

Appendix C. Historical Changes

INTRODUCTION

The American Housing Survey Metropolitan Sample (AHS-MS) was first conducted in 1974. Between 1974 and 1983 it was called the Annual Housing Survey. There is also an American Housing Survey National (AHS-N). The AHS-N was first conducted in 1973. Between 1973 and 1981 the AHS-N was conducted every year. Since 1981, the AHS-N has been conducted every other year. As a result both the AHS-MS's and AHS-N's names were changed from The "Annual" to "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 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 from 1975 through 1983, since the same titles were published for those years as in 1974.

Age of Other Residential Buildings Within 300 Feet

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

Bars on Windows of Building

1987 and 1989. See the Discussion under the topic "Buildings and Neighborhood."

Book Titles

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).

Buildings and Neighborhood

1987. Because of the inadvertent use of AHS-N weighted sample cases for certain items where AHS-N cases should not have been used, the data for these items in the 1987 AHS-MS are incorrect. 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. Because of the methods for weighting the sample in 1989 and later odd-numbered years, the weighted totals 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 only conducted 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.

Condition of Streets

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

Description of Area Within 300 Feet

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

External Building Conditions

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

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

1990. Beginning in 1990, 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.

Housing Costs and Value

1984. Beginning in the 1984 AHS-MS; value, mortgage data, and taxes are shown of all owners; rent for all renters; and utilities for all of both groups. From 1974 through 1983, these items were shown only for "specified" owners and renters. For comparability, table 19 in each chapter of the series H170 reports still shows data separately for "specified" owners and renters. "Specified" homes exclude 1-unit buildings on 10 or more acres, and owners in building with 2 or more units or with a business or medical office on the property.

Also in 1984 the terminology in the books changes. The new term "Monthly housing costs" includes the old terms "Selected monthly housing costs" for owners, "Gross rent" for renters, and "Contract rent" for vacant for-rent units.

1989. See the discussion under the topic "Utilities."

1990. See the discussion under the topics "Income" and "Monthly Housing Costs."

Housing Unit Definition

1984. Beginning with the 1984 AHS-MS there are one major and two minor differences in the housing unit definition. The major difference is that vacant mobile homes are included in the inventory beginning with the 1984 AHS-MS. Prior to 1984, such units were not counted. These units should not be considered when estimating inventory change between the AHS-MS surveys in 1984 and beyond and the 1974 through 1983 AHS-MS surveys. A minor difference in the definition is the 1973 through 1983 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 with direct access required of all units. A second minor difference is in the definition of group quarters. In the 1973 through 1983 AHS-MS, a housing unit containing 5 or more persons unrelated to the householder was considered to be group quarters. In 1984, the cutoff was raised to 9 or more persons unrelated to the householder.

Income

1984. See the discussion under the topic "Poverty."

1990. Two new items in 1990 and later years replace similar items that were published in 1989 and earlier years. They are "Monthly housing costs as percent of current income" and "Ratio of value to current income." For income, these new items use "Current income." In 1989 and earlier years, the items "Value-income ratio" and "Monthly housing costs as percent of income" used the "Income of families and primary individuals in the last 12 months." See appendix A for a complete definition of "Current income," "Monthly housing costs as percent of current income," and "Ratio of value to current income." We recommend caution when comparing prior years' data with 1990 and later years because of the differences in the definitions. For most households, current income is the same as income in the last 12 months. A study of data from the 1989 American Housing Survey National Survey showed that the two types of income were the same for 83 percent of total households, 86 percent of the owners, and 76 percent of the renters.

Mobile Homes

1984. See discussion under the topic "Housing Unit Definition."

Monthly Housing Costs

1984. See the discussion under the topic "Housing Costs and Value."

1990. In 1990, monthly housing costs questions for renters were revised to improve the reporting of actual rental costs. Prior to 1990, the questionnaire reflected 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. The current questionnaire identifies those rental units that are subsidized and allows households to report only the costs they actually paid. The new procedures in 1990 produce lower and more accurate estimates.

See the discussion under the topic "Income."

Name Change

1984. In 1984, the AHS-MS changed its name from the Annual Housing Survey to the American Housing Survey. See the introduction of this appendix.

Neighborhood

1987 and 1989. See the topic "Buildings and Neighborhood."

New Construction

1984. Beginning in 1984 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, which varied from being a 3- to 4-year period.

Other Buildings Vandalized or With Interior Exposed

1987 and 1989. See the topic "Buildings and Neighborhood."

Plumbing Facilities

1984 and 1990. Although published in the 1984 survey, the data on plumbing facilities were incorrect. For this reason the data were suppressed in the 1985 through 1989 surveys. Beginning in 1990 the data are shown. The changes in the 1984 redesigned questionnaire that resulted in serious deficiencies in these data were corrected in 1990. In the 1974 through 1983 AHS-MS, respondents were asked a question on complete plumbing facilities that specified to the respondents the components necessary for complete plumbing (i.e., 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.

In the 1984 AHS-MS, respondents were first asked how many bathrooms they had. If they answer one or more bathrooms, questions on plumbing facilities were not asked; the unit was assumed to have complete plumbing facilities for exclusive use. Although the definition of a bathroom still required hot and cold piped water, a sink, a flush toilet, and a bathtub or shower, this definition was not read to the respondent as it was before 1984. Also, nothing in the question requires the bathroom to be only for the use of the occupants of the sample unit (exclusive use). We believe that the 1984 AHS-MS was counting 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 persons living in another unit. Based on AHS data from previous years, we believe that "completeness" was more of a problem than "exclusive use."

In the 1990 AHS, the questionnaire items on bathrooms and plumbing were modified to provide more accurate estimates. Respondents were asked, "How many full bathrooms with a sink, 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. Units lacking complete plumbing facilities for exclusive use are included in the count of units with severe physical problems. The number of units with severe physical problems may have been underestimated in 1984 through 1989. It also appears the units with moderate problems may have been overestimated.

Poverty

1984. Beginning in 1984 the AHS-MS 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).

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 memorandum for the record, "AHS Poverty Data, 1985 to 1989." A detailed discussion of AHS income data is presented in the Census Bureau memorandum for the record, "Comparison of the 1989 AHS and CPS Income Reporting." Copies of these memoranda can be obtained by writing to the Housing and Household Economic Statistics Division, Bureau of the Census, Washington, DC 20233.

We wish to remind analysts 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.

Questionnaire

1984. A new questionnaire was introduced in the 1984 AHS-MS. Most of the changes on the questionnaire were made to improve the quality of the data. As a result of these changes, however, several items in the 1984 AHS-MS and later are not comparable to similar data for 1974 through 1983. A list of these items follows. A discussion of each item can be found under the topic of the same name.

Items changed on 1984 questionnaire:

- Units in structure
- Rooms in unit
- Plumbing facilities

A number of new items were introduced in the 1984 AHS-MS including lot size, square footage, units with severe or moderate problems, elderly householder, heating degree days, and detailed information on mortgages, etc. For detailed definitions of these and other items, please see appendix A.

Rent Control

1988. In 1988 the computer edits 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 which 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 1988 and beyond. Answers of "yes" to rent control in metropolitan areas not in one of the above mentioned States in survey years prior to 1988 are errors.

Rooms in Unit

1984. In the 1974 through 1983 AHS-MS, respondents answered a single question asking for a total count of rooms in a unit. The potential to miss specific rooms is high in a question of this type. In the 1984 AHS-MS and beyond, respondents were asked for a count of each specific type of room. The answers to these questions are then added together in the tabulations to provide a total count of rooms. Far fewer rooms should be missed in this series of questions. Based on research done for the 1985 American Housing Survey National Sample (AHS-N), it is assumed that the 1974 through 1983 AHS-MS estimates of one- and two-room units are too high, resulting in low estimates for median number of rooms in many metropolitan areas.

Sample

1984. A new sample was not chosen for the AHS-MS in 1984 and beyond (except for the Houston, TX area PMSA's in 1987) as was done in the 1985 AHS-N. However, most metropolitan areas had added counties to their definitions by 1983 and additional sample cases were drawn from the 1980 census to represent these counties. Therefore, each of the metropolitan areas surveys in 1984 and beyond has one of three types of samples:

- Areas of the same geographic area as defined for surveys before 1984 with the sample selected from the 1970 census and updated for change since then.
- Areas with new counties added. The old counties have sample selected from the 1970 census updated for change. The new counties have sample selected from the 1980 census updated for change.
- Houston, TX which had a completely new sample selected in 1987.

The data for metropolitan areas with counties added in the 1984 AHS-MS surveys and beyond are not comparable to data published for the 1974 through 1983 metropolitan surveys because of the additional counties.

Severe and Moderate Problems

1990. The data concerning units with severe and moderate problems in 1990 and beyond are not comparable with similar data published in 1984 through 1989. See the discussion under 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 1984 through 1989 time period. During the same time period, units with moderate problems may have been overestimated.

Stories in Structure

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

Trash, Litter, or Junk on Streets or Any Property

1987 and 1989. See the discussion under the topic "Buildings and Neighborhood."

Units in Structure

1984. In the 1974 through 1983 AHS-MS, 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 the 1984 AHS-MS and beyond, data on units in structure were based on the respondent's answers to a series of questions (see items 20 through 23 on page 3 of the questionnaire in appendix A). The method of collecting units-in-structure data was revised as previous AHS experience showed the concept to be difficult for the respondents. Respondents particularly had difficulty distinguishing between single-family attached and multi-unit structures. As a result of this change, the estimated number of one-unit attached structures declined in some MSA's between interview

dates of 1984 and later compared to 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 multi-unit structures.

Utilities

1989. Beginning in 1989, two procedures were introduced that attempt to correct the overreporting of electricity and gas costs in the AHS-MS. 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 are 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 second procedure was applied to the remaining units. If the respondents did not know the amount of their electricity and/or gas bill for at least 3 of the 4 months, we used their estimate of average monthly costs. A factor was then applied that, in effect, lowered these costs to make them consistent with electricity and gas costs reported in the Residential Energy Consumption Survey sponsored by the United States Department of Energy.

Before 1989, respondents were only asked to provide an estimate of average monthly costs. Research done using the 1987 AHS National Survey has shown 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. Beginning in 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. These months were the best predictors of annual costs. Depending on the number of months for which data were provided, one of two procedures was used. If the respondents answered "no" to the original question (that is, they did not have separate records for the electricity or gas); a third procedure was used. 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 only 1 month, the first procedure was used. The data for the month were adjusted using regression formulas to estimate yearly costs which

were then divided by 12. These formulas were modeled after the results of the Residential Energy Consumption Survey (RECS) sponsored by the United States Department of Energy. These formulas 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.

The second procedure was applied if the respondent provided data for 2, 3, or 4 months. As with the first procedure, the monthly data were adjusted using regression formulas, modeled after the results of RECS, to estimate yearly costs which were then divided by 12. Because more than 1 month's worth of real costs were available, it was not necessary to take into account detail characteristics of the unit as was done in the first procedure.

If the respondent answered "no" that he or she did not have separate records for the electricity (or gas), the third procedure was used. The respondent was asked to provide an estimate of the average monthly costs. A factor was then applied that, in effect, lowered these costs to make them consistent with electricity and gas costs in RECS.

Before 1989, respondents were only asked to provide an estimate of average monthly costs. Research done using the 1993 AHS National Survey has shown that this approach produces 0 to 10 percent overestimates of electricity costs and 15 to 25 percent overestimates of gas costs. New procedures introduced in 1989 produced lower and more accurate estimates. In 1993, these new procedures were improved and expanded from two to three procedures.

Vacant Units

1984. See the discussions under the topic "Housing Unit Definition."

Weighting

General. There are many stages in the weighting process. For example there are adjustments that account for the fact that interviews are not successfully completed at all housing units (noninterview adjustments). To fully understand the weighting for any given AHS-MS survey year, the reader must read appendix B in the H170 reports for the year of interest. The following is a brief description of changes by year in the last stage of weighting, the independent estimates or control totals. The independent estimates determine what the total count of housing units will be for a given MSA. As a general rule, the independent estimates from 1989 and beyond, which reflect the results of the 1990 census, are lower than those for 1979 through 1988, which reflect the results of the 1980 census. The independent estimates for 1974 and 1975, which reflect the results of the 1970 census, are also lower than those used

from 1979 through 1988. From 1976 through 1978 no independent estimates were used in the weighting except for the Pittsburgh metropolitan area (which used independent estimates based on the 1970 census). How the counts of housing units in metropolitan areas surveyed during the 1976 through 1978 time period compare to other time periods is not known. Therefore, estimates of the total number housing units in a given metropolitan area in one of the four time periods (1974 and 1975, 1976 through 1978, 1979 through 1988, and 1989 and beyond) are not comparable to estimates for the same metropolitan area in a different time period. The effects of changes to independent estimates are, however, proportionately distributed among all types of housing units. Therefore, the comparison of percents and medians for areas before 1989 to percents and medians in 1989 and later is valid.

1974 and 1975. The independent estimates reflected the results of the 1970 census plus change since then. Change was based on administrative records provided by utility companies. If such records were not available, permit data from the Bureau's Survey of Construction were used.

1976 through 1978. Except for the Pittsburgh metropolitan area in 1977, no independent estimate was used. After the preliminary weighting procedures were applied, the surveys' estimates of total housing units were accepted. In the 1977 Pittsburgh survey, the independent estimate reflected the results of the 1970 census with administrative utility company records measuring change since 1970.

1979 and 1980. The independent estimate was the result of interpolation between the 1970 and 1980 censuses.

1981 through 1983. During this time period, an independent estimate was prepared for each metropolitan area. It was based on the results of the 1980 census plus change since then. Change was based on estimates of building

permits and demolition permits obtained for the Bureau's Survey of Construction. Research was then conducted, often by talking to local officials, as to whether the independent estimates or the survey estimates of total housing units were the most reasonable. In the majority of the metropolitan areas, the independent estimates were used. However, in a significant proportion of the areas, survey estimates were used.

1984 through 1988. All metropolitan areas outside the State of California used an independent estimate based on the "population per household method." Essentially this method starts with the 1980 census results and updates them based on change in the population by county and the change in population per households by State. This method is described in the *Proceedings of the Bureau of the Census Second Annual Research Conference, March 23-26, 1986*, pages 83-110. For metropolitan areas inside the State of California, independent estimates were derived from data provided by the State of California, Department of Finance.

1989. Independent estimates were derived by interpolation between the 1985 county estimates of households produced by the Census Bureau (the 1984 through 1988 AHS method) and the 1990 census.

1990. Independent estimates were derived by extrapolation using the 1980 census and the 1990 census.

1991 to Present. The independent estimates reflect the adjusted housing unit counts from the 1990 census plus change since then. Change was based on data from the Bureau's Survey of Construction and Survey of Mobile Home Placements, as well as data produced by the Bureau on the number of vacant units in the country and the number of units lost during the time periods involved.