

Appendix C.

Historical Changes

The American Housing Survey (AHS) began in 1973 as the Annual Housing Survey. Since 1981, the U.S. Census Bureau has conducted the national survey every odd-numbered year. In 1984, it was renamed the American Housing Survey. Other historical changes in the survey are listed below by subject area. The year refers to the year the change was made. In some cases, multiple years are mentioned together. In these cases, either corrections were made to the data in more than 1 year or there are specific years for which data are not comparable.

Only changes are noted in this appendix. For example, “Book titles” has no entries for 1975–77, since the same titles were published for those years as in 1974.

Access to structure.

2005. A question was added to determine if it was possible “to enter the housing unit from the outside without climbing up or down any steps.”

Age of other residential buildings within 300 feet.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

Bars on windows of buildings.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

Book titles, metropolitan sample.

1974. Annual Housing Survey: 1974

Housing Characteristics for Selected Metropolitan Areas (A separate book is published for each metropolitan area.)

Summary of Housing Characteristics for Selected Metropolitan Areas (One book is published containing summary data for all areas.)

1984. American Housing Survey: 1984

American Housing Survey for the (name of area) Metropolitan Area (A separate book is published for each metropolitan area.)

Supplement to the American Housing Survey for Selected Metropolitan Areas (One book is published containing supplement data for all areas.)

Book titles, national.

1973. Annual Housing Survey: 1973

Part A. General Housing Characteristics (compared central city, suburban, and nonmetropolitan areas)

Part B. Indicators of Housing and Neighborhood Quality

Part C. Financial Characteristics of the Housing Inventory

Part D. Housing Characteristics of Recent Movers

Supplement report number 1. Financial Characteristics by Indicators of Housing and Neighborhood Quality

1974. Parts A, B, C, and D stayed the same.

A new *Part E, Urban and Rural Housing Characteristics*, was added.

Supplement report number 1 was changed to *Part F, Financial Characteristics by Indicators of Housing and Neighborhood Quality*.

1978. Parts A, C, D, and E stayed the same.

Parts B and F from earlier years were combined into a new *Part B, Indicators of Housing and Neighborhood Quality by Financial Characteristics*. A new *Part F, Energy-Related Housing Characteristics* was added.

1985. Parts A, B, C, D, E, and F were combined into one report, *American Housing Survey for the United States*.

A new report was added, *Supplement to the American Housing Survey for the United States*, with data on family types, neighborhood quality, commuting, and ownership of additional residential units.

Buildings and neighborhood.

1987. As a result of using both decentralized telephone interviewing and Computer-Assisted Telephone Interviewing (CATI) in the 1987 AHS-National sample and later, data for several observation items (where the interviewer, rather than the respondent, supplied the data) are not comparable with those reported in the 1985 AHS-National sample. Data for the observation items for units assigned to telephone interviewing were collected only if the sample unit was located in a multiunit structure. Data for the following items in 1987 and later national surveys are restricted to units in a multiunit structure: “Stories in structure;” “External building conditions;” “Description of area within 300 feet;” “Age of other residential buildings

within 300 feet;" "Other buildings vandalized or with interior exposed;" "Bars on windows of buildings;" "Condition of streets;" and "Trash, litter, or junk on streets or any properties." Data for these items were shown for all units in the 1985 national survey, including single-family homes.

The data for these items in the 1987 American Housing Survey—Metropolitan Sample (AHS-MS) are incorrect because of the inadvertent use of the American Housing Survey—National (AHS-N) weighted sample cases for certain items where AHS-N cases should not have been used. In many cases, estimates of not-reported are too high and other categories are too low. These items include: "Stories in structure;" "External building conditions;" "Description of area within 300 feet;" "Age of other residential buildings within 300 feet;" "Mobile homes in group;" "Other buildings vandalized or with interior exposed;" "Bars on windows of building;" "Condition of streets;" and "Trash, litter, or junk on streets or any properties."

1989, 1991, and 1993. Because of the methods for weighting the metropolitan samples in 1989, 1991, and 1993, the weighted totals in the metropolitan reports in odd-numbered years for a few items are different from the rest of the items. These are as follows: "Stories in structure;" "External building conditions;" "Description of area within 300 feet;" "Age of other residential buildings within 300 feet;" "Mobile homes in group;" "Other buildings vandalized or with interior exposed;" "Bars on windows of building;" "Condition of streets;" and "Trash, litter, or junk on streets or any properties." In odd-numbered years, other items use a combined metropolitan/national (national is conducted only in odd numbered years) weighted sample; the above items only use a metropolitan weighted sample. See Appendix B for a complete description of combined weighting.

1997. These items ceased being collected by interviewer observation; they have become questions for the respondents. The intent of interviewer observations had been to provide a source of data on housing conditions, independent of the respondents, because these items could be directly observed by the interviewers. While neither respondents nor interviewers are trained building inspectors, and they reported data on different subjects, the data at least gave independent points of view by two people for each housing unit. Furthermore, the observations were collected even at units where interviews could not be obtained, so they could be used in research on the representativeness of AHS noninterview adjustments (which are explained in Appendix B).

As noted above, observations became impossible for many single-unit structures in 1987. Starting in 1997, staff no longer visit many multiunit buildings either, so the observation items have become questions. The survey could continue to collect observations when visits are

done for some other purpose, but the results would be too biased to be useful (high turnover units, subdivided units, and units where the respondent requests a personal interview).

Citizenship.

2001. In the 2001 survey, all households were asked the country of birth questions. This new question series was asked of all existing household members. These questions include:

- In what country was ... born?
- Is ... a citizen of the United States?
- Was ... born a citizen of the United States?
- Did ... become a citizen of the United States through naturalization?
- When did ... come to live in the United States?

Codebooks.

Documentation of codes on data files has been published in various volumes. The most comprehensive is *Codebook for the American Housing Survey*, Volume 1, 466 pages plus 1 errata page. The codebook documents surveys from 1973–93, showing which items are available in each survey and when or if codes changed. The codebook was published without a volume number, but is currently referred to as Volume 1 to distinguish it from two later volumes.

For surveys from 1994–96, codes remain the same as in 1993 (shown in Volume 1, as mentioned above), except a few new and changed variables, which are shown in Volume 2, 90 pages. This Volume 2 also shows final record layouts for 1984–96.

Volume 3, 250 pages, shows variables and codes used in 1997 and later, along with actual question wording.

The *Codebook for the American Housing Survey, Public Use File: 1997 and Later*, version 1.0, updates Volume 3 providing more detailed descriptions of the public use file variables and descriptive text covering survey procedures.

Some of the older surveys have additional documentation. Besides a *Questionnaire Compendium* (900 pages) with 1973–81 questionnaires (see the topic "Questionnaires"), there is also a *Questionnaire Directory* (300 pages) with unweighted frequency distributions of each variable in 1974–85, and an index to 1974–85 questionnaires (but no copies of the questionnaires). Each file from 1973–83 had a *Technical Documentation* volume, which duplicates the *Codebook*, Volume 1 mentioned above, but is less accurate. When errors are found, they are corrected in *Codebook*, Volume 1 but not in *Technical Documentation*.

Copies of codebooks can be obtained from HUD User (see the table on page vii).

Computer-assisted interviewing.

1987–91. Large-scale experiments in computer-assisted telephone interviewing (CATI) were conducted as part of the 1987–91 AHS-National sample (CATI has not been used in metropolitan surveys, though some of those interviews were completed on paper by telephone from the interviewer’s home). Preliminary analysis of the CATI experiments indicated that CATI has a significant effect on the data. The experiments revealed that data for characteristics of owner-occupied housing, urban housing, and housing with moderate physical problems exhibited high numbers of significant differences between CATI and non-CATI estimates. The moderate physical problems subgroup had the highest incidence of significant differences. The analysis also showed significant differences for total occupied, suburban housing units, and moved in past year.

CATI estimates were generally lower than non-CATI for units with water leakage, monthly housing costs as percent of current income, other heating fuel, and owners with a mortgage. However, CATI produced higher estimates for utilities paid separately, income, and shared ownership. Other characteristics that showed significant differences between CATI and non-CATI estimates include routine maintenance costs and heating equipment.

Little is known at this time about whether CATI or non-CATI produces better data. The Census Bureau believes, however, the estimates of change in AHS-National sample between 1985 and later years will be biased for many characteristics as a result of introducing CATI. See also the topics “Buildings and neighborhood” and “Telephone interviewing.”

1995. CATI was conducted for returning national sample households whenever possible to the extent that CATI staff was able to handle the workload.

1997. The Census Bureau eliminated the paper questionnaire. All interviews were conducted by computer-assisted interviewing (CAI) using laptop computers. Both the survey questions and the skip instructions (that is, telling the interviewer which questions to ask next) were programmed into the laptop. The field representatives either phoned or made a personal visit to the respondent to conduct the interview. The interview questions were displayed on the computer screen one at a time. The programming of the skip instructions eliminated the possibility that the field representative would not follow the correct path and ask inappropriate questions (for example, asking about monthly rent at an owner-occupied unit).

Caution is recommended when comparing prior years’ data with 1997 and beyond because of this change to a laptop computer environment. For a number of reasons, the change could give different responses. The laptop incorporated a wide range of improvements that had been

identified during 2 years of research and testing. Skip patterns involved complex branching and calculations that would not have been appropriate with a paper questionnaire. By using the laptop, field representatives found it almost impossible to skip appropriate questions. Online editing features reduced errors at the point of data collection. Feedback of telescoping (the reporting of events in the current data collection that were and should have been reported during an earlier time period) reduced the number of incorrect answers. These changes should improve the quality of the data.

For copies of the old paper questionnaire and the new questions used in the laptop computer, see the topic “Questionnaire.”

Condition of streets.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

Current interest rate.

1990 and 1993. In the 1993 national and 1990 metropolitan surveys, a programming error was discovered and corrected involving the computation of the median for the item “Current interest rate.” Use caution when making comparisons with earlier surveys. The medians presented in the earlier reports were calculated incorrectly. However, the data distributions are correct and can be used to compute corrected medians.

Dependent interviewing. Dependent interviewing is the process by which data from surveys conducted in previous years are used instead of, in addition to, or to verify data collected during the current interview. The first use of dependent interviewing in AHS was for the item “Year structure built” in the year 1984.

1984. A new procedure was introduced for the collection of data on the year the structure was built. The answer obtained for the year the structure was built during the current survey interview was compared to any valid answers obtained in previous interviews for the same housing unit. If the answers differed, the answer from the previous interview was used in processing and tabulating the data.

1987. A new procedure was introduced for the collection of data on square footage. If the interview was at a housing unit that was successfully interviewed in the previous survey, the question on square footage was not asked. Instead the respondent was asked, “Since (date of the previous interview), has there been a change in the amount of living space in this (house/apartment) because of putting on an addition, finishing an attic, or converting a garage to living space?” If the respondent answered no, the data on square footage from the previous interview was used in processing and tabulating the data. If the respondent answered yes, the amount of added or lost space was

obtained from the respondent and added to or subtracted from the square footage obtained in the previous interview. This new figure was then used in processing and tabulating the data.

1999. Some questions were modified to verify answers with valid answers obtained during the previous survey's interview. If the current interview was being conducted with the same household at the same housing unit, the respondent was asked if the answer given in the previous survey interview was still correct. Only if the respondent answered "no" was the question for the current year asked. If the respondent said the previously collected information was correct, the information from the previous interview was used in processing and tabulating the data. The modified questions concerned:

- Kitchen equipment, including cooking stove or range, burners, microwave oven, refrigerator, kitchen sink, garbage disposal, trash compactor, and dishwasher
- Washing machine and clothes dryer
- Public sewer
- Source of water
- Drilled or dug well
- Central air conditioning
- Main heating equipment
- Exposed wiring and rooms without electric outlets
- Fuels used for house heating, cooking, clothes dryer, hot water, and central air conditioning
- Porch, deck, or patio
- Lot size
- Foundation
- Other manufactured/mobile homes on property
- Stories in structure and stories from main entrance
- Value
(Value was verified if the current value was 35 percent higher or lower than the value reported in the previous interview.)

Other questions were not asked if a valid answer was obtained in a previous interview and if the current interview was at the same housing unit. In this case, the answers from the previous interview were used to process and tabulate the data. These questions included:

- Mobile home site placement
- Year built
(Year built was verified if the residence was currently owner occupied but renter occupied during the previous interview. Otherwise, it was not asked, and the previous survey's answer was used.)

If the current interview was for the same household at the same housing unit, then another set of questions was asked if a valid answer was not obtained in a previous interview. The answers from the previous interview were used to process and tabulate the data. These questions included:

- Previous occupancy
- Year unit acquired and how unit acquired
- First-time owner
- Source of down payment
- Purchase price or construction cost

Description of area within 300 feet.

1987, 1989, and 1997. See the topic "Buildings and neighborhood."

1992. In the 1992 metropolitan surveys, two programming errors were discovered and corrected involving the observation item "Description of Area Within 300 Feet." The first error was that the stub line "Only single-family detached" had been tallied incorrectly since the redesign of the survey (1984). Therefore, data from 1984–91 in the metropolitan reports are not comparable with data for 1992 and beyond. The second error was that the stub line "Not observed or not reported" had been incorrectly tallied from 1986–91. Data for this stub line from 1986–91 are not comparable with data for 1992 and beyond.

Education.

1995. The question was revised to give less detail for people with less than a high school education and more detail for people with college degrees and advanced vocational training, to be consistent with the decennial census and other surveys.

External building conditions.

1987, 1989, and 1997. See the topic "Buildings and neighborhood."

Flush toilet breakdowns.

1998. There was an error in the computer program for the laptop in 1997. As a result, data on flush toilet breakdowns were not collected. In 1998, the error was corrected and data were published.

Geography.

2001. Starting in 2001, the data used for the national books were changed by switching from 1980 census-based geography to 1990 census-based geography. This change affected the following geography data items that are used in the weighting procedures:

- Central city, suburb, or nonmetropolitan
- Urban or rural

Table C-1. **Comparison of 1990 Geography-Based Weighting to 1980 Geography-Based Weighting—All Housing Units: 2001**

Characteristic	Total	In MSAs		Outside MSAs	Urban		Rural		
		Central cities	Suburbs		Total	Outside MSAs	Total	Suburbs	Outside MSAs
1990 GEOGRAPHY AND WEIGHTING									
Total Housing Units									
Total	119,117	35,076	57,983	26,058	86,657	8,765	32,460	14,814	17,293
Seasonal	3,078	184	982	1,913	823	203	2,256	522	1,710
Year-round	116,038	34,892	57,001	24,145	85,834	8,562	30,204	14,292	15,583
Occupied	106,261	31,731	53,574	20,957	79,146	7,469	27,115	13,321	13,488
Owner	72,265	16,870	39,420	15,975	49,500	4,841	22,764	11,384	11,133
Renter	33,996	14,861	14,153	4,982	29,646	2,627	4,351	1,938	2,355
Vacant	9,777	3,161	3,427	3,188	6,688	1,094	3,089	970	2,095
For rent	2,916	1,326	933	657	2,466	349	450	137	308
For sale only	1,243	341	496	406	825	146	418	156	261
Rented or sold	731	234	341	156	550	70	180	93	86
Occasional use/URE	2,594	537	910	1,146	1,457	336	1,137	325	810
Other vacant	2,293	724	747	823	1,389	193	904	260	630
1980 GEOGRAPHY AND WEIGHTING									
Total Housing Units									
Total	119,117	35,079	56,058	27,980	83,016	9,143	36,101	17,090	18,837
Seasonal	3,037	185	1,178	1,674	871	158	2,166	642	1,515
Year-round	116,079	34,894	54,879	26,306	82,144	8,985	33,935	16,449	17,321
Occupied	106,408	31,633	51,352	23,423	75,553	8,016	30,855	15,293	15,407
Owner	72,365	16,254	38,227	17,884	46,456	5,099	25,909	13,006	12,785
Renter	34,042	15,379	13,125	5,539	29,097	2,917	4,945	2,287	2,621
Vacant	9,672	3,261	3,528	2,883	6,591	969	3,080	1,156	1,915
For rent	2,885	1,356	955	573	2,426	306	459	190	267
For sale only	1,230	355	507	369	815	132	416	179	237
Rented or sold	752	256	338	158	547	62	205	106	96
Occasional use/URE	2,537	525	932	1,081	1,384	276	1,153	346	805
Other vacant	2,267	769	795	703	1,419	193	848	335	510

Table C-1 provides weighted counts of housing units using 1980 geography and the 1980 weights, versus 1990 geography and the 1990 weights. The microdata file will continue to show only 1980 geography for confidentiality reasons.

Head of household/householder.

1980. Beginning in 1980, the concept “head of household” was dropped and replaced by “householder.” The head of household was the person regarded as the head by the respondent; however, if a married woman living with her husband was reported as the head, her husband was considered the head. The householder is the first household member listed by the respondent who is 18 years old or over and is an owner or renter of the sample unit.

Heating equipment.

1989. The heating equipment questions were revised to improve the reporting of electric heat pumps as a heating source. Previously, the questionnaire item dealing with the type of heating equipment underreported electric heat

pumps. The respondents often answered yes to the first option of “a central warm-air furnace with air vents or ducts to the individual rooms” and did not proceed to the option of “electric heat pump.” The questionnaire item was revised to determine if the central air system is actually a heat pump or another type of warm-air furnace.

Hispanic origin.

2003. In accordance with Office of Management and Budget (OMB) directives, the order of the Hispanic origin and the race question were reversed (placing Hispanic origin before race). Also see the topic “Race.”

Home equity loans. See the topic “Mortgage.”

Housing costs and value.

1984. Value, mortgage data, and taxes are shown for all owners; rent is shown for all renters; and utilities for all of both groups. From 1973–83, these items were shown only for “specified” owners and renters. For comparability, Table 19 in each chapter of books published since 1984 still shows data separately for “specified” owners and

renters. “Specified” homes exclude 1-unit buildings on 10 or more acres and owners in buildings with 2 or more units or with a business or medical office on the property.

Also, the terminology changed. The new term “Monthly housing costs” includes the old terms “Selected monthly housing cost” for owners, “Gross rent” for renters, and “Contract rent” for vacant-for-rent units.

1989. The monthly housing costs items for subsidized renters were revised to improve the reporting of actual rental costs. In 1987, the questionnaire determined the total amount reportedly paid for monthly rental costs. These amounts may have included the partially subsidized amount provided by the public housing authority, the federal government, or state and local governments. Beginning in 1989, a probe was added for subsidized households to determine what they actually paid. The new procedures in 1989 produced lower and more accurate estimates.

Also see the topics “Income” and “Utilities.”

1995. Mortgage payments were estimated when the respondent did not know the amount. These payments were estimated by amortizing each mortgage at level payments over its full term. If the amount borrowed is unknown, it is imputed first from the value of the house. If the interest rate or term were unknown, it would be imputed from owners who got their mortgages in the same year. This change eliminates a large source of missing data. While not perfect, it gives a much more complete picture of housing costs than in previous years.

1997. A “Separate category,” depending on income of the occupants, was added for vacant-for-rent units. In these units, the rent charged will depend on the income of the occupants, such as in public housing or some military housing. In 1995 and earlier, the category “less than \$100” includes an estimated 166,000 housing units where the rent depended on income of the occupants. They have a code 1 in the microdata. These units were incorrectly published as “less than \$100” from 1985–96.

Housing unit definition.

1984. One major and one minor difference appear in the housing unit definition. The major difference is that since 1984, the AHS includes vacant mobile homes as housing units. Vacant mobile homes added an additional 698,000 seasonal and 642,000 year-round vacant units to the 1985 national housing inventory. The 1973–83 AHS excluded these units from weighted counts, though they are included in the microdata with zero weight.

A minor difference in the definition is the 1973–83 requirement that a housing unit must have either direct access from the outside or through a common hallway, or

complete kitchen facilities for the exclusive use of the occupants. In 1984, the complete kitchen facilities alternative was dropped, leaving direct access required of all units.

Another issue is how to define group quarters. In the 1973–83 AHS, a household containing five or more people unrelated to the householder was considered to be group quarters. In 1984, the cutoff was changed to nine or more people unrelated to the householder.

2005. In 2005, a new definition of a “housing unit” was used. It came out of the Census 2000 Coverage Redesign. It was used to stay consistent with the Current Population Survey (CPS) and other current demographic surveys whose data are collected by the U.S. Census Bureau. The Census Bureau required in the old 1990 sample design that the occupants (1) live and eat separately from other people on the property and (2) have direct access from the outside or a common hallway. The Census Bureau has modified the first condition in the new 2000 sample design definition by dropping the words “and eat.” The occupants must merely “live separately from all other people on the property.”

How the housing unit was acquired.

1997. Beginning in 1997, all homeowners were asked how they obtained their home. The homeowners’ responses were stored on the national microdata file but not published in the national book. The possible answers to the new question include:

- Buy a house already built.
- Sign a sales agreement that included the land as well as the cost of building the house (includes both units that were under construction and those not yet started).
- Build it yourself on your own land (includes person acting as own general contractor; also includes lease land).
- Receive it as a gift or inheritance.

2001. The year the data were first published in the national book.

Income.

1984. See the topic “Poverty.”

1989. Two new items, “Monthly housing costs as percent of current income” and “Ratio of value to current income,” replaced similar items that were published in 1984–88. For income, these new items use “Current income.” In 1984–88, the items “Monthly housing costs as percent of income” and “Value-income ratio” used the “Income of families and primary individuals in the last 12 months.” See Appendix A for the definitions of “Current income,” “Monthly housing costs as percent of current income,” and “Ratio of value to current income.” Use caution when comparing prior years’ data with 1989 because of the differences in the definitions.

For comparative purposes, Table C-2 shows monthly housing costs as a percent of both income in the last 12 months and of current income. For total households and owner households, the medians for housing cost as a percent of income are the same regardless of types of income.

For renter households, the medians are 29 and 27 percent, respectively.

Table C-2. **Monthly Housing Costs as a Percent of Income**

Characteristic	Median (percent)		
	Total	Owner	Renter
Monthly housing costs as percent of income using—			
Income in the last 12 months:			
1987	22	18	29
1989	21	18	29
Current income:			
1989	21	18	27

1993. Questions on income sources were revised in an effort to improve income reporting. The question in earlier surveys reported interest or dividend income of \$400 or more. In 1993, it was divided into two questions: one on any interest, the other on any dividends from stocks, regardless of amount. Therefore, both new questions cover even small amounts.

Wage and salary income was underreported for some people and households in the 1993 national survey. The error occurred during the processing of the data collected by computer-assisted telephone interviewing. When the respondent does not know or refuses to report wage and salary income, income is normally allocated during the processing. In 1993, this income was not allocated, but was incorrectly processed as “zero” (no) income. This error was corrected in the 1995 national survey. Although the income data for 1993 are incorrect, analysis of median household income for 1991, 1993, and 1995 indicates that the overall effect of this error on 1993 data is minor, though it significantly increases the apparent number of households with zero income.

Use caution when making income comparisons before and after the 1993 survey.

1999. Income was collected for all people 16 years and older in the household. In previous surveys, income was collected for all people 14 years and older in the household.

2005. After redesigning the AHS in 1997, the Census Bureau and the U.S. Department of Housing and Urban Development compared the income data collected in that survey with those found by the Current Population Survey

(CPS).¹ That study found that the AHS reported fewer households with nonwage income than the CPS, and that AHS respondents tended to report self-employment income as wages. Furthermore, AHS users requested that disability-related income sources be reported separately from other sources to make it easier to count the number of households with disabled persons. The 2005 AHS addressed these findings and requests by adopting a series of income questions similar to the questions used in the American Community Survey (ACS).² Prior to 2005, respondents were asked the wages and salaries of each person in the family, and all other sources of income were collected as a single amount for the family as a whole. The 2005 questions collected an amount for each person in the family from nine different types of income (such as wages and salaries or social security). In addition, for each nonrelative (a person not related to the householder), the 2005 questionnaire was changed to ask about wages, self-employment, and other income separately. Prior to 2005, nonrelatives were asked only to report their total income. The AHS chose to adopt the ACS questions because they had already been tested and to facilitate comparisons between the two surveys.

The approach for obtaining household and family income prior to 2005 AHS resulted in reported income that was generally lower than in other surveys. The new income questions were intended to increase the amount of income reported. Comparisons of median household income from the 2003 and 2005 AHS, the 2005 CPS Annual Social and Economic Supplement (ASEC, 2004 income), and the 2004 ACS (2004 inflation adjusted income) indicate that goal may have been achieved overall. Median AHS household income rose 1 percent more than inflation from 2003 to 2005—from \$41,775³ to \$44,834⁴ (rising 7 percent while inflation was 6 percent). Median household income from the 2005 ASEC was \$44,389,⁵ not statistically different from the 2005 AHS median household income. Finally, a median household income from the 2004 ACS was \$44,684,⁶ also not statistically different from the 2005 AHS median household income.

Comparing receipt of income by source for the 2005 AHS and the 2003 AHS (see Table C-3) shows that the percent

¹ See Susin, Scott. 2003. “Discrepancies Between Measured Income in the American Housing Survey (AHS) and the Current Population Survey (CPS): Final Report,” March 27. <www.census.gov/hhes/income/hudmemo8a.pdf>.

² The AHS adopted the income categories used in the 2003 ACS with one change. Disability-related payments were accorded a separate item in the AHS, while the ACS included these types of payments with retirement and survivor pensions.

³ The margin of error at the 90-percent confidence level is +/- \$265.

⁴ The margin of error at the 90-percent confidence level is +/- \$289.

⁵ The margin of error at the 90-percent confidence level is +/- \$322.

⁶ The margin of error at the 90-percent confidence level is +/- \$214.

reporting wages and salaries and the percent reporting social security or retirement at the family level, while statistically different, are generally comparable. On the other hand, the percent reporting interest, dividend and rental income is much lower in 2005 than in 2003. One possible explanation for the difference in reporting of interest, dividend, and rental income is that the 2003 AHS included separate questions on receipt of interest, dividend, and rental income, while the 2005 AHS question combined interest, dividend, net rental income, royalty income, and income from estates and trusts into one income category. Table C-4 shows that at the person level, reporting of specific types of income in the 2005 AHS and the 2004 ACS is generally comparable except for reporting of interest, dividend, rental, etc., income and "other" income where the percent reporting in these categories is less in the 2005

AHS.⁷ The 2003 AHS had two separate questions about income from "other" sources, such as VA payments, unemployment compensation, child support, or alimony, whereas the 2005 AHS reduced this to one question.

Another difference between the 2003 AHS and the 2005 AHS was a new edit and allocation system for the income questions. The 2005 AHS used "regression-based" hot decks that allow more information to be used to provide a better match between donors and donees. In other words, an income-predicting regression assigns donors and recipients to cells in the hot deck matrix. Preliminary analysis indicates that the edit and allocation system has a minor effect on the percent receiving income types (see Table C-5).

More detailed analysis of the differences between the 2005 and 2003 AHS income data will be addressed in a forthcoming technical paper.

⁷ Please note that the ACS is primarily a mailout/mailback survey with telephone and personal visit interviews for a subsample of people who did not mail back their forms. The AHS, by contrast, is conducted solely through personal visit and telephone interviews.

Table C-3. Reciprocity Rates for People in Families by Income Type: 2003 and 2005 AHS

Income type	Percent by income type			Notes on change from 2003 to 2005
	AHS 2005	AHS 2003	Difference	
Social security and retirement.	0.289	0.269	0.020	Social security and pensions were combined in 2003, split into two questions in 2005.
Wages and salaries	0.747	0.785	-0.037	
Social security	0.256	...	...
Interest, dividends, rental income.	0.162	0.318	-0.156	These were three questions in 2003, combined into one in 2005.
Supplemental security income (SSI)	0.038	...	...	...
Welfare	0.022	0.047	...	Welfare and SSI were combined in 2003, split into two questions in 2005.
Workers' compensation	0.049	0.030	0.019	
Self-employment	0.131	0.095	0.036	In 2003, question referred to business income. In 2005, it refers to self-employment.
Other income	0.068	0.103	-0.036	Other income and alimony were two questions in 2003, combined into one in 2005.
Sample size	43,360	48,197	...	

... Not applicable.

Table C-4. **Income Reciprocity Rates by Type of Income and Survey**

Income type	2004 ACS	2005 AHS
Wages (all adults)	65.5	62.9
Householder and relatives . . . . .	...	62.1
Nonrelatives of householder . . . . .	...	76.7
Self employment (all adults)	7.0	7.8
Householder and relatives . . . . .	...	8.0
Nonrelatives of householder . . . . .	...	5.8
Interest	16.1	10.4
Social security	17.6	18.6
Supplemental security income	2.1	2.2
Public Assistance	1.3	1.2
Retirement	9.7	8.7
Other income (all adults)	7.6	4.5
Householder and relatives . . . . .	...	3.8
Nonrelatives of householder . . . . .	...	11.9
Workers' compensation . . . . .	...	2.7

... Not applicable.

Note: For the ACS, persons "with receipt" of income type are counted if they reported either "yes" to the reciprocity question or reported an amount in the question for amount of that income type. Also note, the ACS data are weighted, and the AHS data are not weighted since the latter has no person weights.

Table C-5. **Income Receipt Rates for Individuals by Imputation Status: 2005 AHS**

Income type	Full sample		Reported		Imputed	
	Pro-portion	Sample size	Pro-portion	Sample size	Pro-portion	Sample size
Social security	0.187	80,615	0.187	76,272	0.184	4,343
Wages and salaries	0.615	80,615	0.617	76,991	0.590	3,624
Retirement	0.087	80,615	0.087	76,209	0.091	4,406
Interest, dividends, rental income	0.104	80,615	0.104	75,329	0.103	5,286
Supplemental security income	0.022	80,615	0.022	76,306	0.022	4,309
Welfare	0.012	80,615	0.012	76,443	0.011	4,172
Workers' compensation	0.028	80,615	0.028	76,344	0.029	4,271
Self-employment	0.079	80,615	0.080	76,473	0.056	4,142
Other income	0.038	80,615	0.039	76,306	0.027	4,309

Note: Data are unweighted and exclude nonrelatives of the householder.

Income sources.

1993. See the topic "Income."

2001. In the questions used to inventory the cash benefits a person received over the past 12 months, the answer category "Receive SSI/AFDC/Other Welfare" was changed to "Receive SSI, Public Assistance, or Welfare Payments, such as [state TANF program name]." Individual states used different names for their Temporary Assistance to Needy Families (TANF) programs, so the question wording varied by state. This was done to update the source of income questions because the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 replaced the AFDC assistance program with TANF.

2004. Whether or not a resident of the housing unit received SSI payments was collected in a separate category. In 2003 and earlier, the receipt of SSI payments was collected in a combined category that included public assistance and welfare payments.

Items dropped.

2001. See the topic "Questionnaire."

Items published for the first time.

2001. See the topic "Questionnaire."

Kitchen.

1984. Short questions are asked about each aspect of a complete kitchen; previously only one long question was asked. The 1984 approach finds more homes missing some part of the kitchen than the old longer question did.

In vacant units, the definition was changed. Previously, if the respondent said the kitchen was incomplete, but the future tenant would be expected to complete it (for example, occupant provides a refrigerator), as is the practice in some areas, such a kitchen was counted as complete. Starting in 1984, it is counted as incomplete. Both approaches have problems, but the newer approach was chosen as preferable.

Between 1983 (old question and instruction) and 1985 national (new questions and instruction), the estimate of occupied units with incomplete kitchens changed 59 percent from 827,000 to 1,316,000. The estimate of vacant units with incomplete kitchens changed 274 percent from 665,000 to 2,490,000. Much of this change is assumed to be a result of the changes in the questions.

Starting in 1984, units reported in the category "Complete kitchen facilities" in the printed books had to have an oven. For the microdata files, an oven was not required to be included in the category "Complete kitchen facilities" (under "Equipment"). The definition of "Complete kitchen facilities" in Appendix A of the printed books incorrectly omits that the oven was required in the publication.

1997. The questions concerning each component of kitchen facilities were redesigned in 1997. Prior to 1997, the questions the respondents answered contained a definitional instruction to the field representative that the equipment was for this household's use only. The field representative, however, did not read this instruction to the respondent. Beginning in 1997, the instruction "this household's use only" is no longer a part of the question for each kitchen component. In its place, the field representative asked, when the respondent lived in a unit in a multiunit structure, if any of the kitchen equipment was shared with another household. This change caused large increases in the number of units lacking complete kitchen facilities and large decreases in the number of units with complete kitchen facilities.

Lead paint.

2001. The lead paint questions were dropped. These questions were asked in all housing units built before 1978 to collect data on signs of lead paint hazards (for example, peeling paint, paint chips, and so forth). They also asked if the household was notified of lead paint hazards.

Line of credit. See the topic “Mortgage.”

Location of previous unit.

1995. 1995 data were suppressed because it was not possible to code the metropolitan area of the previous unit consistently with the location of the current unit. The data involved comparing the metropolitan area of the previous residence with the current residence’s location. The AHS current residence is coded by its 1983 metropolitan area (see Appendix A for the definition of “Metropolitan areas”). Since 1993, the Census Bureau has not been able to code the previous residence with comparable 1983 boundaries because of updated geographic coding systems. Therefore, this item has been suppressed to avoid spurious changes. (The 1993 national data were not suppressed, but it is unclear whether they were correctly coded.)

Lodgers.

1984. A new series of questions concerning lodgers was introduced. Lodgers were defined as household members 14 years or older who are not related to the householder, not co-owners or co-renters, and are not a spouse or child of a co-owner or a co-renter. The respondent was asked if the lodger(s) paid a regular, fixed rent and, if so, what the dollar cost was and if it included food. The questions were intended to measure the cost of housing for the lodger(s). In this, as well as earlier and later years, any lodger’s rent received by the householder should be reported as rental income, but it is not certain whether householders do or did so.

1985. The phrase “as a lodger” was added to the questions concerning rent paid. The universe for these questions remained the same, but the wording was changed to make the question clearer.

1993. Questions concerning nonrelative housing costs were added to replace the questions about lodgers. This change modified not only the questions in the survey but also the universe. The new questions were targeted to all household members 14 years or older who are not related to the householder. The new questions included any housing costs paid by the nonrelative (not only rent).

1995. The nonrelative sharing housing costs questions were dropped and the lodger questions used in the 1985 survey were reintroduced using the 1984 definition of lodgers.

1997. The questions concerning lodgers were asked in accordance with the 1984 definition of lodgers. In addition, these questions were also asked of adult relatives. An adult relative is defined as a relative 21 years or older who is not a co-owner or co-renter and is not a spouse of a co-owner or co-renter. The data for these adult relatives are available on the microdata, but the publication only reflects data collected from the lodgers.

1999. Lodger questions were no longer asked of adult relatives (see 1997 above). In addition, the age cutoff in the definition of lodger was changed from 14 years or older to 16 years or older. See also the definition “Rent paid by lodgers” in Appendix A.

Losses.

1975 and 1976. The figures for housing units lost from the housing stock between 1973 and 1975 or 1976, published in the 1975 and 1976 national books, are incorrect. These figures were corrected in 1977 and published in *General Housing Characteristics for the United States and Regions: 1977*, series H150/77.

Main house heating fuel.

1999. In 1997, the type of gas used (piped versus bottled) as a main house heating fuel was inadvertently omitted for vacant housing units. In 1999, the distinction was reinstated.

Manufactured/mobile homes.

1984. Manufactured/mobile homes with attached permanent rooms began to be counted as mobile homes, while previously they were counted as single-family units. Manufactured/mobile homes with attached permanent rooms are identified separately in the microdata. See the topic “Housing unit definition.”

1985. See the topic “Weighting.”

2005. A question was added to determine if a manufactured/mobile home is single-wide, double-wide, or triple-wide (or larger).

Married-couple families.

1985 and 1987. The published 1985 and 1987 national estimates of married-couple families with no nonrelatives were overestimates resulting from a processing error. The 1985 overestimate was approximately 340,000, while the 1987 overestimate was 407,800. The overestimated married-couple families with no nonrelatives should have been tabulated under two-or-more-person households as either “other male” or “other female” householders. This error was corrected in 1989. Table C-6 provides corrected figures for 1987.

Table C-6. **Estimate of Married-Couple Families With No Nonrelatives and Other Two-or-More-Person Households: 1987**

Characteristic	Estimate
Married-couple families, no nonrelatives	50,084,000
Other two-or-more-person households	18,853,000
Male householder	6,421,000
Female householder	12,432,000

Metropolitan areas and central cities.

1984. Books and microdata started using 1983 boundaries. This change increased the number of metropolitan units, especially suburbs, and decreased the number of nonmetropolitan units. These boundaries were established in 1983 based on population and commuting patterns measured in the 1980 census. Therefore, the 1984 AHS metropolitan boundaries are not comparable to those in the 1980 census publications.

National microdata started showing central city and suburban status in all cases. Also, cases in more areas have the identifying code for their area shown because of less strict confidentiality constraints than in the past (areas of 100,000 population may be identified; the previous rule was 250,000).

Metropolitan microdata always identify the total area surveyed, but not necessarily the newer central cities, to protect confidentiality. When an area of less than 100,000 people was added to an AHS Metropolitan survey, sample cases were added there, and extra sample cases also were added in part of the old area, so no one would know which cases were in the small added area.

From 1973–83, all books and microdata had consistently used 1971 boundaries of metropolitan areas and cities. These were called Standard Metropolitan Statistical Areas (SMSAs). The criteria were published by the U.S. Bureau of Budget in *Standard Metropolitan Statistical Areas, 1959*. The boundaries were published by the U.S. Bureau of Budget in *Standard Metropolitan Statistical Areas, 1967* (which also reprinted the criteria), and some boundaries were revised in the Office of Management and Budget’s (formerly U.S. Bureau of the Budget) *Second Amendment*, February 23, 1971. These same boundaries were used in publications from the 1970 census.

Note that major revisions in official SMSA boundaries (but not AHS boundaries) were made in 1973 using results of the 1970 census; additional revisions were made during the 1970s. More major revisions occurred in 1983 using results of the 1980 census. Therefore, the AHS revision in 1984 reflected the cumulative result of 12 years of changes in official definitions.

1995. Starting in 1995, most metropolitan surveys use new samples and new boundaries, which for the first time may differ from standard boundaries published by the

Office of Management and Budget. A list of exactly which counties (towns in New England) are covered in each metropolitan survey each year is printed in each metropolitan book.

2001. Data in the 2001 AHS National publication are weighted using 1990 census-based geography. However, data on the 2001 microdata file are weighted using 1980 census-based geography.

2003. Data in the 2003 AHS National publication are weighted using 2000 census-based geography. However, data on the 2003 microdata file are weighted using 1990 census-based geography.

Monthly expenses, additional help.

1998. Beginning in 1998, additional questions were asked of renters when the ratio of monthly housing costs as percent of current income is high. Either rental households receiving housing assistance that report spending more than 35 percent of their income on housing, or rental households not receiving housing assistance with incomes less than \$15,000 that report spending more than 50 percent of their income on housing were asked questions on assistance for food, clothing, car and transportation expenses, child care, medical care or medicine, and utility bills. They were asked to specify the type of help they received and, if the help was not cash, whether they could determine a dollar value. Because of confidentiality, no dollar amount was released on the microdata file, only the types of help. The data were not published but are available on the microdata file.

Monthly housing costs.

1984, 1989, and 1995. See the topic “Housing costs and value.”

Mortgage.

1999. The “reverse mortgage” item under “Mortgages currently on property” was eliminated. In 2001, this item was reinstated.

2001. The collection of data for reverse mortgages was reintroduced in 2001. In addition, new mortgage questions were added and modifications were made to existing mortgage questions to more clearly delineate home-equity loans from regular mortgages, as well as to clearly differentiate between home-equity lump-sum loans and home-equity lines of credit. In addition, more detailed information was collected on home-equity lump-sum loans than in the past.

In 1997 through 1999, respondents were asked if they had a regular (other than a home equity) mortgage. If they answered “yes,” they were asked how many regular mortgages they had. Respondents were also asked if they had a home-equity loan. If they answered “yes,” they were asked how many home-equity loans they had.

Detailed characteristics were collected on the first three regular mortgages. One of the regular mortgages was determined to be the primary mortgage. Data were also collected on the first three home-equity loans; although, not as much detail was collected on home-equity loans as was collected on regular mortgages. One of the home-equity loan questions was if the home-equity loan was a lump-sum line-of-credit.

In 2001, separate counts of lump-sum home-equity loans and lines-of-credit home-equity loans were obtained. As in 1997 through 1999, respondents were asked if they had a regular mortgage and if “yes,” how many. Next they were asked if they had a lump-sum home-equity loan and if “yes,” how many. Finally, they were asked if they had a home-equity line-of-credit and if “yes,” how many.

Detailed characteristics were collected for both regular mortgages and lump-sum home-equity loans in 2001. The detailed characteristics continued to be collected on the first three mortgage loans with regular mortgages having priority over lump-sum home-equity loans. For example, if the respondent had two regular mortgages and two lump-sum home-equity loans, the detailed data were collected on the two regular mortgages and the first lump-sum home-equity loan reported. In addition, regular mortgages also took priority in being designated the primary mortgage. For example, if the respondent reported one regular mortgage and one lump-sum home-equity loan, the regular mortgage was considered to be the primary mortgage. If, however, the respondent only reported having a lump-sum home-equity loan, the lump-sum home-equity loan was designated the primary mortgage. The data collected for home-equity lines-of-credit loans remained the same in 2001 as in 1997 through 1999.

2003. Several programming errors were discovered and corrected in the mortgage edits. These errors primarily affect households that indicated they had a second mortgage but provided little information about it (i.e., had a high level of item nonresponse to the second mortgage questions). The errors typically caused such households to have their second mortgage blanked and also changed the characteristics of the first mortgage.

Compared with data with the erroneous edits, the estimated number of households having two or more mortgages increased by 147,000 (1.64 percent). Most of these households would have otherwise been coded as having one mortgage only; the number of households with one mortgage decreased by 134,000 (-0.39 percent). Again, compared with data with the erroneous edits, the corrections decreased by 11,000 (0.04 percent) the number of households with units owned free and clear; increased by 21,000 (0.04 percent) the number of households with a regular mortgage; and increased by 5,000 (0.13 percent) the number with a lump-sum home-equity mortgage. The number of home-equity lines of credit was not affected.

The biggest differences in the characteristics of mortgages are for the “Not reported” categories (many of the mortgage variables are not allocated). More than an estimated 100,000 not reported households were added for several of the mortgage items.

All these differences are relatively minor when compared with the total estimates for any given category. As a result, 2001 mortgage data will not be corrected. Users are cautioned, however, that both underestimates of mortgages and their characteristics exist in the published 2001 American Housing Survey data. These errors do not affect survey years prior to 2001.

Name change.

1984. The AHS changed its name from the Annual Housing Survey to the American Housing Survey. See the opening paragraph of this appendix.

Neighborhood.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

New construction.

1976, 1977, and 1978. The figures for 1973–76 new construction, 1973–77 new construction, and 1973–78 new construction published in the 1976, 1977, and 1978 national books are incorrect. These figures were corrected in 1979 and published in *Part A, General Housing Characteristics for the United States and Regions: 1979*, series H150/79.

1984. In 1984 and later AHS reports, the characteristics of new construction units are based on units constructed during the last 4 years. Prior to 1984, characteristics of new construction were based on units built since the last survey year. In the national survey, this was a 1-year period, except for the 1983 survey, which covered a 2-year period. In the metropolitan survey, this varied from being a 3- to 4-year period.

Table C-7. **Measures of Plumbing and Other Problems**

Year	Year-round units with plumbing problems	Occupied units with selected physical problems			
		Severe problems		Moderate problems	Total with severe or moderate problems
		Plumbing ¹	Total		
1973	3,573,000	2,471,000			
1974	3,036,000	2,281,000			
1975	2,706,000	2,076,000			
1976	2,661,000	1,944,000			
1977	2,542,000	1,805,000			Not published
1978	2,503,000	1,791,000			
1979	2,353,000	1,715,000			
1980	2,359,000	1,753,000			
1981	2,375,000	1,760,000			
1983	2,233,000	1,621,000			
1985	...	660,000	1,559,000	5,814,000	7,373,000
1987	...	574,000	1,224,000	5,184,000	6,408,000
1989	3,139,000	2,529,000	3,161,000	4,442,000	7,603,000
1991	2,849,000	2,278,000	2,874,000	4,531,000	7,405,000
1993	1,814,000	1,379,000	1,901,000	4,225,000	6,126,000
1995	1,993,000	1,459,000	2,022,000	4,348,000	6,370,000

... Not applicable.

¹Lacks any of the following, inside the structure, for exclusive use of occupants of this housing unit: hot piped water, cold piped water, flush toilet, bathtub (shower is an acceptable alternative).

Nonrelative income. Before 2005, for household members who are not related to the reference person, income questions asked for “total income earned before deductions in the past 12 months.” Since 2005, the period 12 months remained the same, but income questions were subdivided into three parts, inquiring about income earned from employer wages and salary, self-employment, and other sources of income.

Other buildings vandalized or with interior exposed.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

Other housing costs per month.

1995. A processing error was discovered and corrected involving the category “Homeowner association fee paid.” The “Homeowner association fee paid” data in 1993 and earlier were incorrect and should not be used. The 1995 data are correct.

1999. Several processing errors were discovered and corrected for the category “homeowner association fee paid.” The 1997 and 1998 data published for this category are incorrect. In 1997 and 1998, “homeowner association fee paid” was incorrectly tallied for mobile homes. In addition, the processing of data for units that are not mobile homes was done incorrectly. The 1997 and 1998 data should not be used. The 1999 data are correct.

Parking lots.

2005. The question on whether the use of parking lots in the respondent’s neighborhood is restricted to residents who live in the neighborhood or is available to all who work and shop in the neighborhood.

Persons other than spouse or children.

1993. See the topic “Lodgers.”

Plumbing facilities. Use caution when making comparisons among any of the surveys after 1983.

1984. Changes in the questionnaire resulted in serious deficiencies in plumbing data. In 1983 and earlier, respondents were asked a question on complete plumbing facilities that specified to the respondent the components necessary for complete plumbing (that is, hot and cold piped water, a flush toilet, and a bathtub or shower). The question further ensured that these facilities were only for the use of the occupants of the unit in which they were located (exclusive use). In those units with complete plumbing, an additional question was asked as to how many bathrooms there were.

Starting in 1984, respondents were first asked how many full bathrooms they had. If they answered one or more, questions on plumbing facilities were not asked; the unit was assumed to have complete plumbing facilities for exclusive use. Although the 1984–87 definition of a bathroom specified hot and cold piped water, a sink, a flush toilet, and a bathtub or shower, this definition was not read to the respondent. Also, nothing in the question required the bathroom to be only for the use of the occupants of the sample unit (exclusive use). We believe that the 1984–87 AHS counted a significant number of units as having complete plumbing for exclusive use because respondents for these units reported having a bathroom when, in fact, either the bathroom did not contain all plumbing facilities, or the facilities were shared by people living in another unit. Based on previous years’ AHS data, we believe the “completeness” was more of a problem than “exclusive use.”

The table on plumbing facilities was suppressed in books starting in 1985 (though data were still included in severe physical problems, see Table C-7). Data for 1984 were published but are incorrect.

1989. Beginning in the 1989 national survey (1990 metropolitan surveys), the questionnaire items on bathrooms and plumbing were modified to provide more accurate estimates. Respondents were asked, “How many full bathrooms with a sink, with hot and cold piped water, a flush toilet, and a bathtub or shower does this house/apartment have?” Also, an additional question was asked, “Are the bathrooms for this household’s use only?” If the respondent reported no bathrooms, detailed questions on each required plumbing facility were asked separately.

In 1989, there were 3,139,000 year-round housing units in the United States lacking complete plumbing facilities for exclusive use. Prior to 1985, there was a downward trend of units lacking complete plumbing facilities, with 1983 showing 2,233,000 such units. Units lacking plumbing may not have increased between 1983 and 1989, for the 1989–91 figures may be too high, as noted below in the discussion of changes in 1993.

Units lacking complete plumbing facilities are included in the count of units with severe physical problems. The number of units with severe physical problems may have been underestimated in both national and metropolitan surveys in 1984–90. It also appears the units with moderate problems may have been overestimated.

There was an unrealistic increase in units with severe problems in the United States between 1985–89 because of redesigning the plumbing facilities question, and then an unrealistic drop in 1993. Occupied housing units with severe problems went from 1,559,000 in 1985 to 3,161,000 in 1989 and 1,901,000 in 1993. There was a simultaneous decrease in moderate problems, from 5,814,000 in 1985 to 4,442,000 in 1989, which may be unrealistic, but no corresponding increase in 1993. Figures are shown in Table C-7. This increase also affected medians as Table C-8 shows.

Table C-8. Types of Units With Severe Physical Problems

Median	1985	1989
Year structure built	1938	1955
Rooms	4.0	4.8
Square footage	948	1,389

1993. In 1993, questionnaire item 29c on bathrooms for exclusive use was modified to provide more accurate estimates. The wording of the answer options to this question was changed to specify whether or not there was exclusive use of the facilities. This change appears to have caused a one-third drop in plumbing problems, compared

to 1991, and a similar drop in severe physical problems. Although the decrease between 1991 and 1993 seems unrealistic, the change in the 1993 questionnaire probably resulted in a better estimate.

1997. The definition of a complete bathroom was removed again from the original question (as in 1985–87), although the definition was still available in a help screen. Later in the questionnaire, for homes with only one bathroom, AHS asked specifically if the bathroom had hot and cold water, flush toilet, and bathtub or shower.

For households with more than one toilet, the 1997 questionnaire mistakenly asked about times when *the* toilet was unusable, instead of times when *all* toilets were unusable. The 1997 breakdown data and counts of moderate physical problems may therefore include many units where another toilet was indeed usable.

1998. See the topic “Flush toilet breakdowns.”

Poverty.

1984. The AHS provides housing characteristics for households with income below the poverty level. The AHS poverty data are not comparable to poverty data published from the Current Population Survey (CPS). Table C-9 presents the differences.

Table C-9. Households in Poverty in AHS and CPS: 1985, 1987, and 1989

Year	AHS	CPS
1985	13,266,000	11,996,000
1987	11,969,000	11,807,000
1989	12,403,000	11,369,000
1985–87 change	-1,297,000	-189,000
1987–89 change	434,000	-438,000

Compared with the CPS, the AHS drop in poverty between 1985 and 1987 seems too large. The 1987–89 AHS increase in poverty may be, in part, a compensation for the unrealistic 1985–87 drop.

In general, AHS estimates of poverty are higher than the CPS estimates. Research indicates that the AHS slightly underreports income when compared with the CPS, thus overreporting poverty. Furthermore, the problem seems to be concentrated among elderly households. A detailed discussion of AHS poverty data is presented in the Census Bureau memoranda for the record, “AHS Poverty Data, 1985 to 1989” and “Comparison of the 1989 AHS and CPS Income Reporting.” Copies can be obtained by writing to the Housing and Household Economic Statistics Division, U.S. Census Bureau, Washington, DC 20233.

Analysts are reminded that poverty data are published in the AHS, not as an official count of households in poverty, but to show the housing characteristics of low-income households.

2004. Starting in 2004, we made two changes in the metropolitan microdata files to the method of counting the number of children and adults in the poverty calculations. First, nonrelative children who are household members and under the age of 18 years are now counted as children. Prior to 2004, nonrelative children were counted as adults. Second, the poverty line is defined only for households of nine persons or less. Before 2004, in large households (with more than nine persons), children had been counted first toward the ratio of children to adults within the household. For example, a household with six children and six adults had been treated as a household with six children and three adults for the purpose of calculating poverty. This was changed to count adults first, thus changing this example to six adults and three children.

These changes affected a fairly large number of cases. In the 2003 national data, 5.1 percent of households had their number of children changed by the new procedures. However, they had an extremely small effect on the number of households in poverty. Had this change been implemented in 2003, it would have reduced the number of households in poverty by 29,000, a reduction of 0.03 percentage points (from 13.19 percent to 13.16 percent).

Public elementary school.

1997. Satisfaction with the public elementary school was no longer asked at all households with children under 17. It was only asked if the household had a child 13 years old or younger. This change was caused by a desire to focus on households that would be most knowledgeable about elementary schools. A mistake prevented covering all such households.

1999. In 1998 and earlier years, the question on type of school attended was asked of households with children ages 4 to 16. In 1999, the question was asked of households with children ages 5 to 15. The answer category “does not attend school” was replaced with “schooled at home.” However, instructions to the field representative defined both answer categories as the same, meaning children who did not attend school were entered into the “schooled at home” category.

2001. In 2001, a new answer category “Not in school” was added in the school item.

Public transportation.

2001. In 2001, a new item “Does anyone in the household ever use public transportation?” was added to the public transportation series.

Questionnaire.

1984. A new questionnaire was introduced in 1984. Most of the changes on the questionnaire were made to improve the quality of the data. As a result, however, several items in 1984 and beyond are not comparable to similar data for 1973–83; a discussion of each item can be found in the appendix under the topic of the same name.

Items changed on 1984 questionnaire include:

- Units in structure
- Rooms in unit
- Plumbing facilities
- Kitchen
- Recent movers

Some new items were introduced in 1984, including lot size, square footage, units with severe or moderate problems, elderly householder, heating-degree days (national sample only), and detailed information on mortgages. For detailed definitions of these and other items, see Appendix A.

1995. A number of new items were introduced in the 1995 questionnaire to improve the quality of the data.

New items in the 1995 questionnaire include:

- Rooms used for business
- Homes currently for sale or rent
- Safety of primary source of water
- Source of drinking water
- Rent paid by lodgers
- Home equity loan

1997. Computer-assisted personal interviewing was introduced in the 1997 AHS using laptop computers. See the topic “Computer-assisted interviewing.”

For copies of questions used in the laptop computers, call HUD USER at 1-800-245-2691 or the American Housing Survey Branch, U.S. Census Bureau at 301-763-3235.

The questionnaires have been published for reference as shown in Table C-10.

Table C-10. Reprints and Indexes of Questionnaires

Year	Printed books	Codebook		
		Volume 1	Volume 2	
		Reprints	Reprints	Index
1973	Occ, Vac	...	...	...
1974–81	Occ, Vac	...	...	...
1983	Occ, Vac,	...	...	...
1984	Card, Occ, Vac	...	...	*
1985 National	Card, Occ, Vac	Card, Occ, Vac	...	*
1985 Metro	Card, Occ, Vac	...	...	*
1986–92	Card, Occ, Vac	...	...	*
1993–94	Card, Occ, SU	...	...	*
1995 National	Card, Occ, SV	...	Card, Occ, SV	*
1995 Metro	Card, Occ, SV	...	...	*

Table C-10. **Reprints and Indexes of Questionnaires**—Con.

Year	Printed books	Codebook		
		Volume 1	Volume 2	
	Reprints	Reprints	Reprints	Index
1996	Card, Occ, SV	...	...	*
1997 ¹ . . . . .	...	...	...	...

... Not applicable.

* An alphabetical index to the questions is provided.

¹For surveys conducted since 1997, the only questionnaires are downloadable computer scripts or computer files containing the text of the questions.

Note: Many of the books listed above are downloadable, but those downloadable versions exclude the questionnaires.

Abbreviations:

Card: Control Card with introductory questions and household members.

Occ: Questions for occupied units.

Vac: Questions for vacant units, noninterviews, and URE (temporary home, people have usual residence elsewhere).

SU: A few special questions for URE are printed, only questions that differ from occupied units.

SV: A few special questions for Vacant and URE are printed, only questions that differ from occupied units.

1999. A series of new procedures changed the way data were collected for many items. These changes were:

- Dependent interviewing was greatly expanded in 1999. For a discussion of dependent interviewing and a list of the data items affected, see the topic “Dependent interviewing.”
- The procedures for collecting data were changed for four items. See the topics “Income,” “Lodgers,” “Public elementary schools,” and “Rooms in units.” A correction was made for vacant housing units to the item “Main house heating fuel.” See the topic “Main house heating fuel.”

A number of new items was introduced in the 1999 survey. For detailed definitions of these items, see Appendix A. The items are:

- Bodies of water within 300 feet
- Building and ground maintenance
- Building neighbor noise
- Location of extra unit
- Nights owner spent at extra unit
- Nights owner rented extra unit
- Reasons for extra unit owned
- Renter maintenance quality

A few items were eliminated in the 1999 survey. They are:

- Adequate inside maintenance

- Buildings and grounds properly maintained
- Reverse mortgages

2001. New items—More new items were introduced in the survey (See Appendix A for definitions):

- Cash received in primary mortgage refinanced
- Citizenship of householder
- Community quality
- Current line-of-credit interest rate
- Land contract
- Line-of-credit amount used for home additions, improvements, or repairs
- Line-of-credit monthly payment
- Percent of nonrefinanced primary mortgage, including home-equity lump-sum used for home purchase and improvement
- Percent of primary mortgage refinanced cash used for home additions, improvements, or repairs
- Percent of the loan used for the purchase of the home or addition
- Reason primary mortgage refinanced
- Secured communities
- Secured multiunits
- Senior citizen communities
- Total home-equity line-of-credit limit
- Total outstanding line-of-credit loans
- Year householder immigrated to the United States

Dropped items—Data on painted surfaces were dropped from the AHS. In 1999, data on this topic were published as microdata.

Race.

1995. Beginning in the 1995 national and 1996 metropolitan surveys, two new categories were added to this item: “American Indian, Eskimo, and Aleut” and “Asian and Pacific Islanders.”

2003. Beginning in 2003, multiple race classifications were introduced for the first time and the “Other” category was eliminated from the tabulation through the edit process. People were asked to respond to the question on race by indicating one or more of the six race categories. Respondents who chose only one race are referred to as the race *alone* population. Respondents who chose more than one of the six race categories are referred to as the *Two or More Race* population. Starting in 2003, AHS began using the complete CPS persons’ edits. These do not allow “Other” entries in race, but allocate one of the five specified response categories to those people reporting “Other” race. In the past, the “Other” race category contained write-in entries, such as “human being” and “brown.” Previously, many Hispanic householders (about 30 percent in

2001) stated that they were “Other” race, and 78 percent of the “Other” race householders were Hispanic. In 2003, although people may have reported themselves as “Other” race, the edits allocated them to a different race category. So, while over 7,000 people, 6,100 of whom were Hispanic, said they were “Other” race, the edits assigned a category of “White only” to 92 percent of the Hispanics who had reported “Other” race. However, this corresponds to what Hispanics say who report a race category.

Reason primary mortgage refinanced.

2005. The answer choice “To reduce the monthly payment” was added to the mark-all-that-apply item asking for the reasons for refinancing this mortgage.

Reasons for leaving previous unit.

1998. There was an error in the computer program for the laptop in 1997. As a result, data for the categories “private displacement” and “government displacement” were not collected. In 1998, the error was corrected and data were published.

2005. The answer category “Evicted from residence” was added to the question asking for the reasons for the move from the last residence.

Recent movers.

1984. In the 1984 AHS and later, some of the data for recent movers are based on the householder’s characteristics and some are based on characteristics of the AHS respondent who may or may not be the householder. Before 1984, all recent-mover data were based on the householder’s characteristics.

Rent control.

1988. In 1988, the computer edits for the metropolitan samples were changed for units reporting rent control. The states of California, Connecticut, New Jersey, New York, and Massachusetts, as well as the District of Columbia, are the only states that have metropolitan areas with rent control. If a respondent answered “yes” to rent control in a metropolitan area not in one of the above mentioned states, the answer was edited to “no.” In survey years prior to 1988, answers of “yes” to rent control in metropolitan areas not in one of the above mentioned states are errors.

Rent reductions.

1999. In the publication, the item “Rent reductions” is tabulated differently for renter-occupied units from how it was in 1998 and earlier years. Although the tabulation was changed in the publication, the data on the microdata file for each component of this publication item remain the same. The change is not a result of any change in the data collection procedure.

Research after the 1998 survey has shown that it is possible for a unit to be both subsidized and either under rent control or having the rent reduced by the owner. For example, the respondent may receive a voucher from the government to help pay the rent and still live in a rent-controlled unit. The procedure used in 1997 and 1998 relied heavily on the respondents’ answers to the questions on rent control and owner reduction. As a result, a large number of units that could have been tallied as “Other, income verification” and therefore “subsidized” were not. A smaller but significant number of units were tallied as “Other, income verification,” which should not have been so classified.

The classification of units as “Other, income verification” in the AHS publications is dependent on the answers respondents gave to a long list of subsidy questions. The tabulations attempt to estimate the number of units that are believed to be subsidized, but for which the type of subsidy is unknown. Past research using AHS data has shown that many respondents are not sure if their units are subsidized or, if subsidized, what type the subsidy may be. A unit that is classified as “Other, income verification” could be a unit that is owned by a public housing authority, a unit receiving some other form of government subsidy, or a unit subsidized by a private organization.

In 1997 and 1998, the classification “Other, income verification” required that the respondent did not answer that the unit was owned by a public housing authority or was part of a specific type of subsidy program and also answered the following:

- “Yes” to the question: “As a part of your rental agreement, do you need to answer questions about your income whenever your lease is up for renewal?”
- Any answer except “A public housing authority or a state or local housing agency” to the question: “To whom do you report your income?”
- “No” to the question: “Do you pay a lower rent because the government is paying part of the cost of the units?”
- “No” to the question: “Does the government limit the rent on the unit through rent control or rent stabilization?”
- “No” to the question: “Is the rent adjusted because someone in the household works for or is related to the owner?”

In 1999, the tabulation procedures were changed. The classification “Other, income verification” now requires that the respondent did not answer that the unit was owned by a public housing authority or was part of a specific type of subsidy program, but did answer the following:

- “Yes” to the question: “As part of your rental agreement, do you need to answer questions about your income whenever your lease is up for renewal?”
- Either “A building manager or landlord” or “a public housing authority or a state or local housing agency” to the question “To whom do you report your income?”

Table C-11 presents 1999 rent reduction data using both the old procedures and the new 1999 procedures for renter-occupied units. The new procedures provide an improved count of the category “Other, income verification.” The data using the old procedures should be used, however, when trying to measure historical change, especially between 1997 and 1999. Under the new tabulation procedure, there are 517,000 units that are classified as “Other, income verification” that under the old procedure were classified as:

- Renter control: 149,000
- Rent control not reported: 137,000
- Reduced by owner: 14,000
- Owner reduction not reported: 1,000
- Subsidy not reported: 216,000

Also, under the new tabulation procedure, there are 149,000 units that are classified as “Not reduced by owner” that were classified as “Other, income verification” under the old procedure.

Table C-11. **Rent Reductions Using Old and New Procedure for the United States: 1999**

Category	Old	New
Total, renter occupied	34,007,000	34,007,000
No subsidy	27,093,000	26,942,000
Rent control	1,033,000	884,000
No rent control	25,888,000	26,023,000
Reduced by owner	1,865,000	1,851,000
Not reduced by owner	23,905,000	24,054,000
Owner reduction not reported	118,000	117,000
Rent control not reported	173,000	36,000
Owned by public housing authority	1,865,000	1,865,000
Government subsidy	2,062,000	2,062,000
Other, income verification	1,910,000	2,277,000
Subsidy not reported	1,078,000	862,000

Replacements and additions.

2004. The question, “Was that wall-to-wall carpeting installed over existing, finished flooring, or was that put down over bare sub-flooring, such as concrete or unfinished wood?” was no longer asked. The question, “In the last two years, have you installed any wall-to-wall carpeting?” was still part of the survey.

Rooms in unit.

1984. The number of year-round units with one or two rooms in the United States dropped from 4,056,000 in 1983 to 2,486,000 in 1985. As a result, the median number of rooms per unit increased from 5.1 to 5.3; this does

not necessarily indicate an increase in the average size of housing units. In the 1983 AHS, respondents answered a single question asking for a total count of rooms in the unit. The potential to miss specific rooms is high in a question of this type. In the 1984 and later surveys, respondents were asked for a count of each specific type of room. The answers to these questions were then added together in the tabulations to provide a total count of rooms. Far fewer rooms were missed in this series of questions, which has apparently resulted in lower counts of one- and two-room units. It is also possible, however, that a few rooms may have been double counted. For example, a living room also may have been counted as a family room for a count of two rooms when only one room actually exists.

1997. Unfinished rooms were excluded from the published total number of rooms, but the count of unfinished rooms was available separately in the microdata. Respondents were asked for the number of rooms not only by type of room, but also by floor. Research had shown this approach was helpful for large homes, but it may have caused confusion and double counting in small homes.

1997, 1998, and 1999. The data for rooms published in 1997 and 1998 are not comparable to the data published in 1999 and before 1997. The approach used in 1997 and 1998 resulted in a much lower count of one-room housing units and housing units with no bedroom as shown in Table C-12.

Table C-12. **One-Room Units and Units With No Bedrooms in AHS: Selected Years**

Area and year	One-room units	Units with no bedrooms
United States		
1999	624,000	1,250,000
1997	471,000	619,000
1995	862,000	1,519,000
San Francisco-Oakland, CA		
1998	25,300	30,200
1993	35,500	73,900
San Jose, CA		
1998	3,400	4,400
1993	4,900	8,800
Tampa-St. Petersburg, FL		
1998	1,700	3,000
1993	3,800	8,900
Salt Lake City, UT		
1998	400	500
1992	900	2,400
Baltimore, MD		
1998	900	900
1991	2,800	5,200
Cincinnati, OH-KY-IN		
1998	700	700
1990	4,600	7,500

The 1997–98 approach had the respondent count each type of room for each floor of the housing unit for a total

of up to five floors (the fifth includes five or more floors). For example, a count of the total number of bedrooms was obtained for the first, second, third, fourth, and fifth floors. These counts were then added together to get a total count of bedrooms. This same procedure was followed for each type of room (living room, dining room, family room etc.). The final room counts were then added together to get a total for the housing unit. In addition, a special probe at very small units (those with no bedrooms, baths or half bath, and kitchens) asked if any of these rooms were missed. These procedures evidently produced larger counts of rooms for the smaller units. The low counts in 1997 and 1998 of one-room units and units having no bedrooms do not reflect any change in the characteristics of the housing inventory that might have occurred between these years and earlier or later years. Housing units that should have been counted as one-room units or as having no bedrooms in 1997 and 1998 were counted as having more than one room and/or having one or more bedrooms.

In 1999, the procedure was changed. The room counts by floor were eliminated. Room counts of each type were collected for the housing unit as a whole. These room counts were added together to produce a total count of rooms. Also, the probe was modified to ensure that one-room units were not underreported. If the respondent reported that there were no bedrooms, no kitchens, and zero to one living room in the unit, the field representative did not probe about these rooms. The field representative also did not ask the respondent for a count of family rooms, recreation rooms, dens, laundry rooms, or any other furnished or unfurnished rooms. This reduced the possibility of a one-room unit being counted as a two-or-more room unit by erroneously reporting multiple uses of the same room (e.g., counting a one-room unit as having a living room and a bedroom because the only room was being used as both). The 1999 data for the United States are an improvement over what were collected in 1997 and 1998, but still may not be entirely comparable to the data collected prior to 1997.

2001. The range for “Other finished rooms” was increased from “0 to 5” to “0 to 10.”

Rooms used for business.

1999. As a result of a data collection error, data for this item in 1997 and 1998 were not published. In 1999, the previously suppressed items were corrected and published.

Sample.

1985. A new sample was chosen for the national survey from the 1980 census. The previous sample, selected from the 1970 census, was used from 1973–83. To the degree that the coverage of housing units is different between the

1970 and the 1980 censuses, comparisons of the results of the 1973–83 surveys with the results of the 1985 and later surveys may be affected.

1987. Houston had a new sample based on the 1980 census because AHS sampling techniques did not accommodate its rapid annexations. The previous sample was based on the 1970 census.

1995. A new sample was chosen for the metropolitan surveys from the 1990 census, except in six areas that were covered as part of the 1995 national survey, and therefore have samples based on the 1980 census. The previous metropolitan samples, based on the 1970 census, were used from 1974–94.

All samples are updated continuously to cover new construction. See also the topic “Weighting” and the discussion of “Sample design” in Appendix B.

Sample size.

1995. The item “sample size” was added to Table 2-1 of published books. The sample size shown in the book is the unweighted count of the actual sample cases. See Appendix B for a more detailed explanation on sample design.

School. See the topic “Public elementary school.”

Selected geographic areas.

1995. The published data for the item “Selected Geographic Areas” in Table 2-1 were found to be incorrect for four of the 1995 metropolitan reports because of errors in processing. Corrected data can be obtained by writing to the Housing and Household Economic Statistics Division, U.S. Census Bureau, Washington, DC 20233, or by calling 301-763-3235. The problems with the data were as follows:

Chicago. The data for the three counties not listed in “Selected Geographic Areas” were incorrectly distributed among the data for the five counties that were listed. All published county data for Chicago were incorrect.

New York. The data for the three counties not listed in “Selected Geographic Areas” were incorrectly added to the data for the last county listed, Westchester County. Published data for the first seven counties listed were correct. Data for Westchester County were incorrect.

Northern New Jersey. The data for the first ten counties listed were published correctly. Data for the last county listed, Union County, was incorrectly left off the table.

Philadelphia. No data were published for Philadelphia.

Selected Subareas and Selected Geographic Areas.

2002. In the occupied chapters of the following 2002 American Housing Survey (AHS) publications, the data are incorrect for the boxhead columns “Selected Subareas”

and the stub item “Selected Geographic Areas.” The metropolitan areas involved are: Anaheim-Santa Ana, CA; Buffalo, NY; Dallas, TX; Fort Worth-Arlington, TX; Milwaukee, WI; Phoenix, AZ; Riverside-San Bernardino-Ontario, CA; and San Diego, CA.

A processing error resulted in a significant number of cases not being tallied under the “Selected Subareas” columns and for the stub item “Selected Geographic Areas.” The data shown in the publications are underestimates for these items. The processing errors were corrected. Although there are no plans to issue new paper copies of the publications, revised PDF copies can be seen on the Internet at the U.S. Census Bureau’s Web site <www.census.gov/prod/www/abs/h170sma.html>.

Severe and moderate problems.

1989. The data concerning units with severe and moderate problems in the 1989 national survey (1990 metropolitan surveys) and beyond are not comparable with similar data published earlier. See the topic “Plumbing facilities.” Units lacking complete plumbing facilities are included in the count of units with severe physical problems. The number of units with severe physical problems may have been underestimated during the 1985–89 national (1984–90 metropolitan) time period. During the same time period, units with moderate problems may have been overestimated.

Sewage disposal breakdowns.

1998. There was an error in the computer program for the laptop in 1997. As a result, data on sewage disposal breakdowns were collected for only 95 percent of the eligible households. Although the universe was incomplete, the data were published because the households answering the questions did so correctly. In 1998, the error was corrected and all eligible households were asked the questions.

Source of water.

1992. In 1985–91, respondents were asked if the source of water for their homes was a public or private system, an individual well, or some other source. Interviewer instructions specified that the question was concerned about the water used for cooking and drinking. This instruction was not read to the respondent. In 1992, the question changed and the interviewer instructions became part of the question. From 1992 forward, the number of units reporting “Some other source of water” increased, apparently as a result of the wording change in 1992. Therefore, data from 1985–91 and 1992 and later should be compared with caution.

1995. The title of this item changed to “Primary source of water,” and the usage restriction “for cooking and drinking” was deleted from the question.

Special living.

2005. New questions were added to identify and track the types of assisted living services being offered at multiunit complexes. The questions ask whether the management of the building offers the following *services* to residents: meals, transportation, housekeeping; or *assistance* to residents: managing finances, aid with telephone, shopping, bathing, eating, moving about, dressing, and toilet use.

Statistical areas.

1995. Beginning in 1995, the item “Statistical Areas” is no longer published in the metropolitan reports because of the complexity of matching geographic files over long periods of time.

Stories in structure.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

2005. Prior to 2005, respondents, thinking of apartment buildings, were asked if any apartment buildings within a half block of [your/the] [home/building] were 7 or more stories tall. In 2005, the question was changed where respondents were asked how many stories were in the tallest building within a half block of [your/the] [home/building]. Then the field representative placed the answer into 1 of the 3 categories—7 or more, 6 to 4, or 3 or less.

Telephone interviewing.

1981. Beginning in 1981, decentralized telephone interviewing was conducted in the national survey for a sample of units that were in sample during the previous enumeration. As a result of analysis conducted in both 1981 and 1983, the Census Bureau concluded that data collected using the decentralized telephone interviewing procedures were not sufficiently different from data collected by regular personal interviews to preclude basing published data on both telephone and personal interview data. Also see the topics “Buildings and neighborhood” and “Computer assisted interviewing.”

Time sharing.

1993. A programming error was discovered and corrected for the item “Time sharing.” In the 1991 national survey, the wrong universe was used. As a result, the published 1991 estimates of time-shared units were too low. Use caution when making comparisons with the 1991 AHS national survey and later national surveys.

Trash, litter, or junk on streets or any property.

1987, 1989, and 1997. See the topic “Buildings and neighborhood.”

Units in structure.

1984. From 1973 through 1983, data on units in structure were based on the respondent's answer to one question, "How many living quarters, both occupied and vacant, are there in this house (building)?" In 1984 and beyond, data on units in structure were based on the respondent's answers to a series of questions. The method of collecting units-in-structure data was revised because previous AHS experience showed the concept to be difficult for the respondents. Respondents particularly had difficulty distinguishing between single-family, attached, and multiunit structures.

As a result of this change, the estimated number of one-unit attached structures declined in some MSAs between interview dates of 1984 and later, compared with interview dates prior to 1984. It is estimated that 1974 through 1983 AHS-MS surveys, on average, overestimated the numbers of one-unit, attached structures by approximately 25 percent. The level of overestimation may vary significantly between metropolitan areas. Units incorrectly classified as one-unit, attached in previous survey years are, in 1984 and beyond, correctly classified as being in multiunit structures.

The Census Bureau estimated that the 1983 AHS-National sample overestimated single-family, detached units by 125,000 and single-family, attached units by 696,000. The 1983 AHS-National sample underestimated units in multiunit structures by approximately 898,000. Table C-13 provides revised levels of 1983–85 growth by adding 1983 overestimates and subtracting 1983 underestimates to the 1983–85 change shown in Table C-14.

Table C-13. **Revised Change in the Year-Round Housing Inventory by Units in Structure: 1983–85**

Units in structure	1983–85 change	Add 1983 over-estimate	Subtract 1983 under-estimate	1983–85 revised change
Single-family, detached	1,744,000	125,000	–	1,869,000
Single-family, attached	–2,000	696,000	–	694,000
2 or more units in structure .	1,935,000	–	898,000	1,037,000

– Represents zero.

Table C-14. **Change in the Published Year-Round Housing Inventory by Units in Structure: 1983–85**

Units in structure	1983	1985	1983–85 change
Single-family, detached	57,029,000	58,773,000	1,744,000
Single-family, attached	4,453,000	4,451,000	–2,000
2 or more units in structure .	26,193,000	28,128,000	1,935,000

Urban, rural, and population.

1985. From 1973–83, national books and data files use 1970 populations and 1971 boundaries to define urban and rural areas. Starting in 1985, national books and data files use 1980 populations and 1981 boundaries. 1990 and 1991 data are never used for this topic. (This topic only applies to national surveys, not metropolitan surveys.)

1989. Two procedures were introduced that attempt to correct the overreporting of electricity and gas costs in the AHS. In the first procedure, respondents were asked the amount of the electricity and/or gas bill for the previous months of January, April, August, and December. These months were the best predictors of annual costs. If the respondent provided data for at least 3 of the 4 months (1 month for recent movers), the results were used to provide an annual estimate of costs. This estimate was then divided by 12 to provide average monthly costs.

The backup procedure was applied to the remaining units. If the respondents did not know the amount of their electricity and/or gas bills for at least 3 of the 4 months, their estimate of average monthly costs was used. A factor was then applied that, in effect, lowered these costs to make the total cost from all households consistent with electricity and gas costs reported in the Residential Energy Consumption Survey (RECS) sponsored by the U.S. Department of Energy.

Before 1989, respondents were asked only to provide an estimate of average monthly costs. Research done using the 1987 AHS showed that this approach produces 15 to 20 percent overestimates of electricity and gas costs. The new procedures in 1989 and later produce lower and more accurate estimates. On average, more than one-third of the respondents provided answers for at least 3 of the 4 months.

1993. The procedures introduced in 1989 were improved and expanded from two to three procedures. All respondents were asked if they had records available showing their costs for electricity (or gas) separate from other utilities. If they responded "yes," they were asked the amount of their electricity (or gas) bill for the most recent months of January, April, August, and December. On average, more than one-third of the respondents provided answers for at least 1 of the 4 months.

If the respondent provided data for 2, 3, or 4 months, the following procedure was used. The monthly data were adjusted using regression formulas, modeled after the results of the RECS, sponsored by the Department of Energy, to estimate yearly costs that were then divided by 12.

If the respondent provided data for only 1 month, the following procedure was used. The data for the month were adjusted using regression formulas to estimate yearly costs that were then divided by 12. Because only 1 month

of real cost was provided, these formulas modeled after the RECS results also took into account the following characteristics of the unit: electric home heating, natural gas home heating, electric water heating, natural gas water heating, year built, type of unit, number of rooms, number of bathrooms, number of appliances, and number of household members.

If the respondent answered “no,” that he or she did not have separate records for the electricity (or gas), the same backup procedure was used as described for 1989.

Utilities.

1993. The procedures introduced in 1989 were improved and expanded from two to three procedures.

Three separate procedures are used to estimate monthly costs of electricity and gas. All respondents are asked if they have records available showing their costs for electricity (or gas) separate from other utilities. If they respond “yes,” they are asked the amount of their electric (or gas) bill for the most recent recent months of January, April, August, and December. These months are the best predictors of annual costs. On average, more than one-third of respondents provide answers for at least 1 of the 4 months.

If the respondent provides data for only 1 month, the first procedure is used. The data for the month are adjusted using regression formulas to estimate yearly costs that are then divided by 12. These formulas are derived from the Residential Energy Consumption Survey (RECS) sponsored by the U.S. Department of Energy. These formulas take into account the following characteristics of the unit: the census division where it is located, electric heat, electric water heating, natural gas heat, natural gas water heating, year built, type of unit, number of rooms, number of bathrooms, number of appliances, and number of household members.

If the respondent provides data for 2, 3, or 4 months, the second procedure is used. As with the first procedure, the monthly data are adjusted using regression formulas, derived from the RECS data, to estimate yearly costs that are then divided by 12. Because more than 1 month’s worth of real costs are available, it is rarely necessary to take into account detailed characteristics of the unit as is done in procedure one. (In some cases where 2 months of data are provided, detailed characteristics of the unit are taken into account.)

If the respondent answers “no,” that he or she does not have separate records for the electricity (or gas), the respondent is asked to provide an estimate of the average monthly costs. In this case, a procedure similar to the first is used. As in the case where 1 month of billing data is provided, the reported monthly average is adjusted using regression formulas derived from the RECS data, that take into account both the reported amount of electricity charges and detailed characteristics of the unit.

Finally, a factor is then applied to the electricity and gas costs to benchmark them to RECS averages. A full explanation of the formulas is in Appendix E of *Codebook for the American Housing Survey*, Volume 3. .

Vacant units.

1984. See the topics “Housing unit definition” and “Weighting.”

Value.

1984. See the topic “Housing costs and value.”

Weighting. Appendix B describes the process of weighting the data to represent the country as accurately as possible. The last steps in weighting involve ratios to make AHS data match other sources. Table C-15 shows that the sources of these control totals have changed.

Table C-18 (at the end of this section) compares basic housing unit characteristics using 1980 and 1990 weights.

1979–83. The 1980-based national estimates are about 2 percent larger than the 1970-based estimates. This 2-percent effect was equally distributed among all types of units. Therefore, percentages and medians should be comparable throughout 1973–83.

1985. The 1980 census count of occupied units in the United States was adjusted for undercount and projected to 1985 using the 1980–85 Current Population Survey’s rate of change. The Census Bureau then ratio-estimated the 1985 AHS-National sample to this number. The procedure used in 1985 resulted in 200,000 additional occupied units that would not have been estimated if the 1983 procedures had been employed in 1985.

Table C-15. **Sources of Control Totals for AHS**

Survey	Census used as basis	Method of updating
NATIONAL SURVEYS		
1973–80	1970	Current Population Survey
1981–83	1980	Current Population Survey
1985–89	1980	Current Population Survey, 1980 undercount, mobile home placements
1991 and later	1990	Formula, see Appendix B
METROPOLITAN SURVEYS		
1974–75	1970	Utility companies’ data
1976–78	No controls	(except that the 1977 Pittsburgh survey used the 1974–75 method)
1979–80	1970–80	Interpolation
1981–83	1980	Building + demolition permits or no controls, depending on local judgment
1984–88 California	State of California	California, Department of Finance
1984–88 Outside California	1980	Total population by county, and estimated change in household size by state (described in <i>Proceedings of the Bureau of the Census Second Annual Research Conference</i> , 1986, pages 83-110)
1989	1980–90	Interpolation between 1985 estimate

Table C-15. **Sources of Control Totals for AHS—Con.**

Survey	Census used as basis	Method of updating
		(methodology on previous line) and 1990 census
1990	1980–90	Extrapolation
1991 and later .	1990	Census Bureau data on construction, mobile home placement, vacant units, lost units

Also, all vacant units were adjusted for undercount for the first time. This adjustment added 400,000 vacant units (98,000 seasonal units and 302,000 year-round vacant units) to the housing inventory.

Beginning with 1985, national estimates of mobile homes with a model year of 1980 or later were ratio-estimated into independent counts of mobile home placements from the Survey of Mobile Home Placements. The counts of mobile homes for 1983 and earlier years may be too low and lead to unrealistically high estimates of change between 1985 and earlier years. For example, occupied mobile homes grew from 3,999,000 in 1983 to 4,754,000 in 1985, an increase of 755,000. This level of growth seems excessive as data from the Survey of Mobile Home Placements show approximately 570,000 new mobile homes placed for residential use during the same time period.

1991. On average, the 1990-based national weighting produces numbers that are about 2.5 percent lower than 1980-based weighting. This effect is not equally distributed among all types of units. Table C-16 shows the effects of the weighting change by region for the year 1991.

Table C-16. **1991 AHS: Change in Estimates From 1980-Based Weighting to 1990-Based Weighting as Percent of 1980-Based**

Type of unit	United States	North-east	Mid-west	South	West
Total housing units ..	-2.5	-3.6	-2.7	-2.0	-1.8
Occupied	-2.4	-3.5	-2.7	-2.0	-1.7
Built 1980 or later	-0.1	0.0	-0.1	-0.1	-0.1
Built before 1980	-2.9	-3.9	-3.1	-2.6	-2.2
Vacant	-2.9	-4.6	-2.8	-2.4	-2.4

Table C-17. **Occupied Housing Units Using 1990-Based Weighting: 1985, 1987, and 1989**

[Numbers in thousands]

Characteristic	1985		1987		1989	
	Owner	Renter	Owner	Renter	Owner	Renter
United States ..	54,394	31,279	56,649	31,885	58,193	32,809
Northeast . . .	10,922	7,106	11,418	7,089	11,660	7,011
Midwest	14,226	7,242	14,696	7,133	15,122	7,234
South	19,217	9,876	19,985	10,190	20,627	10,694
West	10,030	7,056	10,550	7,472	10,784	7,870
Race						
White and other	50,222	25,866	52,323	26,253	53,772	26,924
Black	4,172	5,413	4,326	5,632	4,420	5,885

Table C-17 presents counts of occupied homes using 1990-based weighting. This weighting is consistent with the weighting used to produce the 1991 and later detailed tables in Chapters 1 through 10 of the national books. These data should be used when measuring the change in the size of the occupied inventory. These data provide the most accurate count of the total number of occupied homes in the United States for the years 1985, 1987, and 1989.

2001. Table C-19 compares the switch from using 1980 census-based geography to 1990 census-based geography, which affected several steps in the weighting procedures and the geography data items used in those steps. However, data on the 2001 microdata file are weighted using 1980 census-based geography. For more details, refer to the “Estimates” section of Appendix B.

2003. In 2003, the independent estimates (control totals) used to produce the weights were based on Census 2000 with an estimate of change since then. This 2000-based weighting produces, on average, estimates that are about 1.0 percent lower than 1990-based weighting.

The 2003 AHS-N estimates are not available using 1990-based weighting. For comparative purposes, 2001 data were produced using 2000-based weighting (the original data products used 1990-based weighting). As can be seen in Table C-18, the switch from 1990-based to 2000-based weighting produced a 1.0 percent lower estimate for 2001 at the United States level. The effect of the weighting change ranged from a 2 percent drop in the West to two-tenths of a percent increase in the Northeast. Summary characteristics of the housing inventory for 2001 using 2000-based weighting are shown in Table C-20. These data should be used when comparing the 2001 AHS to the 2003 AHS. Detailed 2001 AHS-N data using 2000-based weighting are available from the Housing and Household Economic Statistics Division, U.S. Census Bureau, Washington, DC 20233-8500 (301-763-3235).

Table C-18. **Total Housing Units in 2001 From the AHS Using 1990-Based and 2000-Based Weighting**

Area	2000-based weighting (revised)	1990-based weighting (as published)	Difference	Percent difference
United States ..	118,196,000	119,117,000	-921,000	-1.0
Northeast.	22,382,000	22,347,000	35,000	0.2
Midwest.	27,396,000	27,748,000	-352,000	-1.3
South.	43,466,000	43,571,000	-105,000	-0.2
West.	24,953,000	25,450,000	-497,000	-2.0

Wiring.

1997. Plastic coverings began to be counted as acceptable, along with metal coverings, because the building industry accepts them. This change should reduce the count of “exposed wiring” reported in 1995.

Year householder moved into unit.

1999. A change was made in the way data for the year the householder moved in was processed. This change allows the year the householder moved in to be earlier than the year the structure was built for mobile homes. The change was made to accommodate mobile home householders who purchased a new mobile home but were still living in the same site, making the year their structure was built later than the year they moved in.

Table C-19. **Comparison of 1990 Geography-Based Weighting to 1980 Geography-Based Weighting—Selected Characteristics: 2001**

Characteristic	Total	In MSAs		Outside MSAs	Urban		Rural		
		Central cities	Suburbs		Total	Outside MSAs	Total	Suburbs	Outside MSAs
1990 GEOGRAPHY AND WEIGHTING									
Year-Round Housing Units									
Total	116,038	34,892	57,001	24,145	85,834	8,562	30,204	14,292	15,583
Condominium/cooperative	670	440	210	20	634	6	36	22	14
1, detached	71,527	17,018	37,490	17,020	49,487	5,598	22,041	10,465	11,422
1, attached	8,261	3,439	4,167	655	7,580	398	681	407	257
2-or-more units in structure	28,001	13,784	11,428	2,789	26,279	2,032	1,722	916	758
Manufactured/mobile home	8,249	651	3,917	3,681	2,489	535	5,760	2,504	3,146
Built 2000 or later	3,045	615	1,873	557	1,938	152	1,107	691	405
Built 1990 to 1999	15,716	2,748	9,512	3,456	9,432	885	6,284	3,565	2,572
Built 1939 or earlier	21,411	9,437	6,529	5,445	16,209	2,111	5,202	1,841	3,334
Lacking plumbing	2,051	698	798	555	1,410	141	641	205	414
Public housing	1,992	1,063	528	401	1,787	239	204	43	162
Government subsidy	2,262	1,094	778	391	2,079	270	183	63	120
Other, income verification	2,343	1,084	1,013	246	2,169	158	174	86	89
Northeast	21,656	6,938	12,286	2,432	16,562	658	5,094	3,296	1,774
Midwest	26,963	7,726	11,984	7,253	19,395	2,714	7,568	2,982	4,539
South	42,551	11,556	20,187	10,807	28,584	3,341	13,967	6,371	7,466
West	24,868	8,672	12,544	3,653	21,293	1,849	3,575	1,642	1,804
Owner-Occupied Housing Units									
Total	72,265	16,870	39,420	15,975	49,500	4,841	22,764	11,384	11,133
Elderly householder	17,513	4,235	8,686	4,592	11,975	1,525	5,538	2,427	3,067
Black householder	6,318	2,785	2,616	917	5,080	318	1,238	619	599
Hispanic householder	4,731	1,775	2,480	476	4,086	203	645	363	273
Householder moved in last year	5,645	1,325	3,198	1,122	3,998	412	1,647	900	710
Respondent moved in last year	6,002	1,403	3,424	1,175	4,268	434	1,734	957	740
All workers	84,974	19,628	48,220	17,126	59,101	5,181	25,873	13,614	11,946
Householders who worked last week	43,928	10,321	24,633	8,974	30,498	2,729	13,430	7,020	6,244
2-or-more-person households	56,867	12,713	31,927	12,227	38,588	3,551	18,279	9,398	8,676
Married-couple families, no nonrelatives	44,618	9,200	25,615	9,803	29,660	2,721	14,958	7,715	7,082
1-person households	15,398	4,157	7,493	3,748	10,913	1,291	4,485	1,986	2,457
1980 GEOGRAPHY AND WEIGHTING									
Year-Round Housing Units									
Total	116,079	34,894	54,879	26,306	82,144	8,985	33,935	16,449	17,321
Condominium/cooperative	678	448	208	22	637	6	41	25	16
1, detached	71,495	16,555	36,521	18,419	46,774	5,937	24,721	12,120	12,482
1, attached	8,303	3,537	4,068	698	7,310	424	993	711	274
2-or-more units in structure	28,052	14,453	10,572	3,027	25,989	2,167	2,063	1,169	860
Manufactured/mobile home	8,229	349	3,718	4,162	2,071	457	6,157	2,449	3,705
Built 2000 or later	3,045	572	1,832	641	1,803	157	1,243	758	484
Built 1990 to 1999	15,711	2,464	9,081	4,166	8,417	887	7,294	3,993	3,279
Built 1939 or earlier	21,397	9,584	6,187	5,626	16,154	2,231	5,244	1,839	3,395
Lacking plumbing	2,025	716	797	512	1,386	146	639	270	366
Public housing	2,008	1,095	453	459	1,815	319	192	52	140
Government subsidy	2,256	1,139	708	409	2,050	294	206	91	115
Other, income verification	2,338	1,092	971	275	2,112	170	226	118	105
Northeast	21,679	7,025	11,711	2,943	16,222	798	5,457	3,311	2,146
Midwest	26,977	7,633	11,528	7,816	18,792	2,877	8,184	3,242	4,939
South	42,557	11,560	19,516	11,481	26,704	3,435	15,853	7,713	8,046
West	24,866	8,676	12,125	4,065	20,426	1,875	4,440	2,181	2,191
Owner-Occupied Housing Units									
Total	72,365	16,254	38,227	17,884	46,456	5,099	25,909	13,006	23,785
Elderly householder	17,543	4,060	8,447	5,037	11,482	1,640	6,061	2,633	3,396
Black householder	6,327	2,753	2,440	1,133	4,909	374	1,418	648	759
Hispanic householder	4,734	1,765	2,394	574	3,915	258	819	502	316
Householder moved in last year	5,641	1,274	3,090	1,278	3,693	398	1,949	1,060	880
Respondent moved in last year	5,997	1,350	3,316	1,332	3,946	420	2,051	1,131	912
All workers	85,103	19,036	46,821	19,246	55,284	5,403	29,819	15,841	13,843
Householders who worked last week	43,997	9,982	23,894	10,121	28,545	2,865	15,452	8,117	7,256
2-or-more-person households	56,940	12,237	31,004	13,700	36,010	3,664	20,930	10,800	10,036
Married-couple families, no nonrelatives	44,681	8,821	24,896	10,964	27,605	2,832	17,076	8,866	8,132
1-person households	15,425	4,018	7,223	4,184	10,446	1,435	4,979	2,206	2,749

Table C-20. **Summary Characteristics of the Housing Inventory from the 2001 AHS Using Weights Based on Census 2000**

Characteristic	Total	In MSAs		Outside MSAs
		Central cities	Suburbs	
Total housing units	118,196	34,760	57,584	25,851
Seasonal	3,055	182	976	1,897
Year-round	115,141	34,578	56,608	23,954
Occupied	105,435	31,439	53,207	20,789
Owner	71,708	16,703	39,157	15,848
Renter	33,727	14,736	14,050	4,941
Vacant	9,705	3,139	3,401	3,165
For rent	2,893	1,316	925	652
For sale only	1,234	338	493	403
Rented or sold	726	233	338	155
Occasional use/URE	2,577	535	904	1,138
Other vacant	2,275	718	740	817
Year-Round Housing Units				
Total	115,141	34,578	56,608	23,954
Condominium/cooperative	6,239	2,063	3,721	454
1, detached	70,912	16,832	37,211	16,869
1, attached	8,215	3,419	4,145	651
2-or-more units in structure	27,805	13,680	11,356	2,769
Manufactured/mobile home	8,208	646	3,897	3,666
Built 2000 or later	3,045	615	1,872	557
Built 1990 to 1999	15,716	2,749	9,511	3,457
Built 1939 or earlier	21,218	9,355	6,480	5,383
Lacking plumbing	2,034	692	791	551
Public housing	1,850	975	505	370
Government subsidy	2,091	1,000	741	349
Other, income verification	2,327	1,076	1,007	244
Northeast	21,690	6,949	12,305	2,436
Midwest	26,621	7,620	11,845	7,157
South	42,448	11,523	20,145	10,779
West	24,382	8,486	12,313	3,582
Owner-Occupied Housing Units				
Total	71,708	16,703	39,157	15,848
Elderly householder	17,385	4,198	8,628	4,559
Black householder	6,286	2,765	2,606	914
Hispanic householder	4,684	1,756	2,456	472
Householder moved in last year	5,608	1,314	3,180	1,114
Respondent moved in last year	5,962	1,391	3,404	1,166
All workers	84,296	19,423	47,892	16,981
Householders who worked last week	43,580	10,215	24,467	8,898
2-or-more-person households	56,425	12,584	31,713	12,128
Married-couple families, no nonrelatives	44,273	9,106	25,445	9,723
1-person households	15,283	4,119	7,444	3,720
Renter-Occupied Housing Units				
Total	33,727	14,736	14,050	4,941
Elderly householder	4,270	1,819	1,710	740
Black householder	6,937	4,158	2,191	588
Hispanic householder	5,037	2,709	1,998	329
Householder moved in last year	10,951	4,587	4,617	1,748
Respondent moved in last year	11,550	4,886	4,863	1,802
All workers	34,626	14,673	15,236	4,717
Householders who worked last week	21,600	9,317	9,312	2,971
2-or-more-person households	21,071	8,982	8,994	3,095
Married-couple families, no nonrelatives	9,017	3,838	4,198	1,436
1-person households	12,656	5,754	5,056	1,846