to obtain the desired sample size with annual ACS data.
5. For smaller non-metropolitan counties, it can use the 2000 decennial long-form data to set a baseline median income and use annual ACS data for trending.¹²⁵
6. It can investigate using statistical modeling techniques incorporating multiple-years ACS and BLS data to estimate median income¹²⁶.

Section 567 of the Housing and Community Development Act of 1987 sets the state non-metropolitan median family income as a minimum for median family income in non-metropolitan areas. This provision attenuates the seriousness of the sample size problem for median incomes and income limits. In FY 2000, 1,331 of 2,366 non-metropolitan counties (56%) had both their very low- and low-income limits set at the State non-metropolitan levels. The ACS produces excellent sample sizes of family households at the State level.

HUD's technique for setting income limits combines establishing baselines with trending. This practice generally produces smooth year-to-year changes in the parameters. Using the ACS is equivalent to getting a new baseline every year. This will create problems in two ways. First, the ACS will detect real declines in median incomes that will be unpopular with local program administrators and participants. Second, sampling variation will indicate declines in median incomes that are not real.

To test the year-to-year stability of ACS estimates, we used the information reported in Exhibit 6.4 to estimate the coefficient of variation for median income for the five large samples reported.¹²⁷ Using this information, we computed an estimate of the coefficient of variation for various sample sizes.¹²⁸ Exhibit 18.1 reports the results of this analysis.

¹²⁵ This option is available now but, of course, there will be no long form in the 2010 census.

¹²⁶ An example of how ACS data can be combined with other data sources to produce model-based estimates for small areas is discussed in *Small Area Income and Poverty Estimates: Priorities for 2000 and Beyond*.

¹²⁷ Exhibit 6.4 contains ACS data on median household income. Because we do not have ACS data on median family income for these sites, we use the data on median household income to study the precision of the ACS in measuring median family income.

¹²⁸ From information in Exhibit 6.4, we estimated the coefficient of variation for the median income estimate for each of the five locations. We then multiplied each coefficient of variation by the square root of the ratio of the sample size for that location to the sample size being studied. We averaged the five adjusted coefficients of variation to produce an estimate of the coefficient of variation for the sample size being studied.

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Exhibit 18.1 Estimated Coefficient of Variation for Estimating Median Family Income for Various Sample Sizes

Area Population	ACS 1-year Sample	Coef. of Variation 1-year	ACS 3-year Sample	Coef. of Variation 3-year	ACS 5-year Sample	Coef. of Variation 5-year
200,000	1,305	4.4%	3,914	2.6%	6,523	2.0%
100,000	652	6.3%	1,957	3.6%	3,261	2.8%
80,000	522	7.0%	1,566	4.0%	2,609	3.1%
50,000	326	8.9%	978	5.1%	1,631	4.0%
25,000	163	12.5%	489	7.2%	815	5.6%
20,000	130	14.0%	391	8.1%	652	6.3%

Exhibit 18.1 suggests that year-to-year stability may be a problem for HUD in estimating median incomes. The key relationship is the relative size of the coefficient of variation and the expected growth in income. The coefficient of variation tells how large the standard error is relative to the estimate. If the relative size of the standard error (the coefficient of variation) is larger than the expected growth in income, then HUD faces a one-in-six chance that sampling variation will reverse the effects of income growth. If the relative size of standard error is twice the size of the expected growth in income, then HUD faces a three-in-ten chance that sampling error will reverse the effects of income growth.

Assume that money income grows by 5 percent from year n to year $n+1$. Also assume that HUD uses one year of ACS data to estimate median income for a metropolitan area of 80,000 persons. If HUD correctly estimated median family income in year n , then there will be a 24 percent risk that the one-year ACS data would show a decline in median family income in year $n+1$ despite the actual 5 percent growth. Under the same circumstances the five-year moving average data would have a 5 percent risk of showing a decline.^{129, 130}

HUD could smooth year-to-year changes by using moving averages of ACS data over several years. Using moving averages reduces the probability of a decline in income limits for two reasons. The larger sample size makes it less likely that the sample will indicate a false decline. Also, the fact that only part of the sample is replaced each year makes a decline less likely. Even if HUD achieves adequate sample sizes from annual ACS data, it might want to consider moving averages to smooth year-to-year variation in these key program parameters.

Currently HUD has a policy of not reducing an existing income limit if the trending data suggests a decline in area median incomes. HUD has lowered income limits in the past only when it obtained new decennial census data to establish a new baseline. When HUD begins

¹²⁹ The example assumes that the estimate of median family income in year n is equal to the true median family income. Realistically the estimate in year n might be less than or greater than the true value. Introducing this possibility makes the calculation of the probability of obtaining a median family income in year $n+1$ lower than median family income in year n into a more complicated joint probability distribution problem. Using this approach, the probability of obtaining a lower median family income would be greater but not substantially greater

¹³⁰ This analysis would not apply if HUD were to use moving average ACS data to estimate median family income. Because of overlapping samples, there would be serial correlation between the measurements, which would affect this calculation.

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using ACS data, it will have to rethink this policy for two reasons. First, every year HUD will receive a new baseline with the ACS. There will be no infrequent occurrence, such as the acquisition of new decennial data that could be used as an occasion to reset income limits. Second, normal sampling variation will tend to inflate income limits if HUD adopts a no-decline rule. Normal sampling variation produces median income estimates that are two standard deviations above the true value approximately one in every 40 estimates. Exhibit 18.1 shows that a standard deviation can be as large as 7 to 10 percent of true median family income. A two standard deviation overestimate could be 14 to 20 percent higher than true median family income. If HUD did not reduce income limits, it could take several years before normal income growth catches up to an income limit based on an unusual sample.

“Unofficial” vs. “Official” Data

As explained in Chapter 3, the Census Bureau has developed its plans for tabulating ACS data to ensure that the official tables have an acceptable level of accuracy. Taking into account the ACS's sampling rate, the Census Bureau insisted on combining annual waves of ACS data for smaller places to obtain satisfactory sample sizes. Even then the Census Bureau will include 90-percent confidence intervals in the official tables so that users understand the precision of the estimates.

Nevertheless the Census Bureau recognizes that the annual data for small places will be valuable for some users. Therefore, the Census Bureau has decided to provide a separate tabulation annually that will contain the standard tables for all places based on one year of data only. This release is intended for “expert” users only because it contains information on smaller areas that the Census Bureau considers too imprecise to release to the general public. For this reason these tables will not be available on the Internet like the official ACS tables; they will only be available in a file.

The statutes and regulations impose no constraints on HUD as to what data it chooses to use in estimating median family income and calculating income limits. After 2008, HUD could choose to use annual data for places with populations less than 65,000 even though the Census Bureau does not “publish” these data for general users.

The discussion of sample size and precision suggests that HUD would not want to exercise this option. Concerns about year-to-year stability should cause HUD to stick to the official Census Bureau tables. In fact, for places with populations between 65,000 and 200,000, HUD may want to use the three-year moving averages to smooth year-to-year variations.

Variable Base Periods

It is likely that the ACS will become the basis for estimating median family income and setting income limits throughout the country. If so, HUD will probably use annual ACS data for metropolitan areas larger than 200,000, three-year moving average data for metropolitan areas with populations between 65,000 and 200,000, and five-year moving average data for all other areas to smooth year-to-year movements in income limits.

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This raises the question as to whether it is fair to use different bases for different sized jurisdictions. Chapter 6 explained how annual data behaves differently than moving average data. In particular, moving averages are always behind a trend and their smoothing effect may hide a turning point.

Here, as elsewhere in the report, we believe that consistency in precision is more important than consistency in procedure. The Department's goal has always been to use the data most likely to produce an accurate median family income. If annual data provide sufficient precision, HUD should use them because they provide the most current picture of conditions in an area. If annual data do not provide enough precision, HUD should combine ACS surveys to obtain adequate precision even though this means treating some area differently.

An example may help. In 2000, the New York City metropolitan area had a population of 9,075,554 with 3,647,695 households. The ACS's annual sample (approximately 2.5 percent) would survey 91,199 households. From this sample, HUD would have approximately 62,700 family households for computing median family income. In 2000, the metropolitan area of Florence SC had a population of 125,761 with 51,490 households. The ACS's annual sample (approximately 2.5 percent) would survey 1,287 households. From this sample, HUD would have approximately 880 family households for computing median family income. One would certainly be satisfied with the precision of annual data for calculating median incomes and income limits for both the New York and Florence metropolitan areas. However, one might choose to use the three-year moving average to set median family income in Florence to smooth year-to-year movement in this parameter. A three-year moving average would provide 2,630 families with which to estimate median family income.

New Uses

In discussing sample size and precision, this Report has raised the possibility that HUD consider employing more sophisticated statistical techniques to take full advantage of the ACS. Specifically, we have suggested investigating the use of statistical modeling techniques incorporating multiple-years ACS and BLS data to estimate median income.

There may be other ways that the Department can take advantage of all the information contained in the ACS. We have not had the time or the resources to investigate the practicality of developing new techniques. However, in the recommendations chapter, we did recommend that PD&R study how the Department could use ACS data in new ways to enhance program operations.

New OMB Guidelines

Section 567 sets the state non-metropolitan median family income as a minimum for median family income in non-metropolitan areas. To calculate these minimums, HUD needs a clear definition of what constitutes a metropolitan area and what constitutes a non-metropolitan area.

The metropolitan/non-metropolitan distinction developed in the era when OMB categorized some places as metropolitan areas and the rest of the country as non-metropolitan. Chapter 4 explained how OMB has established new guidelines that will divide the country into three

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categories: metropolitan areas, micropolitan areas, and areas outside core-based statistical areas. OMB has decided that, in the context of the new guidelines, non-metropolitan refers to all places outside of metropolitan areas. Micropolitan areas would, therefore, be included in the non-metropolitan part of the country. Since a number of areas currently classified as metropolitan will be classified as micropolitan under the new guidelines, the shift to the new guidelines will affect how HUD sets the State minimums. Specifically, including micropolitan areas with the non-core based counties will result in higher State minimums than HUD estimates under its current procedures.

HUD currently estimates median family income and sets income limits in non-metropolitan areas on a county-by-county basis. In the future, HUD will have to decide whether to treat micropolitan areas as single entities within the non-metropolitan part of a State or to evaluate each county in these areas separately. Treating them as single entities would seem to be more consistent with the economic interdependence that led OMB to classify them as micropolitan areas and with the way HUD treats metropolitan areas.

CHAPTER 19: MARKET ANALYSIS FOR FHA MULTIFAMILY INSURANCE

HUD's Field Economists periodically assess conditions in rental markets in metropolitan areas. They also review market analyses submitted by lenders seeking FHA insurance for multifamily housing projects.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified six issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS will fill an important void in the information needed to make accurate market analyses, namely precise local estimates of vacancy rates in intercensal years. HUD will need to work around a known bias in the ACS calculation of vacancy rates but this appears to be a solvable problem. The greater precision of the ACS estimates should more than compensate for the bias. Having ACS data should enable field economists to further enhance the techniques they use in conducting market analyses.

Description of Functions

Purpose: HUD uses both market analyses and appraisals as tools in underwriting multifamily mortgage insurance. A market analysis provides an estimate of annual demand for rental housing taking into consideration anticipated shifts in tenure; projected losses to the rental inventory via demolition, conversion, and other means; and any adjustments necessary for current excess levels of vacancies and construction activity. The demand estimate should show the number of additional rental units that would promote balanced market conditions. The market analysis should provide an assessment of whether the development of a proposed project would adversely affect the existing rental inventory, with particular attention to the impact on other HUD-insured properties.¹³¹

Statute: Section 209 of National Housing Act (12 U.S.C. 1701 et seq.)

Regulations: None. HUD does provide written guidance in Chapter 7 and Appendix 7A of the *Multifamily Accelerated Processing (MAP) Guide*¹³² and in *Principles and Techniques of HUD Housing Market Analysis: A Desk Guide* and *Analytical Guidance for Conducting Market Analyses for Housing and Residential Care for the Elderly and Technical Documentation for the Operation of the EMAD Comprehensive Demand Model*.¹³³

FY 2001 Appropriation: In calendar year 2000, HUD issued \$2.172 billion in insurance on 193 new multifamily projects and \$892 million in insurance on 178 assisted living, nursing home, and other elderly residential facilities. For FY 2001, Congress appropriated \$141 million in credit subsidies to cover these activities.

¹³¹ See appendix 7A of HUD's *Multifamily Accelerated Processing (MAP) Guide*.

¹³² The MAP Guide is available at <http://www.HUD.gov/offices/hsg/mfh/map/mapguide/mapguide.cfm>.

¹³³ These latter two documents are available from the Division of Economic and Market Analysis in HUD's Office of Policy Development and Research. Bruce Atkinson is the author.

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Why Census-Type Data Are Needed: A market analysis attempts to estimate both the demand for and supply of rental housing. On the demand side, census short-form data are used to count households by type and tenure. Information from the Census Bureau on recent population growth and local information on changes in number of jobs are used to project the number of renter households forward. On the supply side, vacancy rates are used to estimate the number of vacant rental units available to new renter households from the existing stock.

What Census-Type Variables Are Used: Market analyses include information on population, number of households, age and size of households, tenure, and vacancy status. All of these variables except vacancy status are also available from the short form.

How the Census-Type Variables Are Used: Under HUD's new multifamily accelerated processing rules, the lender is responsible for preparing the market analysis for individual projects. The local HUD appraiser and field economist review the submitted market analysis. Under these guidelines, the HUD field economist does not prepare a separate market analysis for each project. Instead field economists prepare analyses on a periodic basis of the balance between supply and demand in individual housing markets. With this division of labor in mind, the following discussion covers both the work performed by the market analyst hired by the lender and the work performed by the HUD field economists.

Market analysts have annual population estimates available from the Census Bureau. Market analysts trend these estimates forward based on recent demographic trends and on information about the growth of the local economy. Decennial census data is used to translate the population estimates into an estimate of the number of renter households. The ACS will provide a direct estimate of renter households that could be used in lieu of the derived estimate or as a check on the derived estimate.

Market analysts use vacancy rates to estimate the number of vacant rental units available to new renter households from the existing stock. The analysts obtain information on vacancy rates from a variety of sources, including the Census Bureau's Housing Vacancy Survey. The ACS will provide better estimates of vacancy rates than any source currently available for multiple locations.

Market analysts construct estimates of the number of rental units using the decennial census as a baseline, adding new units from data on permits, and making estimates of demolitions and other losses from the stock. The Census Bureau is maintaining a Master Address File as the sampling frame for the ACS and eventually for the 2010 census short form. It is possible that the Census Bureau could provide HUD with annual estimates of the number of housing units by location. HUD could provide these counts to market analysts as a check for their estimates of the housing stock.

Discretion Given to HUD: There are no statutory or regulatory restrictions on what data HUD chooses to use in market analyses.

Examination of Issues

Problem Variables

Chapter 3 explained how the ACS uses a “current residence” concept while the decennial census uses a “usual residence” concept. Chapter 6 provided examples showing how the different concepts can lead to different conclusions regarding whether a particular unit is occupied or vacant.

Both concepts lead to legitimate and workable interpretations of what is vacant and what is occupied. Generally, if they are properly measured, the two concepts should produce measures of the vacancy rate that differ only slightly. This may be not true, however, in places with large seasonal populations such as Florida, Arizona, and mountain and beach resorts.

While the ACS concept of residence leads to a valid vacancy rate in theory, there is a bias in how the ACS measures vacancy under this concept. The ACS asks people to report things as they stand on the day when they respond. A certain percentage of mail questionnaires are returned from all occupied units but none from vacant units. When telephone or in-person follow-up occurs, the question is asked as of that point in time. So some units that were vacant on the day the questionnaires arrived may subsequently be reported as occupied. Simulations performed by the Census Bureau indicate a downward bias of the magnitude of 1.2 percentage points.

It is important to understand that the problem with the vacancy status variable is not the difference in concept but the failure of the ACS to measure its concept in an unbiased manner. HUD can respond to this problem in two ways. It can use the ACS and adjust for the bias or it can use an alternative source. The next section discusses the option of using an alternative source.

Conflicting Sources

The Housing Vacancy Survey (HVS) provides quarterly and annual estimates of vacancy rates at the national and major census division level and for 75 large metropolitan areas. In the past, the Census Bureau has released unpublished data for the largest central cities in the 75 metropolitan areas and the rest of the metropolitan areas. The HVS uses the “usual residence” concept while the ACS uses “current residence”. As explained earlier in this Chapter, this difference can result in different estimates of the vacancy rate for the same area.

The HVS sample is large enough to provide reliable quarterly estimates at the national level and usable annual estimates for States and the 75 largest metropolitan areas, but confidence intervals are large for many States and metropolitan areas. The unpublished estimates for central cities and the remainder of metropolitan areas show large year-to-year swings. The ACS sample is much larger and will provide much more precise estimates at the State, metropolitan area, and submetropolitan area levels.

HUD is faced here with the classic tradeoff between a precise, biased estimate of vacancy (the ACS) and an imprecise but unbiased estimate (the HVS). It is impossible to make this choice intelligently without having more experience with the behavior of both series. Beginning in late

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2004, HUD field economists will have access to both series. They will have to experiment with both series for several years before deciding which data source is superior for market analysis purposes.

HUD field economists will have alternative sources for another important variable: the number of renter households of various incomes, ages, or other characteristics. Currently the field economists use the Census Bureau's intercensal population estimates to update counts from the decennial census. If the variable of interest is simply the number of renter households or the number of renter households where the householder is of a certain age, then the intercensal population estimates are used to update information gathered from the short form. If the variable of interest is the number of renter households of a certain income, then the intercensal population estimates are used to update information gathered from the long form. The ACS will provide direct estimates of these variables. For most metropolitan areas, the precision of the ACS will be adequate to make its estimates preferable to updating the decennial census.

Sample Size/Precision

When field economists are preparing market analyses or reviewing market analyses, the investigation generally focuses on a metropolitan area. Most metropolitan areas have populations that exceed 65,000 so the Census Bureau will release data on these areas using only one year of ACS data. This information will be available starting at the end of 2004.

As explained in the preceding section, the HVS provides vacancy estimates for 75 metropolitan areas. For these areas HUD field economists can choose between the HVS and ACS estimates. For other metropolitan areas, for all micropolitan areas, and for all counties that are not in core based statistical areas, the field economists have no alternative source except idiosyncratic data that may be available locally.

Exhibit 3.2 reported representative findings from five ACS test sites. All five sites had populations of at least 600,000 so the results showed a high degree of precision. However, the confidence intervals around the rental vacancy rates were large relative to the estimates, ranging from 6.5 percent to over 14 percent. If the ACS estimated an 8 percent vacancy rate, a field economist would have 90 percent confidence, with a coefficient of variation of 14 percent, that the true vacancy rate lies between 6.2 percent and 9.8 percent. For small metropolitan areas, one would expect higher coefficients of variation. Given both the bias in these estimates and the relatively large coefficients of variation, HUD field economists will have to experiment with using ACS vacancy estimates to determine how reliable they are for market analysis purposes.

To estimate demand, HUD field economists would also use variables from the ACS such as the percentage of renter households or proportion of renters with incomes less than \$30,000. Exhibit 19.1 estimates the coefficient of variation for these variables for different size metropolitan areas and for one year and three-year moving average ACS data. The Exhibit uses the national proportions to calculate the coefficients of variation. From the 1999 AHS, 33.1 percent of households were renters and 20.7 percent of households were renters who earned less than \$30,000.

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Exhibit 19.1 Estimated Coefficients of Variation for Proportions of Renter Households

Population	Coefficients of Variation			
	Proportion of Renters		Proportion of Renters < \$30,000	
	1-yr ACS	3-yrs ACS	1-yr ACS	3-yrs ACS
200,000	3.2%	1.9%	4.5%	2.6%
100,000	4.6%	2.7%	6.3%	3.7%
80,000	5.1%	3.0%	7.1%	4.1%
50,000	6.5%	3.8%	9.0%	5.2%

The estimated coefficients of variation are reasonably small even for micropolitan area size places. If the ACS measured the proportion of the population that both are renters and earn less than \$30,000 as 20.7 percent, then a field economist would have 90 percent confidence that the correct proportion lies between 17.7% and 23.7% if annual ACS data had been used or between 18.9% and 22.5% if three-year moving average ACS data had been used. Whether this range of variation is tolerable depends upon how much variation in this variable could affect the bottom line determination of the market analysis.

We recommend that field economists incorporate precision into their determinations of local market conditions. If a local market is on the borderline between being “balanced” and being “soft”, the field economist should examine how using different values for key demographic and economic variables changes the determination. For example, if changing the vacancy rate by a percentage point changes the classification from “soft” to “balanced”, the field economist should determine how likely it is that the true vacancy rate is actually a point higher. The field economist should examine the confidence interval around the annual ACS estimate and also look at the three-year and five-year estimates to make this determination.

Taking precision into account requires a great deal of judgment. When a determination depends on several variables, one can often adjust each variable a little and obtain a different determination. One must be very careful in making these adjustments. While assuming a small variation in one variable may not be unreasonable, assuming that several variables should all be adjusted simultaneously can lead to results that are very improbable.

Variable Base Periods

Because field economists prepare market analysis generally for areas with large populations, they will often be able to choose between using ACS estimates based on one-year of ACS data, three-years of ACS data, or five-years of ACS data. This choice involves a clear trade-off between timeliness and precision. The estimates based on only one year of data would be the most current measurement of conditions within the market but would also be least precise of the three alternatives. The five-year moving average estimates would be the most precise but would be influenced by conditions in previous years that may no longer exist.

In making this choice, the field economist will be able to use the confidence intervals contained in the ACS tables. For large areas, the confidence intervals may be small enough that the field economist will be secure in using annual data. If all three options produce similar estimates of a crucial variable, the field economist may decide to use the five-year moving average version to take advantage of the higher precision. Other cases could be more ambiguous. For example, for

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a small metropolitan area, the most recent ACS annual estimate of the vacancy rate may be substantially higher than the previous three-year and five-year moving average estimates. Sometimes field economists will be able to call upon local information to help them decide between these alternatives. In all cases, the field economist will have to exercise judgment in translating data into a market analysis determination.

“Unofficial” vs. “Official” Data

Field economists will face a similar choice for micropolitan areas. Here they can choose between (a) using the “unofficial” annual ACS data contained in the Census Bureau’s research product or (b) using either the “official” three-year moving average or the “official” five-year moving average. In making this choice, the field economists must recognize that the Census Bureau considers annual data for areas with populations less than 65,000 to be too imprecise for distribution to the general public.

We believe that the field economists can decide whether there are valid uses for the unofficial annual data in market analysis only through experimentation. While field economists may not want to base a market analysis determination on information as imprecise as the unofficial annual data, the annual data may help interpret the moving-average data. For example, a micropolitan area may appear on the basis of moving average data to be on the borderline between “soft” and “balanced.” Inspection of the annual data may show trends within the moving average that would lead a field economist to conclude that the “balanced” would be more accurate than “soft”. Once again judgment is essential to the successful use of census data for market analysis purposes.

New Uses

HUD may want to develop a statistical model to improve the accuracy of vacancy data. Statistical modeling may be successful in this area because HUD has a variety of variables it can use to create a model. For example, one could use the following variables to predict the current rental vacancy rate for a metropolitan or micropolitan area: the last five years of annual ACS data on vacancy, multifamily building permits over the last five years, population changes over the last five years, and five-year moving average data on the age and structure characteristics of the housing stock and on the age and household structure of the population.

CHAPTER 20: SITE AND NEIGHBORHOOD STANDARDS

HUD's field staff must review sites proposed for some HUD assisted housing for conformance to the Department's site and neighborhood standards.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified four issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS will not resolve the inherent tension in site and neighborhood determinations, namely knowing when to choose between benefits to the neighborhood and enhancing the location choices available to low-income and minority families. However, having ACS data should enable HUD field staff to conduct more accurate determinations of whether proposed projects violate the "undue concentration" prohibition by providing more current data on income and poverty in the area around proposed projects. Given the trade-off in site and neighborhood determinations, field staff should be aware of the precision of ACS estimates. ACS data will probably not be practicable substitutes for long-form data in making determinations related to minority concentrations.

Description of Functions

Purpose: HUD has established site and neighborhood standards to govern the location of new assisted housing projects. These standards are designed (a) to prevent locating a project in an area of minority concentration,¹³⁴ (b) to prevent locating a project in racially mixed areas if the project would cause a significant increase in the proportion of minority to non-minority residents in the area, and (c) to promote greater choice of housing opportunities and avoid undue concentration of assisted persons in areas containing a high proportion of low-income persons.

Statute: Site and neighborhood standards were developed in compliance with a court judgment from *Shannon, et al, vs. U. S. Department of Housing and Urban Development* 436 F2d 809 (3c 1970).

Regulations: 24CFR891.125, 24CFR8791.320, 24CFR891.680, 24CFR941.202, 24CFR983.6

FY 2001 Appropriation: Public Housing HOPE VI (\$574 million); Section 202 Supportive Housing for the Elderly (\$676 million); Section 811 Supportive Housing for the Disabled (\$217 million); and Section 8 Project-Based Housing (\$68 million).

Why Census-Type Data Are Needed: To carry out its site and neighborhood standards, HUD needs information on the racial and income composition of neighborhoods.

What Census-Type Variables Are Used: Population, race, and ethnicity are available from the short form; household income is available from the long form. Two other long-form variables,

¹³⁴ Minorities form over half of all households receiving HUD subsidies. Locating a new project in a high -minority neighborhood would limit the location opportunities being provided to these households.

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poverty rate and travel time, are used sometimes. HUD also needs data from its own program information systems on the location of other assisted housing.

How the Census-Type Variables Are Used: There appears to be a great deal of variation in how these standards are applied for different programs in different field offices. In general, HUD field staff define an appropriate neighborhood around a proposed project and gather information on the population of the area, the number of households, the number of assisted households, the racial composition of the area, recent changes in racial composition, the distribution of household income, travel time, and the poverty rate. This information is used to make informed judgments as to whether the project provides increased housing opportunities and avoids undue concentration of low-income persons and avoids “tipping” the racial composition of the area.

The standards differ among programs. For example, Section 202 supportive housing for the elderly and Section 811 supportive housing for persons with disabilities do not have the “undue concentration” standard.

Discretion Given to HUD: There are no statutory or regulatory restrictions on what data HUD chooses to use in carrying out its site and neighborhood standards.

Examination of Issues

Short Form Variables

As described above, HUD’s site and neighborhood standards have three elements, two that deal with the proportion of minorities in an area and one that deals with the income characteristics of an area. The first two elements require HUD to have information on the racial and ethnic composition of a neighborhood. HUD gets this information from the decennial census where race and ethnicity data are collected on the short form. In the course of a decade, the racial composition of an area can change, occasionally dramatically. For this reason, HUD might consider using ACS data to obtain a more recent racial characterization of a neighborhood.¹³⁵

Three factors would argue against substituting ACS data for short form data.

- First, there would be a significant loss of precision. Short form data represent a 100 percent sample. The ACS sample is 2.5 percent for annual data and 12.5 percent for five-year moving average data. One would have to take care even with a 12.5 percent sample.
- Second, the gain in timeliness is not as significant when one uses the moving averages. For example, for census tracts, the 2007 ACS would not be available until mid-2008 and would report average racial composition over the period from 2003 to 2007. The center of the period being analyzed would be 3 years old by mid-2009; this compares with 7.25 years old for the decennial short form counts.

¹³⁵ Users should note that the ACS does not provide an independent estimate of the number of persons by race and ethnicity. The Census Bureau controls the ACS counts at the county level to independent estimates of population by age, race, sex, and ethnicity.

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- Third, “official” ACS data will not be available at the block level. For some purposes, HUD uses block level data to construct neighborhoods. This is often the case in making site and neighborhood determinations.

While there are good reasons for not using ACS data in place of short-form data, this decision should be made on a case by case basis. In the discussion of sample size and precision below, we indicate that sometimes site and neighborhood determinations do not require precise measurement. The Census Bureau will report confidence intervals around ACS estimates. This information might lead HUD to conclude that the racial composition of a census tract was somewhere between 75% and 85% minority. For many site and neighborhood determinations, both 75% and 85% would be considered a high minority neighborhood. Also HUD users may be able to find creative ways to mix short-form data and ACS. For example, one could use the annual data in the research product to examine whether the racial composition of an area has changed over the decade, particularly if the area contained two or more census tracts.

Block Groups & Tract Parts & “Official” vs. “Unofficial data”

To make an accurate site and neighborhood determination, HUD field staff have to be able to delineate the appropriate neighborhood. The boundaries of neighborhoods and census tracts do not always correspond. Often field staff have to compile census data by piecing neighborhoods together using block groups or blocks. Race and ethnicity data are available from the decennial census at the block and block group levels. Income data are available at the block group but not the block level.

The official ACS data will be available at the census tract level but not at the block group or block level. The Census Bureau will provide “unofficial” block group data in CD format for use by researchers and others who understand the limitations of these data. These data will not be available until 2008 when the first census tract information will be released.

Sometimes HUD has used poverty rates and travel times in applying its site and neighborhood standards. These variables are not available at the block or block group level in either the decennial long form or the ACS. The Census Bureau has not yet specified the contents of the “unofficial” block group data from the ACS.

HUD users who would like to combine block group data to form neighborhoods need to be concerned about the procedures used by the Census Bureau to protect the confidentiality of respondents. To prevent users from being able to derive information about individual respondents from ACS tabulations, the Census Bureau will use a “swapping” technique in which information for persons within an area are swapped with information for similar persons outside the area. The details of the swapping procedure – the size threshold that triggers swapping, the percentage of persons whose information is swapped, and the variables swapped – are confidential. The general rule is that if you have enough information to identify a person, then the information for that person is probably not the information from that person.

Information on areas smaller than a census tract is likely to be based on swapped data. The same techniques are already used in the decennial census, but these techniques will be used more frequently in the ACS because of its lower sampling rate.

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The swapping technique has been designed to prevent changing the basic character of an area. Swapping will not make a poor area appear rich. However, it is not clear how much confidence one can have in point estimates derived from swapped data. For example, swapped data might indicate that 50 percent of the households in an area have incomes less than 50 percent of median income. The actual percentage might be 40 percent or 60 percent. All three numbers (40 percent, 50 percent, and 60 percent) represent poor neighborhoods but the difference between 40 percent and 60 percent might be a deciding factor in a site and neighborhood determination where other features of the project would argue for approval.

If HUD field staff do not want to rely on ACS block group data to construct neighborhoods, they have three options: (1) define “neighborhoods” strictly in terms of census tracts, (2) use short-form population data to allocate ACS census tract data across blocks or block groups¹³⁶, or (3) continue to rely on the 2000 decennial census.¹³⁷ HUD does not have to apply the same option to every situation.

Sample Size/Precision

If HUD can define a neighborhood in terms of one or more census tracts, will the ACS provide adequate precision for making site and neighborhood determinations?

There is often a clash between the spirit of site and neighborhood determinations and the reality of these determinations. HUD developed site and neighborhood determinations to encourage the development of assisted housing projects in areas where the recipients of assisted housing would generally not have the opportunity of living. In this context, a neighborhood in which 40 percent of the households have incomes below 50 percent of median income would be considered poor and HUD would want to avoid adding more poor households to the area. However, in practice, communities often consider a new assisted housing project as a means of improving physical conditions in a neighborhood. Replacing a vacant lot with a new project providing better housing than surrounding structures would seem to be a gain for the neighborhood. In this context, the difference between 40 percent and 60 percent might be difference between approving the project and not approving the project.

Exhibit 20.1 provides estimates of the precision of the ACS at the census tract level. It implicitly assumes that the appropriate neighborhood boundaries match census tract boundaries and that the neighborhood is no larger than one census tract. The average census tract contains 4,000 residents, but there are many tracts with populations between 1,500 and 2,500 and a large number with populations less than 1,500.

¹³⁶ For example, one could use the 2000 short form data at the block level to calculate that the area contained 60 percent of the census tract population. If the ACS reports that 1,000 persons in the census tract live in poverty, then one would assume that in the area 600 persons live in poverty.

¹³⁷ The third option becomes less attractive as the number of years since the last census increases. Race data will be available by block and block group from the 2010 census but income data will not be available by block group from the 2010 census because that census will not have a long form.

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Exhibit 20.1 Estimated Coefficient of Variation for Key Site and Neighborhood Statistics¹³⁸

Population of the Census Tract	Coefficient of variation		
	Proportion Minority = 80%	Proportion of Households with Income < 50 percent of median = 50%	Poverty rate = 40%
1,500	5.9%	11.8%	14.4%
2,000	5.1%	10.2%	12.5%
4,000	3.6%	7.2%	8.8%

Researchers have used a poverty rate of 40 percent or more to identify census tracts with serious social and economic problems. Based on these calculations, if the ACS measured the poverty rate as 40 percent for an average tract, then one could be 90 percent confident that the true poverty rate of that tract is between 34 percent and 46 percent. For a tract with 1,500 residents, one could be 90 percent confident that the true poverty rate is between 31 percent and 49 percent. For some site and neighborhood determinations, this level of precision would be quite adequate. A project that is not supported by its local community should not be placed in a neighborhood that is 30 percent poor. But other site and neighborhood determinations might require a higher level of precision. A project with strong local support may be appropriate for a neighborhood that is 34 percent poor but not for one 40 percent poor. In these situations, HUD field staff will have to rely on judgment and any relevant local data to make the site and neighborhood determination.

¹³⁸ The coefficient of variation is the ratio of the standard error to the estimate.

CHAPTER 21: PROGRAM OVERSIGHT OF GOVERNMENT SPONSORED ENTERPRISES

Congress has given HUD responsibility for setting goals to ensure that the activities of Fannie Mae and Freddie Mac extend the benefits of homeownership to those households for whom mortgage credit is often difficult to obtain. The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified seven issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS should improve HUD's program oversight of Fannie Mae and Freddie Mac indirectly through improved measurement of median incomes and directly by providing more current information on household incomes at the census tract level.

Description of Functions

Purpose: Fannie Mae and Freddie Mac are privately owned corporations that have federal charters. (Federally chartered corporations are called government sponsored enterprises (GSEs).) Their charters confer important benefits on Fannie Mae and Freddie Mac. In return for these benefits, Congress has given HUD responsibility for setting goals to ensure that the activities of Fannie Mae and Freddie Mac extend the benefits of homeownership to those households for whom mortgage credit is often difficult to obtain. HUD sets three types of goals: a low- and moderate-income housing goal, a geographically targeted goal, and a special affordable housing goal.

Statute: Federal Housing Enterprise Financial Safety and Soundness Act of 1992 (P.L. 102-550)

Regulations: 24 CFR 81

FY 2001 Appropriation: Fannie Mae and Freddie Mac do not receive any federal funds. Combined the two government sponsored enterprises purchased or securitized over \$2 trillion in mortgages in 1999.

Why Census-Type Data Are Needed: The low- and moderate-income goal uses HUD's median income estimate to define what mortgage purchases satisfy this goal. The chapter on program parameters explains how the median income estimates are derived from census long-form data. The geographically targeted goal uses census data to identify areas "underserved" with respect to the availability of mortgage finance.¹³⁹ In determining whether a mortgage financed by Fannie Mae or Freddie Mac satisfies the special affordable housing goal, HUD will sometimes consider the income distribution in the census tract in which the property is located.

What Census-Type Variables Are Used: HUD uses race, ethnicity, and income to define underserved areas. The special affordable goal uses income. Race and ethnicity are available from both the short form and the long form. Income is available only from the long form.

¹³⁹ HUD does not currently use long-form data to detect directly the absence of mortgage credit in an area. Instead HUD depends upon research that has linked the lack of adequate mortgage credit to certain features of a neighborhood or area.

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How the Census-Type Variables Are Used: In monitoring progress with respect to the low- and moderate-income goal, HUD does not directly use census data. Instead it uses its own median income estimates, which are derived from census long-form data.

In metropolitan areas, HUD defines “underserved areas” as census tracts where either (a) the median income of families in the tract does not exceed 90 percent of area median income or (b) minorities comprise 30 percent or more of the residents and the median income of families in the tract does not exceed 120 percent of area median income.¹⁴⁰ In nonmetropolitan areas, HUD defines “underserved areas” as counties where either (a) minorities comprise 30 percent or more of the residents and the median income of families does not exceed 120 percent of the greater of state or national nonmetropolitan median income or (b) the median income of families does not exceed 95 percent of the greater of state or national nonmetropolitan median income.

With respect to the special affordable housing goal, HUD will count towards the goal (a) mortgages involving low-income families on properties located in low-income areas and (b) mortgages to rental properties located in low-income areas that are affordable to low-income families.¹⁴¹ A low-income family is defined as one whose income does not exceed 80 percent of area median income and a low-income area is one in which median income does not exceed 80 percent of area median income. HUD uses income information from the decennial census to identify low-income areas.

Discretion Given to HUD: The Federal Housing Enterprise Financial Safety and Soundness Act of 1992 specifies the three types of goals and provides general guidance on how HUD should interpret the geographically targeted goal. However, the Act leaves the definition to HUD and does not require the use of any particular type of data. 24 CFR 81.2 provides the definition of underserved area.

Examination of Issues

Problem Variables

HUD uses tract and county median income to define underserved areas and to define low-income areas for the special affordable housing goal. Income is included in our list of problem variables because the Census Bureau intends to adjust income for changes in the cost of living between the time of each response and some common point in time, presumably the end of the collection period.

This adjustment should pose no problem for HUD's use of the ACS income estimates for these two purposes. For both the underserved area and special affordable housing goals, HUD compares tract income to area median income and county income to State or national non-metropolitan income. Because the Census Bureau will also have adjusted area median income and State and national non-metropolitan incomes for inflation, the comparison should be

¹⁴⁰ Minorities are defined as Native Americans, Asian Americans, African Americans, and Hispanics.

¹⁴¹ There are other activities that also count toward satisfying the special affordable housing goal. These other activities do not involve the direct use of long-form data.

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unaffected. HUD users, however, must be careful to ensure that the Census Bureau has adjusted the numbers being compared to the same point in time.

In metropolitan areas, HUD will have the option of comparing median income for census tracts based on a five-year moving average with area median income based on either one-year of ACS data, a three-year moving average, or a five-year moving average. We believe that it would be better to use the more precise five-year moving average because this has the additional advantage of making the comparison across identical time periods.

HUD compares borrower income to HUD's estimates of median family income for purposes of the low- and moderate-income goal. HUD should continue to use its own estimates of median family income for this goal even when ACS data becomes available. The ACS estimates of median family income would not be a good substitute for two reasons. First, the HUD estimate is a projection known at the beginning of the year while the ACS estimate is derived from actual experience and will not be known until almost 12 months after the year is over. Second, HUD bases its estimates on trends in money income while the ACS bases its estimates on trends in the cost of living. For the purposes of this goal, adjusting for the trends in money income is the correct approach.

The wording in the migration questions could provide HUD with a new way to define underserved areas. Currently HUD relies on relationships between denial rates and tract characteristics found in research using Home Mortgage Disclosure Act (HMDA) data to identify underserved areas. Using ACS data, it might be possible to construct a direct measure of inadequate mortgage credit. The ACS defines an "in-mover" as one who has not lived in the housing unit being surveyed for more than 12 months. It might be possible to get a special tabulation analyzing the proportion of in-movers by race and ethnicity who are homeowners with mortgages.¹⁴² This approach would have to overcome two problems. First, "in-mover" is a person characteristic while tenure and mortgage status are unit characteristics. A person can move into a unit already owned by another person. Second, migration is endogenous with the availability of mortgage credit.

Conflicting Sources

The Census Bureau plans to produce Small Area Income and Poverty Estimates (SAIPE) of median income for all States and counties on a biennial basis. (See Chapter 6.) The Census Bureau considers the SAIPE estimates to be superior to the ACS estimates.

For purposes of the underserved area and special affordable housing goals, we believe that HUD should use the ACS estimates for two reasons. First, the Census Bureau will not produce SAIPE estimates of median family income at the metropolitan level. Second, the SAIPE estimates will be available only biennially and only 18 months to two years after the end of the calendar year for which estimates are calculated

¹⁴² The Census Bureau's tabulation plans for SF3 do not include an analysis of in-movers by tenure.

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Short Form Variables

HUD has set two criteria for designating census tracts as underserved areas. Two similar criteria are used to designate non-metropolitan counties as underserved areas. In each case, one criterion incorporates racial and ethnic composition as a factor. In the course of a decade, the racial and ethnic composition of an area can change, occasionally dramatically. For this reason, HUD might consider using ACS data to obtain a more recent racial characterization of an area.¹⁴³

Two aspects of the ACS data would argue against substituting them for short form data.

- First, there would be a significant loss of precision. Short form data represent a 100 percent sample. The ACS sample is 2.5 percent for annual data, 7.5 percent for three-year moving average data, and 12.5 percent for five-year moving average data. For small areas, one would have to take care even with a 12.5 percent sample.
- Second, the gain in timeliness is not as significant for places where the standard tables are based on moving averages. For example, for census tracts, the 2007 ACS would not be available until mid-2008 and would report average racial composition over the period from 2003 to 2007. The center of the period being analyzed would be 3 years old by mid-2009; this compares with 7.25 years old for the decennial short form counts.

In the discussion of the new uses issue below, we suggest HUD examine the desirability of using annual ACS data on income instead of the five-year moving average ACS data and annual ACS data on race and ethnicity instead of census short form tallies. With this exception, we recommend that HUD continue to use decennial short form data on race and ethnicity in defining underserved areas.

Sample Size/Precision

Exhibit 21.1 estimates the coefficient of variation for the ACS estimate of median family income at the census tract level. The average census tract contains 4,000 residents, but there are many tracts with populations between 1,500 and 2,500 and a large number with populations less than 1,500.

Exhibit 21.1 Estimate of the Coefficient of Variation for Median Family Income for Census Tracts of Various Sizes¹⁴⁴

Population	Coefficient of Variation	
	ACS	Long Form
1,500	18.87%	16.34%
2,000	16.34%	14.15%
4,000	11.55%	10.01%

¹⁴³ Users should note that the ACS does not provide an independent estimate of the number of persons by race and ethnicity. The Census Bureau controls the ACS counts at the county level to independent estimates of population by age, race, sex, and ethnicity.

¹⁴⁴ From information in Exhibit 6.4, we estimated the coefficient of variation for the median income estimate for each of the five locations. We then multiplied each coefficient of variation by the square root of the ratio of the sample size for that location to the sample size being studied. We averaged the five adjusted coefficients of variation to produce an estimate of the coefficient of variation for the sample size being studied.

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Exhibit 21.1 indicates that the coefficient of variation is large at the census tract level for both the ACS and the long form. While the long form has smaller coefficients of variation, the improvement in precision is minor.

Sampling error may not be a serious problem in the context of setting housing goals. Seriousness depends on how one believes Fannie Mae and Freddie Mac react to the goals. If one believes that Fannie Mae and Freddie Mac take steps to ensure that they purchase or securitize mortgages from the tracts specifically identified as underserved, then sampling error could be important. If, however, one believes that Fannie Mae and Freddie Mac take steps to ensure that their agents are more inclusive in terms of persons and neighborhoods, then sampling error may not be that important. In the latter case, some mistakes should not affect the outcome as long as the general pattern holds.¹⁴⁵

Statutes and Regulations

In other Chapters, we have discussed concerns about statutory or regulatory language that might require HUD to update certain determinations too frequently. Neither the statute nor the regulations require HUD to update its designation of underserved areas annually. Nevertheless, since new ACS data will be available every year beginning in 2008, HUD should decide in advance how frequently to update these designations.

In this context, we use designation to mean using new data and an already agreed-upon definition of underserved areas to classify census tracts as underserved or not underserved. Periodically HUD analyzes the appropriateness of the definition of underserved areas. We presume that HUD would continue to do this periodically as well. The advent of the ACS would not necessarily change the frequency with which HUD reconsiders its definition of underserved areas. In the discussion of problem variables, we mentioned that HUD may be able to construct a definition of underserved using the migration questions in the ACS. If so, HUD might reconsider its definition earlier than it would have otherwise.

If one believes that Fannie Mae and Freddie Mac take steps to ensure that they purchase or securitize mortgages from the tracts or counties specifically identified as underserved, then one would have to be concerned that frequent recalculation could impose a management burden on Fannie Mae and Freddie Mac. If instead one believes that Fannie Mae and Freddie Mac take steps to ensure that their agents are more inclusive in terms of persons and neighborhoods, then frequent updating may not be a problem.

Regardless of assumption, HUD needs to consider timing in monitoring the performance of Fannie Mae and Freddie Mac. If HUD chooses to revise the designation of underserved areas annually, then designations made at the beginning of year n would be based on ACS data through year $n-2$. Toward the end of year $n+1$, HUD will monitor Fannie Mae and Freddie Mac activity during year n . At that time, HUD would probably have completed designations based on ACS data through year $n-1$. Should HUD compare Fannie Mae and Freddie Mac activity in year n to the year $n-2$ designations known to Fannie Mae and Freddie Mac in year n or to the more

¹⁴⁵ That case is analogous to the use of ACS data in statistical models.

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current n-1 designations? Should HUD postpone its monitoring of year n activity until it has made designations using ACS data through year n? We recommend monitoring Fannie Mae and Freddie Mac on the basis of ACS data through year n-2, the information available to them when they undertook mortgage activity in year n.

New Uses

We suggest that HUD should experiment with using annual ACS data in defining underserved areas. The question to be tested is whether the gain from timeliness is sufficient to offset any losses due to lower precision. The hope is that the aggregate accuracy will improve because of more timely data even if the probability of misclassifying a particular census tract increases because of smaller sample sizes.

We do not make this suggestion as a formal recommendation because we recognize that the benefits of timeliness may not compensate for the loss of precision.

New OMB Guidelines

The new concept of micropolitan areas will affect HUD's efforts with respect to all three housing goals. For the low and moderate-income goal, HUD currently compares the income of borrowers in non-metropolitan areas to the State or national non-metropolitan median income. Now HUD may want to calculate a median income for each micropolitan area and compare incomes of borrowers in these areas with the local median income. For the underserved goal, HUD currently compares county median income to State or national non-metropolitan median income in non-metropolitan areas. HUD may want to keep this test for non-core based statistical areas but use the equivalent of the metropolitan test in micropolitan areas. For the special affordable housing goal, HUD currently compares county median income to State or national non-metropolitan median income in non-metropolitan areas. Now HUD may want to use this test for non-core based statistical areas but use the equivalent of the metropolitan test in micropolitan areas.

CHAPTER 22: FAIR HOUSING ENFORCEMENT

HUD does not routinely use census data in investigating and conciliating fair housing complaints. We include fair housing enforcement in this Report because the function is so important that HUD should consider whether there are ways that it can use ACS data to strengthen enforcement. The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified six issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS will not have important consequences for HUD's fair housing enforcement efforts. Historically HUD has not made much use of census data in resolving fair housing complaints. Moreover, the variables of most interest to HUD are the racial and ethnic composition of neighborhoods. This information is available from the short form and, in most cases, HUD would probably not choose to substitute more recent but less precise ACS data on these variables for short-form data. There is no reason to believe that replacing the long form with the ACS will have any detrimental effects on fair housing enforcement. In some cases, having intercensal information on changes at the neighborhood level will be beneficial to HUD.

Description of Functions

Purpose: The Fair Housing Law prohibits discrimination in the sale or rental of housing based on race, color, national origin, disability, age, religion, and sex. An individual who believes that he or she has been discriminated against can (a) seek fair treatment and recompense through a federal conciliation process or (b) bring a private suit in Federal court.¹⁴⁶ Congress has assigned HUD responsibility for the conciliation process. HUD is also responsible for ensuring that the agency and its clients carry out HUD programs in a non-discriminatory manner.

Statute: Title VIII of the Civil Rights Act of 1968 as amended (42 U.S.C. 3601 et. seq.) and Title VI of the Civil Rights Act of 1964

Regulations: 24 CFR 100

FY 2001 Appropriation: \$46 million

Why Census-Type Data Are Needed: HUD does not routinely use census data in investigating and conciliating fair housing complaints. Occasionally, an investigation will require analysis of the racial or other characteristics of a small area such as a census tract. For example, a complainant might claim that the owner of an apartment complex or the builder of a subdivision discriminated against him or her by failing to advertise affirmatively. To conciliate this claim, the HUD conciliator should consult census data to determine whether the complainant belongs to a class for which affirmative advertising is required at that location. Generally short-form data would suffice for this purpose.

¹⁴⁶ If the alleged discriminatory action is part of a "pattern or practice" of discrimination, the Department of Justice can bring suit in Federal court.

What Census-Type Variables Are Used: If HUD were to use census data in its efforts to enforce the fair housing laws, the variables most likely to be used would be race, ethnicity, sex, age, family status, disability, income, and tenure. Race, ethnicity, sex, family status, and tenure are available from both the short form and the long form; disability and income are available only from the long form.

How the Census-Type Variables Are Used: Census data enables HUD to compare the characteristics of a small area with the characteristics of the overall area, or with the characteristics of some activity planned for the area. For example, HUD might want to assess the racial and ethnic composition of the neighborhoods where minority Section 8 voucher holders choose to locate, in order to answer the question: Is a public housing authority using its resources to help minority Section 8 families use their vouchers to find accommodations in integrated neighborhoods? Chapter 20 discusses the use of census data in carrying out the Department's site and neighborhood standards.

Discretion Given to HUD: HUD may use whatever data it chooses in its efforts to enforce the fair housing laws.

Examination of Issues

Sample Design

In discussions with us about the ACS, staff from the Office of Fair Housing and Equal Opportunity raised concerns about the adequacy of the sample design for their work. In particular, they worried about inadequate information on the disabled, lack of information on the homeless, and undercounting minorities.

Information on the disabled: At the time of our meetings, it was unclear whether the ACS would be surveying group quarters. This concerned FH&EO staff because many disabled persons live in group quarters. Subsequent discussions with Census Bureau staff clarified the situation.

“Group quarters” is the terminology given by the Census Bureau to any institutional residential facility, such as a dormitory, nursing home, hospital, or prison. Insufficient funding in the planning years will prevent the Census Bureau from being ready to include group quarters in the 2003 ACS. Group quarters will be included in future ACS's. Failure to include group quarters in the 2003 ACS will not affect release of the moving average data in either 2006 or 2008. Adjustments will be made to 2003 numbers so that the moving average data will represent the entire population, including those living in group quarters.

A distinction needs to be made between group quarters and group homes. Group homes are virtually indistinguishable from regular residences and will find their way into the ACS in all years. In general, the Census Bureau will not be able to distinguish a household of unrelated individuals, such as students sharing a house, from a supervised living arrangement involving unrelated individuals, such as a halfway house.

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The Census Bureau does not plan to distinguish in its tabulations between the institutionalized population (those living in group quarters) and the regular population. If there is enough interest in this distinction, a special report may be issued. The microdata file will indicate who lives in group quarters and who does not.

The good news is that the ACS will survey both group homes and group quarters and will report information relating to disabilities for all residents of these places. As a result, all the disabled population will be surveyed, whether they live in regular residences, group homes, or group quarters. In addition, the ACS will use the more detailed questions on disabilities found in the 2000 census as opposed to the more limited questions used in the 1990 census. However, ACS tables will not distinguish between individuals living in ordinary residences and individuals living in group quarters. If one wanted to tally and analyze the characteristics of the disabled who live in group quarters, one would have to use the ACS microdata file. Even then one would not be able to study the disabled living in group homes because the Census Bureau cannot distinguish a group home from a regular residence.

Homeless: The Census Bureau has made several efforts to locate and tally individuals who do not live in regular home or in an institution and refers to this group as persons living in “non-traditional housing.” The Census Bureau scrupulously avoids referring to them as “homeless” because it does not want its tally of these persons to be interpreted as a measure of the extent of homelessness.

The 2000 census tried to count those living in non-traditional housing by surveying homeless shelters, by surveying persons found at service providers, such as soup kitchens, and by surveying persons at known “street sites”. The results of these efforts are summarized in a report entitled, *Emergency and Transitional Shelter Population, 2000*.¹⁴⁷

The ACS will include shelters in group quarters. It will not survey service providers or street sites. The ACS will not produce a separate tally of individuals living in non-traditional housing. We expect that the 2010 census will again try to count these individuals using methods similar to those used in 2000 and will obtain basic short form information on these individuals.

Undercount: This issue involves whether the Census Bureau has a correct count of minorities and whether the sample it uses to describe minorities is representative. The following discussion reaches these conclusions:

- There is a real possibility that the Census Bureau has undercounted minorities but it is not able to produce a better count through statistical adjustment or other means.
- The ACS does not count the population but only describes it.
- ACS counts are based on control totals produced by the Census Bureau from other sources. The existence of the ACS should improve these control totals.

¹⁴⁷ Annetta C. Smith and Denise I. Smith, *Emergency and Transitional Shelter Population, 2000*, Census Bureau, October 21.

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- The ACS appears to have better response rates from all groups than the 2000 census but minorities still fail to respond more often than whites. The ACS is taking steps to improve its response rates; the steps should also reduce any differences in response rates between minorities and whites.
- Better response rates should help the ACS provide better descriptions of all populations, including minority populations.

Decennial censuses fail to count some individuals; other individuals are counted more than once. Errors like these can cause the census to undercount or overcount the population. In recent years, concern has focused on the possibility that the census differentially undercounts some segments of the population. Specifically, it was thought that the 1990 census undercounted African Americans and Hispanics. Advocates and analysts have argued that the Census Bureau should adjust the population count to take into account any differential undercount. After extensive analysis, the Census Bureau concluded that the accuracy of the 2000 decennial census could not be improved through adjustments.

The ACS does not produce a count of the population; it describes the demographic, social and economic characteristics of the population. In reporting ACS results, the Census Bureau will force the ACS tabulations to match independent estimates of the population produced elsewhere in the Census Bureau. The undercount issue concerns these control totals and not the ACS itself. At this time, the Census Bureau has no plans to adjust the control totals for any undercount or overcount in the 2000 census.

ACS counts will be adjusted at the county level to intercensal estimates by age, race, sex, and ethnicity. Some small counties may be combined so that the ACS counts for the combination are adjusted to independent Census Bureau estimates for the combination. The Census Bureau is considering developing a feedback from the ACS into population controls.¹⁴⁸ The population controls do not currently have good information on the race and ethnicity of those who migrate.

Response rates in the 2000 trial run of the ACS, called the Census 2000 Supplementary Survey (C2SS), were uniformly high for all groups and were higher than those from the 2000 long form, but the response rates were somewhat lower for African Americans and Hispanics compared to whites. For this reason, the Census Bureau is considering increasing the follow-up rate in census tracts with low response rates.

Problem Variables

Because staff from the Office of Fair Housing and Equal Opportunity were so interested in the information that the ACS will produce on the disabled, we reproduce here the discussion in Chapter 6 about how the ACS and 2000 long form have better questions on disability than the 1990 census did.

¹⁴⁸ The “feedback” might work like this. Assume that the Census Bureau’s intercensal estimates indicate that a county has a African American population equal to 30 percent of the total population. Assume that ACS finds that 33 percent of the population in African American. The Census Bureau might use statistical methods to blend the 30 percent and 33 percent estimate to obtain a more reliable estimate of, for example, 31.5 percent.

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Exhibit 22.2 displays the questions used to inquire about disabilities on the 1990 long form, the 2000 long form, and the ACS. These questions are asked with respect to each person in the household. From HUD’s perspective, the 2000 long form and the ACS should be a substantial improvement over the 1990 long form in terms of useful information on disabilities.

Exhibit 22.2: Disability Questions from the 1990 & 2000 Censuses and the ACS

1990 Census	2000 Census	ACS
<p>Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which –</p> <ul style="list-style-type: none"> a. Limits the kind or amount of work this person can do at a job? b. Prevents this person from working at a job? <p>Because of a health condition that has lasted for 6 or more months, does this person have any difficulty –</p> <ul style="list-style-type: none"> a. Going outside the home alone, for example, to shop or visit a doctor’s office? b. Taking care of his or her own personal needs, such as bathing, dressing, or getting around inside the home? 	<p>Does this person have any of the following long-lasting conditions:</p> <ul style="list-style-type: none"> a. Blindness, deafness, or a severe vision or hearing impairment? b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying? <p>Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:</p> <ul style="list-style-type: none"> a. Learning, remembering, or concentrating? b. Dressing, bathing, or getting around inside the home? c. (Answer if this person is 16 YEARS OLD OR OLDER.) Going outside the home alone to shop or visit a doctor’s office? d. (Answer if this person is 16 YEARS OLD OR OLDER.) Working at a job or business? 	<p>Does this person have any of the following long-lasting conditions:</p> <ul style="list-style-type: none"> a. Blindness, deafness, or a severe vision or hearing impairment? b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying? <p>Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:</p> <ul style="list-style-type: none"> a. Learning, remembering, or concentrating? b. Dressing, bathing, or getting around inside the home? c. (Answer if this person is 16 YEARS OLD OR OLDER.) Going outside the home alone to shop or visit a doctor’s office? d. (Answer if this person is 16 YEARS OLD OR OLDER.) Working at a job or business?

The 2000 long form and the ACS ask two questions whose wordings are identical on both surveys. The 1990 long form asks two questions that together include three elements of the second question on the 2000 long form and the ACS. The 1990 long form does not ask about the two elements in the first question on the 2000 long form and the ACS; nor does it ask about difficulty in “learning, remembering, or concentrating”.

Currently the Census Bureau plans to tabulate disability status by age and type of disability and by age, by sex, and by employment status. Racial and ethnic characteristics are likely to be available from the SF4 summary file, but the Census Bureau has not yet released the tabulation plans for the SF4. To obtain other characteristics of the disabled, one would have to obtain special tabulations from the Census Bureau.

Short Form Variables

The variables of most interest to the Office of Fair Housing and Equal Opportunity – race and ethnicity – are found on the short form not the long form. Short-form variables experience the same aging problems that long-form variables face. In the course of a decade, the racial and

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ethnic composition of an area can change, occasionally dramatically. For this reason, HUD might consider using ACS data to obtain a more recent racial characterization of an area.¹⁴⁹

Three factors would argue against substituting ACS data for short form data.

- First, there would be a significant loss of precision. Short form data represent a 100 percent sample. The ACS sample is 2.5 percent for annual data and 12.5 percent for five-year moving average data. For the small areas typically involved in fair housing complaints, one would have to take care even with a 12.5 percent sample.
- Second, the gain in timeliness is not as significant for places where the standard tables are based on moving averages. For example, for census tracts, the 2007 ACS would not be available until mid-2008 and would report average racial composition over the period from 2003 to 2007. The center of the period being analyzed would be 3 years old by mid-2009; this compares with 7.25 years old for the decennial short form counts.
- Third, the ACS data will not be available at the block level. For some purposes, HUD uses block level data to construct neighborhoods. This is often the case in fair housing complaints.

While there are good reasons for not using ACS data in place of short-form data, the decision should be made on a case-by-case basis. HUD users may be able to find creative ways to mix short-form data and ACS data for the same variables. For example, one could use the annual data in the research product to examine whether the racial composition of an area has changed over the decade, particularly if the area contained two or more census tracts.

Block Groups & Tract Parts

In analyzing fair housing issues, one sometimes needs to construct data on a neighborhood that does not follow census tract boundaries. One can generally do this with block data but only some census variables are available at the block level, notably race, ethnicity, and tenure. Other important variables, such as income and disability status, are available from the decennial census at the block group level. While one can match neighborhood boundaries with block group boundaries more easily than one can with census tract boundaries, mismatches will occur often.

ACS data will be available at the block group level but not at the block level. ACS block group data will have three limitations that will greatly reduce their usefulness for fair housing purposes.

- First, ACS block group data will be based on very small sample sizes and will be imprecise even in five-year moving average format.
- Second, block group data will not be considered “official” Census Bureau data and they will not be available in easy-to-access tables. Because of the small sample sizes, the Census Bureau will not include data at the block group level in the tables it provides on the Internet.

¹⁴⁹ Users should note that the ACS does not provide an independent estimate of the number of persons by race and ethnicity. The Census Bureau controls the ACS counts at the county level to independent estimates of population by age, race, sex, and ethnicity.

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It will provide block group data in CD format for use by researchers and others who understand the limitations of these data. These data will not be available until 2008 when the first census tract information will be released.

- Third, to prevent users from being able to derive information about individual respondents from ACS tabulations, the Census Bureau will use a “swapping” technique in which information for persons within an area are swapped with information for similar persons outside the area. This technique has been designed to prevent changing the basic character of an area, i.e., swapping will not make a poor area appear rich. Nevertheless, one would have to be concerned about the validity of any point estimates, such as poverty rates, tenure rate, or racial composition, derived from swapped data. Information on areas smaller than a census tract is likely to be based on swapped data. The same techniques are already used in the decennial census, but these techniques will be used more frequently in the ACS because of its lower sampling rate.

Sample Size/Precision

Exhibit 22.2 provides estimates of the precision of the ACS at the census tract level. It implicitly assumes that the appropriate neighborhood boundaries match census tract boundaries and that the neighborhood is no larger than one census tract. The average census tract contains 4,000 residents, but there are many tracts with populations between 1,500 and 2,500 and a large number with populations less than 1,500.

Exhibit 22.2 Estimated Coefficient of Variation for Important Fair Housing Statistics¹⁵⁰

Population of the Census Tract	Coefficient of variation		
	Proportion Minority = 80%	Proportion of Households with Income < 50 percent of median = 50%	Proportion of Population over 5 Years Old with Disabilities = 16%
1,500	5.9%	11.8%	27.0%
2,000	5.1%	10.2%	23.4%
4,000	3.6%	7.2%	16.6%

The coefficients of variation are reasonable considering the small area being studied. For example, in an average (4,000) census tract, if the ACS measured the minority population at 80 percent of the total population, one could be 90 percent confident that the true percentage is between 75 percent and 85 percent. If the ACS measured the proportion disabled as 16 percent, one could be 90 percent confident that the true percentage is between 12 percent and 20 percent.¹⁵¹

The adequacy of this level of precision depends upon the use. For some fair housing uses, it may not matter whether the true percentage of minorities is 75% or 80%. Other uses may require greater precision.

¹⁵⁰ The coefficient of variation is the ratio of the standard error to the estimate.

¹⁵¹ The coefficient of variation is a relative measure and therefore appears larger for smaller estimates. If we had assumed that the proportion of disabled persons were 80 percent, then the coefficient of variation for a population of 4,000 would have been 3.6 percent.

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New OMB Guidelines

Independent of the ACS, the new OMB guidelines on the categorization and reporting of race and ethnicity will affect the use of census data and other federal statistics for fair housing purposes.

On October 30, 1997, the Office of Management and Budget (OMB) published "Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity" (Federal Register, 62 FR 58781 - 58790). The new guidelines impose two key requirements: the ability to choose more than one race and making race and ethnicity into separate questions. Before the 1997 guidelines, persons were forced to classify themselves as members of only one racial group; now individuals can claim multiple races. The 2000 census was the first decennial census to allow persons to identify themselves with more than one race. In this census, 6.8 million persons (2.4 percent) classified themselves as members of two or more races. The proportion choosing multiple races was larger for the younger age groups. The new practice can have a substantial impact on the number of persons considered members of a given race. In the 2000 census, 2,475,956 persons classified themselves as American Indian or Native Alaskan only, but 4,119,301 persons classified themselves as either American Indian or Native Alaskan only or American Indian or Native Alaskan and another race – a 66 percent increase.

The question for fair housing specialists is how to classify persons claiming more than one race. For example, in examining whether a public housing agency is using its resources effectively to help Section 8 recipients find housing in integrated areas, the classification of the neighborhoods chosen by Section 8 holders may vary depending upon how one categorizes persons of multiple racial backgrounds. For the foreseeable future, this will probably not be a serious problem because of the small number of persons who classify themselves as members of more than one race. But the problem will increase over time and will affect how one uses ACS data.

CHAPTER 23: THE CONSOLIDATED PLAN

HUD obtains special tabulations of decennial census data from the Census Bureau and packages the data for use by local governments. Local governments use the data for planning purposes in general and specifically for satisfying the requirements of the Consolidated Plan in applying for HUD funding.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified nine issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

The ACS will enable HUD to provide jurisdictions with much more current information on local conditions. Users will have to be careful about small sample sizes when looking at subsets of the population, e.g., the housing needs of elderly African Americans; but this problem is not unique to the ACS. Looking at subsets of the population can result in small sample sizes even with long-form data.

Description of Functions

Purpose: HUD developed the consolidated plan to streamline the application process for HUD program funds and to integrate and enhance the associated local planning processes. The consolidated plan is the application vehicle for the Community Development Block Grant program, the Emergency Shelter Block Grant program, the HOME Investment Partnerships program, and the Housing Opportunities for Persons with AIDS program. In additions, for 17 other programs, HUD requires that the jurisdiction either have a consolidated plan or certify that the application is consistent with a HUD-approved consolidated plan.

Statute: The legislative roots of the consolidated plan are found in Section 105 of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12704 et seq.), which mandates HUD to require a comprehensive housing assistance strategy (CHAS). Each program has its own statutory application requirements.

Regulations: 24 CFR 91

FY 2001 Appropriation: \$7.823 billion for the four programs that use the consolidated plan as their application vehicle.

Why Census-Type Data Are Needed: The regulations for submitting a Consolidated Plan require States and communities to consider, among other concerns, factors such as: cost burden, overcrowding, lead-based paint hazards, and the housing needs of large families, the disabled, the elderly, single persons, renters, owners, extremely low-income families, low-income families, moderate-income families, and poverty-level families. States and communities must also identify “the extent that any racial or ethnic group has disproportionately greater need in comparison to the needs of that category as a whole.”¹⁵² Submitters must also “identify and

¹⁵² 24 CFR 91.205(b)(2)

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describe any areas within the jurisdiction with concentrations of racial/ethnic minorities and/or low-income families.”¹⁵³

What Census-Type Variables Are Used: Relevant long-form variables include: household income, gross rent, number of persons, number of rooms, age of structure, incomplete plumbing, incomplete kitchen, disability, age, family status, tenure, race, and ethnicity.¹⁵⁴ Age, family status, tenure, race, and ethnicity are also available on the short form.

How the Census-Type Variables Are Used: In general, States and communities must assess their housing and urban development needs, develop a strategic plan by setting priorities and objectives, and submit an action plan. HUD provides States and communities with pre-packaged data from the 1990 decennial census that they can use to prepare their needs assessments. States and communities have some discretion in how they use these data to derive their needs assessment but HUD does prescribe a priority housing needs table.

Discretion Given to HUD: 24 CFR 91.205(a) states:

“The consolidated plan must describe the jurisdiction’s estimated housing needs projected for the ensuing five-year period. Housing data included in this portion of the plan shall be based on U.S. Census data as provided by HUD, as updated by any properly conducted local study, or any other reliable source that the jurisdiction clearly identifies...”

Examination of Issues

Problem Variables

The following variables may be important components of the data that HUD prepares for local governments. Users should be aware of some special features of these variables:

Income: The ACS will generate income distributions comparable to those from the decennial census but users need to be aware of three important differences.

- The long form asks respondents to report their income for the previous calendar year. Income distributions from the 2000 census will represent 1999 income. The ACS asks respondents to report income earned over the past 12 months.
- Because the Consolidated Plan reports information at both the jurisdiction and census tract level¹⁵⁵, the HUD data package will contain income estimates based on annual ACS data, three-year moving averages, and five-year moving averages.
- The Census Bureau plans to report income in constant dollars. Income information collected in the various months will be adjusted for inflation so that all income information will be adjusted for changes in purchasing power over the period used to calculate the moving

¹⁵³ 24 CFR 91.210(a)

¹⁵⁴ Age of structure is listed as a possible indicator of units that may contain lead-based paint.

¹⁵⁵ The HUD data packages contain some information at the block group level.

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average. For tables at the census tract level, income reported by a respondent in the first month of a five-year moving average will be adjusted for almost five years of inflation.

The combined effect of these three differences is that the long form reports money income for 1999 and the ACS reports average purchasing power over a one-year, three—year, or five-year period.

Vacancy Rates: Chapter 3 explained how the ACS uses a “current residence” concept while the decennial census uses a “usual residence” concept. Both concepts lead to legitimate and workable interpretations of what is vacant and what is occupied. Generally, if they are properly measured, the two concepts should produce measures of the vacancy rate that differ only slightly. This may be not true, however, in places with large seasonal populations such as Florida, Arizona, and mountain and beach resorts.

While the ACS concept of residence leads to a valid vacancy rate in theory, there is a bias in how the ACS measures vacancy under this concept. The ACS asks people to report things as they stand on the day when they respond. A certain percentage of mail questionnaires are returned from all occupied units but none from vacant units. When telephone or in-person follow-up occurs, the question is asked as of that point in time. So some units that were vacant on the day the questionnaires arrived may subsequently be reported as occupied. Simulations performed by the Census Bureau indicate a downward bias in vacancy estimates of the magnitude of 1.2 percentage points.

Disability: The ACS uses the same questions on disabilities as were used on the 2000 long form. These questions request the same information collected in 1990 plus additional information. The 1990 long form does not ask about “blindness, deafness, or a severe vision or hearing impairment” or about a condition that substantially limits “basic physical activities such as walking, climbing stairs, reaching, lifting or carrying” or about difficulty in “learning, remembering, or concentrating”. Exhibit 6.2 compares the questions used on the three surveys.

Assisted Housing: The 2000 C2SS form of the ACS contained two questions related to housing subsidies that might be useful in assessing housing needs at the community level. The first question asks whether any Federal, State, or local program is paying part of the rent and then asks whether the assistance is “Section 8” or “some other government program.” The second question asks whether the unit is in a public housing project or is part of a government housing project.

Past experience has shown that respondents make many mistakes in answering questions of this nature. Some respondents have difficulty determining whether or not they receive any rental assistance and, of those that do identify themselves as assisted, many misidentify the type of assistance they receive. ORC Macro is now working with HUD to devise the best way to gather this information from people.

The assisted housing question will not be asked in the first full ACS survey in 2003 and currently there are no plans to include the question in future ACS's. If HUD is interested in this

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information, the Department will need to convince the Census Bureau that there is a statutory or regulatory requirement for the information.

Short Form Variables

The data packages that HUD prepares for local governments provide information at the jurisdiction level, the census tract level, and even the block group level. A key descriptor at all levels is the racial and ethnic composition of the population. Race and ethnicity are variables found on the short form not the long form. Short-form variables experience the same aging problems that long-form variables face. In the course of a decade, the racial and ethnic composition of an area can change, occasionally dramatically. For this reason, HUD might consider using ACS data to obtain a more recent racial characterization of an area.¹⁵⁶

Two aspects of the ACS data would argue against substituting them for short form data.

- First, there would be a significant loss of precision. Short form data represent a 100 percent sample. The ACS sample is 2.5 percent for annual data, 7.5 percent for three-year moving average data, and 12.5 percent for five-year moving average data. For large jurisdictions, these samples should provide reasonably precise estimates of racial composition. For small areas, one would have to take care even with a 12.5 percent sample but may be able to use them safely to provide a general characterization of an area. (See discussion of use of census tract ACS data in the discussion of Sample Size/Precision below.)
- Second, the gain in timeliness is not as significant for places where the standard tables are based on moving averages. For example, for census tracts, the 2007 ACS would not be available until mid-2008 and would report average racial composition over the period from 2003 to 2007. The center of the period being analyzed would be 3 years old by mid-2009; this compares with 7.25 years old for the decennial short form counts.

Block Groups and Tract Parts

HUD provides some block group data to jurisdictions for use in planning housing and community development activities. Both HUD and local jurisdictions should be aware of the limitations of the block group data that will be available from the ACS.

ACS data will be available at the block group level but not at the block level. ACS block group data will have three limitations that will greatly reduce their usefulness for fair housing purposes.

- First, ACS block group data will be based on very small sample sizes and will be imprecise even in five-year moving average format.
- Second, block group data will not be considered “official” Census Bureau data and they will not be available in easy to access tables. Because of the small sample sizes, the Census Bureau will not include data at the block group level in the tables it provides on the Internet.

¹⁵⁶ Users should note that the ACS does not provide an independent estimate of the number of persons by race and ethnicity. The Census Bureau controls the ACS counts at the county level to independent estimates of population by age, race, sex, and ethnicity.

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It will provide block group data in CD format for use by researchers and others who understand the limitations of these data. These data will not be available until 2008 when the first census tract information will be released.

- Third, to prevent users from being able to derive information about individual respondents from ACS tabulations, the Census Bureau will use a “swapping” technique in which information for persons within an area are swapped with information for similar persons outside the area. This technique has been designed to prevent changing the basic character of an area, i.e., swapping will not make a poor area appear rich. Nevertheless, one would have to be concerned about the validity of any point estimates, such as poverty rates, tenure rate, or racial composition, derived from swapped data. Information on areas smaller than a census tract is likely to be based on swapped data. The same techniques are already used in the decennial census, but these techniques will be used more frequently in the ACS because of its lower sampling rate.

Sample Size/Precision

We will discuss precision for two levels of data, jurisdiction-wide statistics and census tract statistics.

Statistics at the Jurisdiction Level: For jurisdictions with populations of 65,000 or more, the Census Bureau will release tables based on annual ACS data. As noted in Chapter 3, estimates based on annual ACS data will have about 2.5 times the long-form standard error. In high population areas, the sample size will be large enough to produce useful estimates at the jurisdiction level. But, even in the areas with very large populations, one can run into sample size problems when one looks at small subpopulations.

The annual ACS sample for a place with 65,000 persons will be roughly 623 households ((65,000/2.61 persons per household)*0.025 sampling rate). On average only about 1 in 8 of these households (78) would be African American and only about 1 in 4 households (156) will have income less than 50 percent of area median income. The number of renter households would be approximately 208.

If one were interested in the proportion of households spending 50 percent or more of their income on rent, then one would have a sample of 208 to estimate this percentage. If one were interested in the proportion of African American households spending 50 percent or more of their income for rent, one would have a sample of 42 to estimate this percentage. If one were interested in the proportion of elderly African American households spending 50 percent or more of their income for rent, one would have a sample of 4 to estimate this percentage.¹⁵⁷ Cutting the ACS sample into more refined subpopulations reduces sample size and reduces precision.

Nationally, 18 percent of black renters spend more than 50 percent of their income for rent. If this proportion held for this jurisdiction of 65,000, the ACS sample would have a standard deviation of 6 percent and coefficient of variation of 33 percent for this estimate. If the same

¹⁵⁷ The renter proportions are taken from the 1999 national American Housing Survey.

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proportion held for black elderly renters, the standard deviation would be as large as the estimate.

The Consolidated Plan calls for a wide range of analyses that involve multiple cuts of the population. HUD and local governments need to be concerned with the reliability of the estimates. This problem is not unique to the ACS. Multiple cuts of the population results in small samples and less precision for the long form as well. However, the long form provides a larger base sample so that the sample available after each cut is roughly 7 times larger than the sample available from the ACS annual data.

HUD could provide jurisdictions with populations of 65,000 or more with both annual data and moving average data to analyze needs among subpopulations. The moving average data would be more precise; the annual data more timely. If there were substantial differences in statistics from the two series, local jurisdictions could choose the statistic that they believe measures conditions more accurately.

For small areas, the Census Bureau will release standard tables based on either three-year moving averages (places with populations between 20,000 and 65,000) or five-year moving averages (places with populations less than 20,000). A place with a population of 40,000 would have standard tables based on approximately 1,149 households. Once again the sample sizes for subpopulations will be small. And once again the precision of statistics for subpopulations is not a new question. The same concerns apply to statistics derived from the long form. In fact, the relative advantage of the long form is less in these cases. The long form provides a base sample 7 times larger than annual ACS data but only 2.2 times larger than a three-year ACS moving average and only 1.3 times larger than a five-year ACS moving average.

Statistics at the Census Tract Level: Local jurisdictions submitting Consolidated Plans must also identify and describe any areas within the jurisdiction with concentrations of racial/ethnic minorities and/or low-income families. HUD provides census tract level data for these purposes.

Exhibit 23.1 estimates the coefficient of variation for three statistics that might be used to describe an area within a community. The Exhibit calculates the statistics for areas comprising a single census tract, three census tracts, and five census tracts. (The estimates assume that HUD provides data based on five-year ACS moving averages and that each tract contains 4,000 persons, the average size of census tracts.)

Exhibit 23.1 Estimated Coefficient of Variation for Key Descriptive Statistics¹⁵⁸

Number of Census Tracts	Coefficient of variation		
	Proportion Minority = 80%	Proportion of Households with Income < 50 percent of median = 50%	Poverty rate = 40%
One	3.6%	7.2%	8.8%
Three	2.1%	4.2%	5.1%
Five	1.6%	3.2%	4.0%

¹⁵⁸ The coefficient of variation is the ratio of the standard error to the estimate.

The coefficients of variation are reasonably small. For example, assume a jurisdiction uses ACS data to determine that an area containing five census tracts is 80 percent minority, has half of its households with incomes less than 50 percent of median income and has a poverty rate of 40 percent. That jurisdiction could be 90 percent confident that the area had a minority population between 78% and 80%, that between 47% and 53% of the households have incomes less than 50 percent of median income, and that the poverty rate is between 37% and 43%. The jurisdiction could be reasonably sure that it has characterized accurately.¹⁵⁹

The level of precision needed depends upon the function being performed. If eligibility for a benefit depends upon an area satisfying a specific numerical test, then one would want a high level of precision and one would be concerned about sampling variation causing the eligibility of the area to change from year to year. For planning purposes, one is usually content to determine whether an area has certain general characteristics. The ACS data appear to be sufficiently precise for that purpose.

Variable Base Period

HUD will have the option of providing some jurisdictions with multiple ACS estimates of jurisdiction-level data. Jurisdictions with populations of 65,000 or more could be given statistics based on one year of ACS data, three-year moving averages, and five-year moving averages. Jurisdictions with populations between 20,000 and 65,000 could be given statistics based on three-year moving averages and five-year moving averages.

In deciding what to provide, HUD should consider three factors:

- **Simplicity:** It may be preferable for jurisdictions to incorporate one set of statistics into their planning process than to incorporate multiple sets.
- **Timeliness:** Annual data are more current than moving average data and three-year moving average data are more current than five-year moving average data.
- **Precision:** Five-year moving average data are more precise than three-year moving average data and three-year moving average data are more precise than annual ACS data. Larger base samples make analysis of subpopulations easier and safer.

Despite the appeal of simplicity, we recommend providing jurisdictions with all available ACS data and allowing them to choose which set of estimates best describes their understanding of local conditions. However, HUD may want to insist that jurisdictions use a consistent set of statistics to describe conditions. In other words, jurisdictions should not be allowed to use a five-year moving average to describe vacancy and use annual data to describe poverty.¹⁶⁰

¹⁵⁹ If the area contained only one average-sized census tract, then the jurisdiction could be 90 percent confident that the area had a minority population between 75% and 85%, that between 44% and 56% of the households have incomes less than 50 percent of median income, and that the poverty rate is between 34% and 46%.

¹⁶⁰ A jurisdiction should be able to use multiple estimates to illustrate features of a particular problem.

“Unofficial” vs. “Official” Data

As explained in Chapter 3, the Census Bureau recognizes that the annual data for small places will be valuable for some users. Therefore, the Census Bureau has decided to provide a separate tabulation annually that will contain the standard tables for all places based on one year of data only. This release is intended for “expert” users only because it contains information on smaller areas that the Census Bureau considers too imprecise to release to the general public. This information will not be considered “official” Census Bureau numbers. For this reason these tables will not be available on the Internet like the official ACS tables; they will only be available in a file. The Census Bureau staff has informally labeled this file of annual data as the “research product”. Currently the Census Bureau does not plan to begin releasing the research product until 2008, that is, until after the first round of five-year moving average data for census tracts becomes available. The unofficial annual data will not be available until after official moving average data are available.

We recommend that HUD not distribute “unofficial” data to local jurisdictions. Because the Consolidated Plan requires local jurisdictions to focus on subpopulations, we believe that the sample sizes in the “unofficial” data would not be sufficient to support the accurate characterizations of subpopulations.

24 CFR 91.205(a) allows jurisdictions to use sources other than data provided by HUD. Some jurisdictions may choose to use the “unofficial” annual data. HUD should be prepared to respond to this eventuality. HUD should develop criteria to determine under what conditions use of the “unofficial” data would be acceptable.

Laws and Regulations

In other Chapters, we have discussed concerns about statutory or regulatory language that might require HUD to update certain determinations too frequently. Neither the statute nor the regulations require HUD to update the data packages that it furnishes to local jurisdictions every time new census data are available. After 2008, HUD will be in the position to update these packages annually. HUD should decide in advance how frequently to update these designations.

At one time, we were concerned that too frequently updating could cause problems for local jurisdictions in sampling variation resulting in substantial year-to-year swings in key variables. Now our recommendation is to update annually. Precision is always going to be a problem for the characteristics of subpopulations. As long as HUD and local jurisdictions understand that the statistics that describe these subpopulations may experience some erratic movements and that local planning should not respond to what may be erratic movements, then having the most recent data should benefit both HUD and local jurisdictions. If HUD provides moving-average ACS tabulations along with annual ACS data to large jurisdictions, then the danger of erratic movements will be less because moving-averages smooth year-to-year fluctuations.

Transition

We recommend that HUD begin incorporating ACS data into its data packages as soon as the data become available. This means that the packages HUD prepares in 2005 would have 2003

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ACS data for jurisdictions with populations of 65,000 or more and 2000 long-form data for other jurisdictions. The ACS data will be useful to jurisdictions and they should have it as soon as it becomes available.

Providing jurisdictions data based on different surveys does not create any fairness concerns because HUD approves plans on their own merits and not in comparison to other plans.

New OMB Guidelines

Independent of the ACS, the new OMB guidelines on the categorization and reporting of race and ethnicity will affect the use of census data for planning purposes.

On October 30, 1997, the Office of Management and Budget (OMB) published "Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity" (Federal Register, 62 FR 58781 - 58790). The new guidelines impose two key requirements: the ability to choose more than one race and making race and ethnicity into separate questions. Before the 1997 guidelines, persons were forced to classify themselves as members of only one racial group; now individuals can claim multiple races. The 2000 census was the first decennial census to allow persons to identify themselves with more than one race. In this census, 6.8 million persons (2.4 percent) classified themselves as members of two or more races. The proportion choosing multiple races was larger for the younger age groups. The new practice can have a substantial impact on the number of persons considered members of a given race. In the 2000 census, 2,475,956 persons classified themselves as American Indian or Native Alaskan only, but 4,119,301 persons classified themselves as either American Indian or Native Alaskan only or American Indian or Native Alaskan and another race – a 66 percent increase.

The most immediate question is how to categorize persons who classify themselves as members of more than one race. This issue arises in the context of how to analyze subpopulations for the Consolidated Plan. We recommend including everyone who classifies himself or herself as a member of a race, even if the person classifies her- or himself as a member of one or more other races. We believe that this approach is most consistent with the reasons for the analysis of subpopulations required by the Consolidated Plan. It has the additional advantage of increasing the sample sizes available to describe a particular racial or ethnic group.

CHAPTER 24: THE ANNUAL PERFORMANCE PLAN

The Department's Annual Performance Plan (APP) specifies the outcomes that HUD expects to achieve through its programs. At various times, some of the performance indicators have been expressed in terms that require use of long-form data to measure their attainment. After reviewing all the outcome indicators in the FY 20023 APP, we found only one indicator that was linked explicated to the ACS.

The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified four issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

By providing intercensal information on cities, counties, and census tracts, the ACS will provide HUD with better data with which to track the effects of its activities. At the national level, HUD will be able to choose between ACS measures and measures from other surveys such as the Current Population Survey or the American Housing Survey.

Description of Functions

Purpose: The Department's Annual Performance Plan (APP) specifies the outcomes that HUD expects to achieve through its programs. The APP links HUD's mission statement to a set of strategic goals, which, in turn, are linked to more specific strategic objectives. For each strategic objective, the APP develops performance indicators. The APP also identifies what external factors may hinder or help the Department achieve the desired impact.¹⁶¹

Statute: Government Performance and Results Act of 1993

Regulations: OMB circular A11, Part 2. See also GAO guidance in *Performance Plans, Selected Approaches for Verification and Validation of Agency Performance Information* (GD-99-139, July 1999)

FY 2001 Appropriation: Not applicable

Why Census-Type Data Are Needed: At various times, some of the performance indicators have been expressed in terms that require use of long-form data to measure their attainment. For example, in the FY 2001 APP, outcome indicator 2.2.2 requires the calculation of a segregation index for low-income households. Income data by census tract is currently available only from the long form, but in the future it will be available from the ACS.

What Census-Type Variables Are Used: Income and poverty are the primary long-form variables that have been used to construct measures for performance indicators. Other variables include employment and tenure.

¹⁶¹ See *FY 2002 Annual Performance Plan* for an exposition of HUD's strategic goals, strategic objectives, program output indicators, and outcome indicators.

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How the Census-Type Variables Are Used: After reviewing all the outcome indicators in the FY 2003 APP, we found only one indicator that was linked explicated to the ACS. Indicator 8.2.10 calls for HUD to increase the number of multifamily rental units in underserved areas insured by FHA by 5 percent. The ACS was cited as a source of information to identify underserved areas. Other indicators use variables available from the ACS and other sources, such as, the Current Populations Survey and the American Housing Survey. In every case, the FY 2003 APP cites the alternative source.

The ACS was cited more frequently in the FY 2002 APP. With respect to this older document, the following observations are relevant to the relationship between the ACS and the APP.

- The FY 2002 APP anticipates the ACS. Some of the proposed measures involve changes in long-form variables during periods shorter than 10 years. For example, 4.2.4 sets the following target: The share of impoverished persons who live in neighborhoods with extreme poverty will decrease by 2 percentage points from 2000 levels by 2005.
- The outcome indicators that measure changes at the national level could use ACS data but could also use other data sources such as the Current Population Survey (CPS) or the American Housing Survey (AHS). For example, all the homeownership indicators are available from the CPS as well as the ACS. They are also available biennially from the AHS. The ACS data could be used for verification and validation of performance information gathered from other sources.
- Even some of the local indicators are available from other sources. For example, 4.2.1 is a measure constructed at the central city level using unemployment, population loss, and poverty. While unemployment is available from the ACS, the Bureau of Labor Statistics' small area unemployment estimates provide a timelier but less precise source.
- Sometimes long-form variables are used to set the context for measurement of a variable from another source. For example, 4.3.4 sets as a goal an increase of three percent in the capital used to rehabilitate housing in underserved neighborhoods. The ACS would be used to identify underserved neighborhoods while Home Mortgage Disclosure Data would be used to measure capital inflows.

Discretion Given to HUD: There are no statutory or regulatory constraints on the data HUD uses to construct outcome indicators.

Examination of Issues

Continuous vs. Point-in-Time Data Collection

The point-in-time data collection process for the decennial long form meshes well with the APP process. The 1990 long form provided a snapshot of the nation as of April 1, 1990, and the 2000 long form provided a snapshot of the nation as of April 1, 2000. Statistics from the two long forms can be used to measure changes over the 10-year period.

The ACS collects data continuously. The Census Bureau tabulates national data annually. Statistics from the 2003 ACS and 2004 ACS can be used to measure changes between average

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conditions in 2003 and average conditions in 2004. While the interpretation is different, continuous data collection also fits well with the APP process at the national level.

Three problems might arise if HUD were to construct complex measures that require local data because local data may be based on moving averages that cover multiple years.

- First, the changes that one would observe are the differences between two-multiyear periods. Unless care is taken in formulating the goal, the measurement will not match the concept in the goal. For example, as explained above, 4.2.4 from the FY 2002 required HUD to measure the change in share of impoverished persons who live in neighborhoods with extreme poverty from 2000 levels by 2005. This involves using ACS data at the census tract level. The Census Bureau will release census tract data from the ACS for the first time in 2008; these tables will be constructed from data collected from 2003 through 2007. Since 2005 is the mid-point of this period, we will presume that these data could be used to construct the measure envisioned in 4.2.4. Using the 2000 census and the ACS to calculate 4.2.4, one would be measuring the change between a snapshot taken on April 1, 2000 and an average computed over the 2003 through 2007 period. This measurement is not exactly what the language of the goal specifies.
- Second, if the observation period is short, the two ACS measurements will be based on some of the same observations. For example, one might reformulate 4.2.4 in terms of the change between 2005 and 2008. Then the 2005 measurement would be based on data collected in 2003 through 2007. The 2008 measurement would be based on data collected in 2006 through 2010. The ACS surveys for 2006 and 2007 would be used to construct both measures. Since both measurements include the same observations, it will be more difficult to observe changes. The common observations will dampen the effect of differences in the other years.
- Third, overlap in samples changes the nature of the measurement. Because of the overlap, the difference in the statistics is really the difference between the non-overlapping portions of the periods. In the preceding example, instead of measuring changes between 2005 and 2008, the calculation would measure how changes between the 2003 through 2005 period and the 2008 through 2010 period affect a five-year average that includes the 2006 and 2007 period.

These problems are not serious but they do require care in constructing and interpreting measures.

Problem Variables

The ACS will generate income distributions comparable to those from the decennial census, but the distributions will have a feature that will complicate the use of income data from the ACS in APP measures. Whereas the decennial long form measures money income, the ACS reports average purchasing power.

The Census Bureau plans to report income in constant dollars. Income information collected in the various months will be adjusted for inflation so that all income information will be adjusted for changes in purchasing power over the period used to calculate a moving average. For tables

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at the census tract level, income reported by a respondent in the first month of a five-year moving average will be adjusted for almost five years of inflation.

Assume that HUD were to use the change in income in underserved areas between 2005 and 2010 as an APP measure. The ACS actually measures changes in average purchasing power between these two periods.

Conflicting Sources

The section on conflicting sources in Chapter 6 explained that HUD has available alternatives to the ACS as sources of information on unemployment, income and poverty, homeownership, and vacancy. The section discussed how the ACS and these alternatives differ on concept, level and frequency of reporting, adequacy of sample, and timely availability. The choice between the ACS and an alternative depends upon how a measure is defined.

We use two examples from the FY 2002 APP.

- Objective 1.1.3 calls for the homeownership rate among households with incomes less than median family income to increase by 0.5 percentage points. This goal is defined nationally. Both the CPS and ACS provide statistically precise measures at this level. In this case, we would recommend the CPS because the statistic being tracked is reported earlier.
- Objective 4.2.1 calls for a reduction of 2 in the number of cities that are doubly burdened with high unemployment and either a significant population loss or high poverty. The ACS is the only source of intercensal data on poverty for cities. The Census Bureau is the only source of intercensal population estimates. Both the ACS and the Bureau of Labor Statistics provide unemployment rate estimates for cities. In this case, we would recommend using the ACS because it measures unemployment directly whereas the BLS uses statistical models to estimate unemployment rates for cities.¹⁶²

Transition

HUD would probably use sources other than the ACS to track goals measured at the national level. But, if a goal requires aggregating data for a number of localities, then there is often no alternative to the ACS.

HUD generally states its APP goals as the difference between conditions now and conditions at some time in the future. Because census tract level ACS data will not be available until 2008, the APP would probably use the decennial census to set a baseline for the next few years for goals that require aggregating data from a number of localities. If so, HUD users need to be careful that differences between the decennial long form and the ACS in data collection techniques or variable definitions do not confound the measurement of change.

¹⁶² BLS will incorporate ACS data into its statistical models and, in time, the BLS estimates may be as reliable or even more reliable than the ACS measures. Also the BLS estimates unemployment rates on the basis of the CPS measure of the labor force which is a conceptually better approach.

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In the discussion of problem variables in this Chapter, we pointed out that the decennial census measures money incomes while the ACS measures purchasing power. The decennial census and the ACS have different residency concepts and these concepts will affect the measurement of vacancy rates and homeownerships. In addition, there is a bias in the ACS measurement of vacancy rates. Finally, the decennial census and HUD have different definitions of “in-movers.” Chapter 6 contains a fuller discussion of all of these differences.

CHAPTER 25: THE NATIONAL URBAN POLICY REPORT

By statute, the Executive Branch must prepare biennially a National Urban Policy Report that assesses conditions in urban areas and articulates a coordinated Federal policy to improve urban conditions. The first part of the Chapter provides background information on this function. This material is drawn from the Inventory of Current Uses. Exhibit 7.1 identified nine issues that could present problems for HUD in using ACS data for these purposes. The second part of the Chapter will discuss how these issues affect this function.

National Urban Policy Reports have varied greatly over time in their content, focus, and structure. However, the core issue in all these reports has been the state of economic and social conditions in cities and surrounding areas. The ACS will greatly enhance HUD's ability to track conditions in specific cities and in cities as a group.

Description of Functions

Purpose: By statute, the Executive Branch must prepare biennially a National Urban Policy Report (NUPR) that assesses conditions in urban areas and articulates a coordinated Federal policy to improve urban conditions. Various Administrations have used the NUPR as a means of explaining their view of urban problems and how solutions to these problems fit into a broader perspective of national issues.

Statute: Section 703 of the Housing and Urban Development Act of 1970 (42 U.S.C. 4501 et seq.)

Regulations: None

FY 2001 Appropriation: Not applicable

Why Census-Type Data Are Needed: The NUPR uses decennial census data and a variety of other data sources to depict conditions in cities and suburbs. Census data are particularly useful for this purpose for three reasons: (1) they are available for all metropolitan areas, (2) they permit analysis of problems separately in cities and suburbs, and (3) they allow examination of how problems concentrate in small areas within cities and suburbs. The major disadvantage of census data is their once-a-decade availability.

What Census-Type Variables Are Used: Various National Urban Policy Reports have made use of almost all short-form and long-form variables. The short-form data have been used to chart the racial and ethnic distribution and the age distribution of the population, to measure the extent of segregation, and to observe how changes in family structure vary across cities and suburbs. The long-form data have been used to track changes in income, poverty, educational attainment, labor force participation, industrial and occupational employment, disabilities, and commuting times. Particular attention has been given to the extent to which poor people are concentrated within small areas inside cities.

How the Census-Type Variables Are Used: The Department does not prepare National Urban Policy Reports on any fixed schedule. Sometimes HUD has not prepared a biennial report; sometimes it has prepared but not submitted one. During the period 1997 through 2000, HUD

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submitted an alternative *State of the Cities* report every year. Structure and content has also varied greatly across NUPRs.

In general, HUD uses all available data to evaluate conditions in cities and suburbs. Recently the Department has developed a systematic compilation of data on cities and suburbs, called the State of The Cities Data System (SOCDS) and available on the Internet at <http://socds.huduser.org/index.html>. Census long-form data are an important component of the SOCDS.

Discretion Given to HUD: There are no limitations on what data HUD can use in the NUPR.

Examination of Issues

Problem Variables

HUD analysts will have to be aware that certain ACS variables have different conceptual bases or definitions than their census counterparts. The Problem Variable section of Chapter 6 explains these differences in detail. The following are the chief concerns with respect to preparing a NUPR:

- **Income:** Whereas the decennial long form measures money income, the ACS reports average purchasing power. The Census Bureau plans to report income in constant dollars. Income information collected in the various months will be adjusted for inflation so that all income information will be adjusted for changes in purchasing power over the period used to calculate a moving average. For tables at the census tract level, income reported by a respondent in the first month of a five-year moving average will be adjusted for almost five years of inflation.
- **Vacancy Rates:** The ACS uses a different residency concept that will affect the measurement of vacancy status. The biggest concern, however, is a downward bias in measuring vacancy in the ACS.
- **Migration:** The ACS defines an “in-mover” as someone who did not live in the same unit one year previously; the decennial census defines an “in-mover” as someone who did not live in the same unit five years previously.

Continuous vs. Point-in-Time Data Collection

The NUPR studies how economic and social conditions change over time in cities and suburbs. The ACS will be a great improvement over the long form for this purpose because HUD will be able to track conditions yearly instead of only over ten year periods.

HUD analysts should be aware of two important differences.

- The long form records conditions as of April 1 of a census year. Comparing statistics from two decennial censuses is like comparing snapshots taken at two different points in time. The ACS reports average conditions over the period of data collection. Comparing statistics from two annual ACS surveys measures the difference in the averages from the two years.

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- If one uses moving average ACS data, the interpretation of differences between two successive ACS tabulations is trickier. For example, one might use the 2008 ACS tabulations to find that 25 percent of all central city census tracts have poverty rates greater than 40 percent. Then one might use the 2009 tabulations to find that 24 percent of all central city census tracts have poverty rates greater than 40 percent.
 - ◆ The 2008 tabulations are based on data collected from 2003 through 2007 while the 2009 tabulations are based on data collected from 2004 through 2008.
 - ◆ Four out of every five observations in the two tabulations are identical. Because of the overlapping samples, movements in any variables are smoothed.
 - ◆ The 2008 tabulations measure average conditions from 2003 through 2007. The 2009 tabulations measure average conditions from 2004 through 2008. Any difference between the tabulations result solely from differences between the data collected by the ACS in 2003 and the data collected by the ACS in 2008.

Short Form Variables

National Urban Policy Reports often track differences in the racial and ethnic composition of cities and suburbs and changes in the racial and ethnic composition over time. The ACS will not be an independent source of information on this topic. Chapter 3 explains that the Census Bureau controls ACS totals by county to independent estimates of population by age, race, sex, and ethnicity.¹⁶³ The ACS tabulations will be a convenient source for the Census Bureau's independent estimates of population.

Subject to the control totals the ACS will track changes inside of counties in the distribution of the population by age, race, sex, and ethnicity. ACS data on the racial composition of places and census tracts are based on a sample. The decennial census estimates of the racial composition of places and census tracts are derived from the short form and therefore are based on a 100 percent count.

For the purposes of the NUPR, HUD analysts should use ACS data on race and ethnicity. They should be aware, however, that the ACS tabulations are derived from independent control totals and that the ACS estimates have substantially less precision than the decennial estimates.

Conflicting Sources

Recent NUPR type reports have made extensive use of other data sources, such as BLS data on employment and unemployment by place of residence and special Census Bureau tabulations of employment and earnings by place of work. The ACS would also provide information on employment and unemployment by place of residence.

HUD will have to analyze both the BLS and ACS data on employment and unemployment to decide which would be better for NUPR purposes. The BLS data would be available earlier and would be based on a more refined concept of labor force participation. The ACS estimates will

¹⁶³ The Census Bureau is considering developing a feedback from the ACS into population controls. The population controls do not currently have good information on the race and ethnicity of those who migrate.

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be derived directly from the survey; the BLS estimates will be constructed through statistical modeling. BLS plans to incorporate the ACS into its statistical modeling; so HUD can expect the BLS estimates to become more accurate as BLS improves the models.

Sample Size/Precision – Variable Base Periods – “Unofficial” vs. “Official” Data

The NUPR focuses on conditions in central cities and how central cities fare compared to suburbs. It often conducts analysis at two levels – a national level and a local level. At the national level, central cities are aggregated in one of two ways. The report describes the characteristics of the aggregate central city population or it tallies the number of central cities that have certain features. Examples of the two methods are: “the poverty rate in central cities is 23%” and “20 percent of central cities experienced declines in median family income.” Local analysis involves reporting conditions for individual central cities, usually in tables.

We will examine how sample size/precision, variable base periods, and “unofficial” vs. “official” data affect the NUPR by focusing first on analysis of aggregate central city population, then on reporting conditions for individual central cities, and finally on tallying the number of central cities that have certain features.

Aggregate Analysis: One year of ACS data provides information about three million households, of which, over 900,000 live in central cities. An annual sample should provide a high level of precision for almost any analysis of the aggregate central city population.

Individual City Analysis: Beginning in 2004, the Census Bureau will make tabulations based on one-year of ACS data available for all central cities with populations of 65,000 or more. So HUD analysts should be able to provide reliable tabular data on all important central cities.

The ACS will allow HUD to track conditions in these larger central cities from year to year. The ACS tables will report both point estimates and the upper and lower bounds of 90 percent confidence intervals. In most cases, year-to-year changes in specific variables will not be significant for individual central cities.

There are a number of central cities with populations smaller than 65,000. Beginning in 2006, the Census Bureau will release data on places with populations between 20,000 and 65,000 using a three-year moving average of ACS data. If HUD wants to include information on these smaller central cities in a NUPR, it will be able to use the moving average data for this purpose. The moving averages will tend to smooth year-to-year changes in variables for these central cities.

Beginning in 2008, HUD analysts will be able to get annual ACS data on central cities with populations less than 65,000 from the Census Bureau’s ACS “research product”. However, HUD would probably want to use the moving average data when describing individual central cities. The moving average data is more precise and corresponds to what the Census Bureau releases to the public on the central city.

We were concerned about the ability of HUD to make comparisons between central cities and suburbs for all metropolitan areas. Consider a metropolitan area with 200,000 residents, 70,000

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living in central city A, 40,000 in central city B, and 90,000 in the rest of the metropolitan area. We wondered whether the Census Bureau would release annual ACS data for the metropolitan area, its central city and suburban portions, and central city A, then presumably one could then derive the ACS results for central city B by subtraction. We thought that the Census Bureau might be concerned about this because the derived estimates for central city B would not have the desired level of precisions. A discussion with the Census Bureau indicates that they do not worry about one being able to derive ACS estimates by subtraction. Deriving results by subtraction does not create any disclosure concerns for the Census Bureau and the derived results would not be Census Bureau tabulations.

Tallies of Cities: HUD analysts will be able to tally the features of all central cities with populations greater than 65,000 beginning in 2004. The tallies could not include smaller central cities until at least 2006 when the Census Bureau releases the first three-year moving average data.

Between 2006 and 2008, HUD may want to restrict its tallies to central cities with populations greater than 65,000. Otherwise it would have to either mix annual and moving-average data in its tallies or use moving average data for all central cities. Neither option is attractive. Using moving average data for all places will underestimate the extent of change because of the smoothing effect of moving averages. Mixing moving average and annual data will also underestimate the extent of change because of the smoothing effect in the moving average component.

After 2008, HUD could add the small central cities to its tallies using the “unofficial” annual data available through the “research product”. The size of the ACS samples in the small central cities is not a serious problem for tallies. Consider a tally of central cities to determine what proportion experienced a decline in median family income between two years. Some of the observed declines – even among the larger central cities – will be the result of sampling variation. Among the smaller central cities, sampling variation will have a larger impact on whether or not one observes a decline. But sampling variation affects the results in both directions--some observed declines are purely statistical and some non-declines are purely statistical. The net effect introduces imprecision but not bias into the tally. There would be no statistical reason for not using the “unofficial” annual data in tallies.¹⁶⁴

Transition

Eventually HUD can use the ACS as a data source for both the “before” and “after” parts of a comparison. Initially HUD would be using decennial census data for the “before” and ACS data for the “after”. If so, HUD analysts would have to be aware of any differences in the how these sources define variables.

In the discussion of problem variables in this Chapter, we pointed out that the decennial census measures money incomes while the ACS measures purchasing power. The decennial census and the ACS have different residency concepts and these concepts will affect the measurement of

¹⁶⁴ HUD might decide that the tallies of larger central cities is more interesting than tallies of all central cities.

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vacancy rates and homeownerships. In addition, there is a bias in the ACS measurement of vacancy rates. Finally, the decennial census and HUD have different definitions of “in-movers.” Chapter 6 contains a fuller discussion of all of these differences.

New OMB Guidelines

The new OMB guidelines will affect the analysis in the NUPR in following ways:

- “Principal cities” will be different from “central cities”. HUD will probably want to construct future analysis on the basis of principal cities. This shift will probably mean having to calculate “outside of principal city” balances for previous decennial census tabulations.
- The delineation of some metropolitan areas may change significantly making it more difficult for HUD to track long term trends in these metropolitan areas. In particular, the more stringent commutation criteria will result in the loss of many outlying counties from some metropolitan areas such as Washington and Atlanta.
- HUD may want to extend its analysis to micropolitan areas.
- The multiple race options will make it difficult to track long term trends in the racial composition of cities and suburbs.

APPENDIX A: ACS QUESTIONNAIRE

APPENDIX B: CENSUS 2000 LONG-FORM QUESTIONNAIRE

APPENDIX C: CENSUS 2000 SHORT-FORM QUESTIONNAIRE

APPENDIX D: OMB GUIDANCE FOR CORE BASED STATISTICS AREAS

Standards for Defining Metropolitan and Micropolitan Statistical Areas

(From Federal Register, Vol. 65, No. 249, Wednesday, December 27, 2000 (pp. 82235-82238)).

The Office of Management and Budget will use these standards to define Core Based Statistical Areas (CBSAs) beginning in 2003. A CBSA is a geographic entity associated with at least one core of 10,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. The standards designate and define two categories of CBSAs: Metropolitan Statistical Areas and Micropolitan Statistical Areas.

The purpose of the Metropolitan and Micropolitan Statistical Area Standards is to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics for a set of geographic areas. The Office of Management and Budget establishes and maintains these areas solely for statistical purposes.

Metropolitan and Micropolitan Statistical Areas are not designed as a general purpose geographic framework for nonstatistical activities or for use in program funding formulas. The CBSA classification does not equate to an urban-rural classification; Metropolitan and Micropolitan Statistical Areas and many counties outside CBSAs contain both urban and rural populations.

CBSAs consist of counties and equivalent entities throughout the United States and Puerto Rico. In view of the importance of cities and towns in New England, a set of geographic areas similar in concept to the county based CBSAs also will be defined for that region using cities and towns. These New England City and Town Areas (NECTAs) are intended for use with statistical data, whenever feasible and appropriate, for New England. Data providers and users desiring areas defined using a nationally consistent geographic building block should use the county based CBSAs in New England.

The following criteria apply to both the nationwide county based CBSAs and to NECTAs, with the exceptions of Sections 6, 7, and 9, in which separate criteria are applied when identifying and titling divisions within NECTAs that contain at least one core of 2.5 million or more population. Wherever the word “county” or “counties” appears in the following criteria (except in Sections 6, 7, and 9), the words “city and town” or “cities and towns” should be substituted, as appropriate, when defining NECTAs.

Section 1. Population Size Requirements for Qualification of Core Based Statistical Areas

Each CBSA must have a Census Bureau defined urbanized area of at least 50,000 population or a Census Bureau defined urban cluster of at least 10,000 population. (Urbanized areas and urban clusters are collectively referred to as “urban areas.”)

Section 2. Central Counties

The central county or counties of a CBSA are those counties that:

(a) have at least 50 percent of their population in urban areas of at least 10,000 population;
or

(b) have within their boundaries a population of at least 5,000 located in a single urban area of at least 10,000 population.

A central county is associated with the urbanized area or urban cluster that accounts for the largest portion of the county's population. The central counties associated with a particular urbanized area or urban cluster are grouped to form a single cluster of central counties for purposes of measuring commuting to and from potentially qualifying outlying counties.

Section 3. Outlying Counties

A county qualifies as an outlying county of a CBSA if it meets the following commuting requirements:

(a) at least 25 percent of the employed residents of the county work in the central county or counties of the CBSA; or

(b) at least 25 percent of the employment in the county is accounted for by workers who reside in the central county or counties of the CBSA.

A county may appear in only one CBSA. If a county qualifies as a central county of one CBSA and as outlying in another, it falls within the CBSA in which it is a central county. A county that qualifies as outlying to multiple CBSAs falls within the CBSA with which it has the strongest commuting tie, as measured by either (a) or (b) above. The counties included in a CBSA must be contiguous; if a county is not contiguous with other counties in the CBSA, it will not fall within the CBSA.

Section 4. Merging of Adjacent Core Based Statistical Areas

Two adjacent CBSAs will merge to form one CBSA if the central county or counties (as a group) of one CBSA qualify as outlying to the central county or counties (as a group) of the other CBSA using the measures and thresholds stated in 3(a) and 3(b) above.

Section 5. Identification of Principal Cities

The Principal City (or Cities) of a CBSA will include:

(a) the largest incorporated place with a Census 2000 population of at least 10,000 in the CBSA or, if no incorporated place of at least 10,000 population is present in the CBSA, the largest incorporated place or census designated place in the CBSA; and

(b) any additional incorporated place or census designated place with a Census 2000 population of at least 250,000 or in which 100,000 or more persons work; and

(c) any additional incorporated place or census designated place with a Census 2000 population of at least 50,000, but less than 250,000, and in which the number of jobs meets or exceeds the number of employed residents; and

(d) any additional incorporated place or census designated place with a Census 2000 population of at least 10,000, but less than 50,000, and one third the population size of the largest place, and in which the number of jobs meets or exceeds the number of employed residents.

Section 6. Categories and Terminology

A CBSA receives a category based on the population of the largest urban area (urbanized area or urban cluster) within the CBSA. Categories of CBSAs are:

Metropolitan Statistical Areas, based on urbanized areas of 50,000 or more population, and Micropolitan Statistical Areas, based on urban clusters of at least 10,000 population but less than 50,000 population.

Counties that do not fall within CBSAs will represent “Outside Core Based Statistical Areas.”

A NECTA receives a category in a manner similar to a CBSA and is referred to as a Metropolitan NECTA or a Micropolitan NECTA.

Section 7. Divisions of Metropolitan Statistical Areas and New England City and Town Areas

(a) A Metropolitan Statistical Area containing a single core with a population of at least 2.5 million may be subdivided to form smaller groupings of counties referred to as Metropolitan Divisions.

A county qualifies as a “main county” of a Metropolitan Division if 65 percent or more of its employed residents work within the county and the ratio of the number of jobs located in the county to the number of employed residents of the county is at least .75.

A county qualifies as a “secondary county” if 50 percent or more, but less than 65 percent, of its employed residents work within the county and the ratio of the number of jobs located in the county to the number of employed residents of the county is at least .75.

A main county automatically serves as the basis for a Metropolitan Division. For a secondary county to qualify as the basis for forming a Metropolitan Division, it must join with either a contiguous secondary county or a contiguous main county with which it has the highest employment interchange measure of 15 or more.

After all main counties and secondary counties are identified and grouped (if appropriate), each additional county that already has qualified for inclusion in the Metropolitan Statistical Area falls within the Metropolitan Division associated with the main/secondary county or counties with which the county at issue has the highest employment interchange measure. Counties in a Metropolitan Division must be contiguous.

(b) A NECTA containing a single core with a population of at least 2.5 million may be subdivided to form smaller groupings of cities and towns referred to as NECTA Divisions.

A city or town will be a “main city or town” of a NECTA Division if it has a population of 50,000 or more and its highest rate of out-commuting to any other city or town is less than 20 percent.

After all main cities and towns have been identified, each remaining city and town in the NECTA will fall within the NECTA Division associated with the city or town with which the one at issue has the highest employment interchange measure.

Each NECTA Division must contain a total population of 100,000 or more. Cities and towns first assigned to areas with populations less than 100,000 will be assigned to the qualifying NECTA Division associated with the city or town with which the one at issue has the highest employment interchange measure. Cities and towns within a NECTA Division must be contiguous.

Section 8. Combining Adjacent Core Based Statistical Areas

(a) Any two adjacent CBSAs will form a Combined Statistical Area if the employment interchange measure between the two areas is at least 25.

(b) Adjacent CBSAs that have an employment interchange measure of at least 15 and less than 25 will combine if local opinion, as reported by the congressional delegations in both areas, favors combination.

(c) The CBSAs that combine retain separate identities within the larger Combined Statistical Areas.

Section 9. Titles of Core Based Statistical Areas, Metropolitan Divisions, New England City and Town Divisions, and Combined Statistical Areas

(a) The title of a CBSA will include the name of its Principal City with the largest Census 2000 population. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order of descending population size. If the Principal City with the largest Census 2000 population is a census designated place, the name of the largest incorporated place of at least 10,000 population that also is a Principal City will appear first in the title followed by the name of the census designated place.

(b) The title of a Metropolitan Division will include the name of the Principal City with the largest Census 2000 population located in the Metropolitan Division. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order of descending population size. If there are no Principal Cities located in the Metropolitan Division, the title of the Metropolitan Division will use the names of up to three counties in order of descending population size.

(c) The title of a NECTA Division will include the name of the Principal City with the largest Census 2000 population located in the NECTA Division. If there are multiple Principal Cities, the names of the second largest and third largest Principal Cities will appear in the title in order

of descending population size. If there are no Principal Cities located in the NECTA Division, the title of the NECTA Division will use the name of the city or town with the largest population.

(d) The title of a Combined Statistical Area will include the name of the largest Principal City in the combination, followed by the names of up to two additional Principal Cities in the combination in order of descending population size, or a suitable regional name, provided that the Combined Statistical Area title does not duplicate the title of a component Metropolitan or Micropolitan Statistical Area or Metropolitan Division. Local opinion will be considered when determining the titles of Combined Statistical Areas.

(e) Titles also will include the names of any state in which the area is located.

Section 10. Update Schedule

(a) The Office of Management and Budget will define CBSAs based on Census 2000 data in 2003.

(b) Each year thereafter, the Office of Management and Budget will designate new CBSAs if:

(1) A city that is outside any existing CBSA has a Census Bureau special census count of 10,000 or more population, or Census Bureau population estimates of 10,000 or more population for two consecutive years, or

(2) A Census Bureau special census results in the delineation of a new urban area (urbanized area or urban cluster) of 10,000 or more population that is outside of any existing CBSA.

(c) In the years 2004 through 2007, outlying counties of intercensally designated CBSAs will qualify, according to the criteria in Section 3 above, on the basis of Census 2000 commuting data.

(d) The Office of Management and Budget will review the definitions of all existing CBSAs in 2008 using commuting data from the Census Bureau's American Community Survey. The central counties of CBSAs identified on the basis of a Census 2000 population count, or on the basis of population estimates or a special census count in the case of intercensally defined areas, will constitute the central counties for purposes of the 2008 area definitions. New CBSAs will be designated in 2008 and 2009 on the basis of Census Bureau special census counts or population estimates as described above; outlying county qualification in these years will be based on 2008 commuting data from the American Community Survey.

Section 11. Local Opinion

Local opinion, as used in these standards, is the reflection of the views of the public and is obtained through the appropriate congressional delegations. The Office of Management and Budget will seek local opinion in two circumstances:

(a) When two adjacent CBSAs qualify for combination based on an employment interchange measure of at least 15 but less than 25 (see Section 8). The two CBSAs will combine only if there is evidence that local opinion in both areas favors the combination.

(b) To determine the title of a Combined Statistical Area.

After decisions have been made regarding the combinations of CBSAs and the titles of Combined Statistical Areas, the Office of Management and Budget will not request local opinion again on these issues until the next redefinition of CBSAs.

Section 12. Definitions of Key Terms

Census designated place—A statistical geographic entity that is equivalent to an incorporated place, defined for the decennial census, consisting of a locally recognized, unincorporated concentration of population that is identified by name.

Central county—The county or counties of a Core Based Statistical Area containing a substantial portion of an urbanized area or urban cluster or both, and to and from which commuting is measured to determine qualification of outlying counties.

Combined Statistical Area—A geographic entity consisting of two or more adjacent Core Based Statistical Areas (CBSAs) with employment interchange measures of at least 15. Pairs of CBSAs with employment interchange measures of at least 25 combine automatically. Pairs of CBSAs with employment interchange measures of at least 15, but less than 25, may combine if local opinion in both areas favors combination.

Core—A densely settled concentration of population, comprising either an urbanized area (of 50,000 or more population) or an urban cluster (of 10,000 to 49,999 population) defined by the Census Bureau, around which a Core Based Statistical Area is defined.

Core Based Statistical Area (CBSA)— A statistical geographic entity consisting of the county or counties associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties containing the core. Metropolitan and Micropolitan Statistical Areas are the two categories of Core Based Statistical Areas.

Employment interchange measure— A measure of ties between two adjacent entities. The employment interchange measure is the sum of the percentage of employed residents of the smaller entity who work in the larger entity and the percentage of employment in the smaller entity that is accounted for by workers who reside in the larger entity.

Geographic building block—The geographic unit, such as a county, that constitutes the basic geographic component of a statistical area.

Main city or town—A city or town that acts as an employment center within a New England City and Town Area that has a core with a population of at least 2.5 million. A main city or town serves as the basis for defining a New England City and Town Area Division.

Main county—A county that acts as an employment center within a Core Based Statistical Area that has a core with a population of at least 2.5 million. A main county serves as the basis for defining a Metropolitan Division.

Metropolitan Division—A county or group of counties within a Core Based Statistical Area that contains a core with a population of at least 2.5 million. A Metropolitan Division consists of one or more main/secondary counties that represent an employment center or centers, plus adjacent counties associated with the main county or counties through commuting ties.

Metropolitan Statistical Area—A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000. The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

Micropolitan Statistical Area—A Core Based Statistical Area associated with at least one urban cluster that has a population of at least 10,000, but less than 50,000. The Micropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

New England City and Town Area (NECTA)—A statistical geographic entity that is defined using cities and towns as building blocks and that is conceptually similar to the Core Based Statistical Areas in New England (which are defined using counties as building blocks).

New England City and Town Area (NECTA) Division—A city or town or group of cities and towns within a NECTA that contains a core with a population of at least 2.5 million. A NECTA Division consists of a main city or town that represents an employment center, plus adjacent cities and towns associated with the main city or town, or with other cities and towns that are in turn associated with the main city or town, through commuting ties.

Outlying county—A county that qualifies for inclusion in a Core Based Statistical Area on the basis of commuting ties with the Core Based Statistical Area's central county or counties.

Outside Core Based Statistical Areas—Counties that do not qualify for inclusion in a Core Based Statistical Area.

Principal City—The largest city of a Core Based Statistical Area, plus additional cities that meet specified statistical criteria.

Secondary county—A county that acts as an employment center in combination with a main county or another secondary county within a Core Based Statistical Area that has a core with a population of at least 2.5 million. A secondary county serves as the basis for defining a Metropolitan Division, but only when combined with a main county or another secondary county.

Urban area—The generic term used by the Census Bureau to refer collectively to urbanized areas and urban clusters.

Urban cluster—A statistical geographic entity to be defined by the Census Bureau for Census 2000, consisting of a central place(s) and adjacent densely settled territory that together contain at least 2,500 people, generally with an overall population density of at least 1,000 people per square mile. For purposes of defining Core Based Statistical Areas, only those urban clusters of 10,000 more population are considered.

Urbanized area—A statistical geographic entity defined by the Census Bureau, consisting of a central place(s) and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile.