Appendix B. Source and Accuracy of the Estimates

SAMPLE DESIGN

The 1985 estimates contained in this report are based on data collected from August 1985 through December 1985 for the American Housing Survey (AHS) which was conducted by the Bureau of the Census, acting as collection agent for the Department of Housing and Urban Development. The sample for this survey was spread over 394 sample areas (called primary sampling units) comprising 878 counties and independent cities with coverage in each of the 50 States and the District of Columbia.

Approximately 47,200 sample housing units were selected for interview for the 1985 AHS. Of this number, about 2,900 were found to be ineligible because they no longer existed or information relevant to the 1985 housing inventory could not be obtained for the unit. Of the approximately 44,300 units (both occupied and vacant) which were eligible for interview, about 1,800 were classified as "noninterviews" because either no one was home after repeated visits, the respondent refused to be interviewed, or the interviewer was unable to locate the unit.

Selection of sample areas. The United States was divided into areas made up of counties and independent cities referred to as primary sampling units (PSU's). Of these PSU's, 170 were known as self-representing since the sample from the PSU represented only that PSU. These 170 PSU's were in sample with certainty. The remaining PSU's were grouped into strata and were referred to as non-self-representing, since the sample of housing units housing units from the sample PSU represented all PSU's, both sample and nonsample, in the stratum. These non-self-representing sample PSU's were selected in two steps.

First, the Current Population Survey (CPS) formed groups consisting of one or more PSU's. In groups consisting of more than one PSU, one PSU was selected to represent all PSU's in a CPS stratum. The second step involved selecting a subset of PSU's selected by CPS. The PSU's selected for the CPS sample (some of which were self-representing for the CPS and some of which were non-self-representing for the CPS) were grouped again for the AHS. For groups consisting of only one PSU selected for the CPS, that PSU was also selected for the AHS. For groups consisting of more than one PSU selected for the CPS, one PSU was selected for the AHS.

Selection of the sample housing units from the 1980 census. The overall sampling rate used to select the sample of housing units from the 1980 census for the 1985 AHS was about 1 in 2,148. The within-PSU sampling rate was determined so that the overall probability of selection for each sample housing unit was the same (e.g., if the probability of selecting a non-self-representing PSU was 1 in 10, then the within-PSU sampling rate would be 1 in 214.8). In areas where addresses were, for the most part, complete and where new construction is monitored by permits (these areas will be referred to as address enumeration districts [ED's]), a sample of housing units which received long-form questionnaires in the 1980 census was selected directly from a list of all such housing units based on certain housing and geographic information of the housing unit. A sample of living quarters which did not meet the definition of a housing unit (e.g., military barracks, college dorm) was selected independently from housing units in address ED's. This sample of living quarters that were not housing units was used to identify units that converted to housing units since the census.

In areas where at least 4 percent of the addresses were incomplete or inadequate, or where new construction was

not monitored by building permits (most rural areas), a sample of 1980 census units that received long-form questionnaires was selected in several steps (these areas will be referred to as area ED's). First, the areas were grouped and a sample of areas was chosen. Next, an area of land, known as a segment, was chosen within each sample area. Finally, a sample of housing units that received 1980 census long forms was selected within the segment.

Selection of new construction housing units in permit-issuing areas. The sample of permit new construction was selected from building permits issued such that the units are expected to be completed after April 1, 1980. For certain areas and structure sizes, this included permits issued as early as March 1979, but, for the most part, includes permits issued since July 1979. Only nonmobile home new construction is covered by the building permit frame. Within each PSU, building permits were selected so that the sample would be representative in terms of geography and month of issue for permits. Clusters of approximately four housing units were created. Housing units in these clusters were subsampled at the rate of 1 in 4, yielding clusters of size 1.

Housing Unit Coverage Study sample. Housing units at addresses missed in the 1980 census or units that were at inadequately described addresses in the census address registers did not have a chance of being selected for the AHS sample. A special study, done as part of the 1980 census, called the Housing Unit Coverage Study, identified such units. A sample of these units was included in the AHS sample.

Housing units added since the 1980 census. Housing units added to the inventory since the 1980 census were represented using two methods. One method identified within-structure additions. These are units in structures that had a chance of being in sample because they contained at least one unit enumerated in the 1980 census. This method was used for the Housing Unit Coverage Study sample as well. The other method identified whole-structure additions. These are units in structures for which none of the units in the structure were enumerated in the 1980 census.

In area ED's, all within-structure additions in structures containing at least one sample unit were interviewed for the AHS. In address ED's, all within-structure additions in 1- to 15-unit structures containing at least one sample unit were interviewed for the AHS. In 16-or-more-unit structures in address ED's, only units falling on AHS sample lines were interviewed for the AHS. In address ED's, whole-structure additions were identified using area sampling methods. Under area sampling, all housing units within a land area are first listed, and then a systematic sample is selected using a start with and take every so that a desired sample size is achieved based on the expected number of units within the segment. Land areas in sample for the Health Interview Survey in 1985 were used. Only Health Interview Survey areas that were in AHS PSU's or in Health Interview Survey PSU's adjacent to AHS PSU's were used. Also, only units that were not already assigned to the Health Interview Survey were eligible. These units were then matched to the 1980 census address registers. If the address matched to the census, the unit was ineligible. (Only the basic address, i.e., 801 Main Street, had to match. Apartment number, mobile home site number, etc., did not have to match). At the time of listing, eligible units were then screened further so that only units with no previous chance of coming into sample were picked up. (The screening eliminated units such as nonmobile home new construction, which is covered by building permits, and census misses.)

In area ED's where new construction is not monitored by building permits, all land areas chosen for the sample in area ED's were used. An expected four units were chosen using area sampling methods within these land areas to identify whole-structure additions. This sample was screened at the time of listing using the same criteria as for address ED's. However, this sample was not matched to the census. One important difference to note is that new construction was not eliminated during the screening process.

In area ED's where new construction is monitored by building permits, only one-third of the land areas chosen for the sample in area ED's was used. An expected eight units were chosen using area sampling methods within these segments to identify whole structure additions. This sample was screened at the time of listing using the same criteria as for address ED's. Again, this sample was not matched to the census. Nonmobile home new construction was eliminated by the screening process since it is covered by the building permit frame.

ESTIMATION

After assigning each unit a weight that reflected the correct probability of selection for the unit, the AHS weighting procedure consisted of two phases. In the first phase, a series of adjustments were made to account for units that could not be interviewed for a number of reasons. For each of these adjustments, a factor was computed and applied to the appropriate units. The factors were equal to the following ratio:

$$\frac{\text{Housing units to be kept after factor applied} + \text{Housing units to be dropped after factor applied}}{\text{Housing units to be kept after factor applied}}$$

The housing units that are to be kept after a factor is applied will have that factor applied to them. The first of these adjustments was done in permit segments only, to account for permits that could not be sampled and units that could not be located. These were represented by all

other units in permit segments including both interviews and noninterviews (excluding unable-to-locate units). The second of the adjustments was done for units in structures built before April 1, 1980. It was done to account for units that could not be located. The unlocatable units were represented by both interviews and noninterviews (excluding unable-to-locate units).

The last of these adjustments was done to account for units that could not be interviewed because either no one was home after repeated visits or the respondent refused to be interviewed. When 1985 AHS or 1980 census data were available, this information was used to determine the noninterview adjustment cell. The cells included characteristics such as tenure, geography, units in structure and number of rooms. When previous data were not available, adjustment factors were computed separately using more general characteristics such as type of area and type of housing unit (i.e., mobile home, nonmobile home).

The second phase involved a three-stage ratio estimation procedure to adjust for the sampling of non-self-representing PSU's, to account for known sampling deficiencies in new construction and to bring the sample estimate of housing units into close agreement with estimates derived from independent sources for several key characteristics.

The first stage of this procedure was employed to reduce the contribution to the variance due to the sampling of non-self-representing PSU's. The procedure takes into account the differences that existed at the time of the 1980 census between the housing units estimated from the non-self-representing sample PSU's and the actual 1980 census count of housing units from all non-self-representing strata. Factors accounting for these differences were computed separately for 15 place-of-residence/tenure cells for the Northeast and Midwest regions, 35 place-of-residence/ethnicity-race/tenure cells for the South region, and 25 place-of-residence/ethnicity/tenure cells for the West region. The first-stage ratio estimation factor was equal to the following ratio:

$$\frac{\text{Actual 1980 census housing units for all non-self-representing strata in a cell}}{\text{Number of 1980 housing units in the same cell estimated from the sample non-self-representing PSU's}}$$

The numerators of the ratios were calculated by summing the 1980 census housing unit counts for each cell across all non-self-representing strata. For each cell, the denominators were calculated by weighting the 1980 census housing unit counts from each non-self-representing sample PSU by the inverse of the probability of selection for that PSU and summing the weighted counts across all non-self-representing sample PSU's.

The second stage of the ratio estimation procedure was employed to adjust the AHS sample estimate of new construction (i.e., units built since the 1980 census) to account for known deficiencies in the AHS sample (see the section on nonsampling error). For nonmobile homes, the sample estimates were controlled to independently derived estimates from the Survey of Construction (SOC). For mobile homes, the sample estimates were controlled to independently derived estimates from the Survey of Mobile Home Placements (SMHP). These estimates were considered to be the best estimates available for these types of units. Factors were computed separately for each region. The second-stage factor was equal to the following ratio:

$$\frac{\text{Independently derived estimate for a cell}}{\text{AHS sample estimate in that cell}}$$

The denominators of the above ratio were obtained by summing the existing weight on each record after the first stage of ratio estimation over all records for each cell in each region.

The third stage of the ratio estimation procedure was employed to adjust the AHS sample estimate of housing units to independently derived current estimates for certain key characteristics. It is believed that these characteristics are highly correlated with other characteristics of interest for AHS. This stage of the procedure was actually done in two steps for occupied units. During the first step, the sample estimate of occupied housing units was controlled to an independently derived estimate for 12 tenure/ethnicity (i.e., Spanish head of household—non-Spanish head of household)/household-status cells for each region. After applying the factor computed in this step to the interviewed occupied units, the new sample estimate of occupied housing units was controlled to an independently derived estimate for 12 tenure/race (i.e., Black head of household—non-Black head of household)/household-status cells for each region. The sample estimate of vacant housing units was controlled to an independently derived estimate for four type-of-vacant cells for each region. All third-stage factors were calculated in a similar manner using the following ratio:

$$\frac{\text{Independently derived estimate of housing units in a cell}}{\text{AHS sample estimate of housing units in that cell}}$$

For occupied units, the numerators of the factors were derived from data based on the CPS and the 1980 census. The 1980 census count of housing units was adjusted for net undercoverage and overcoverage. The CPS was used to measure changes since the census and to derive the distribution for the third-stage occupied cells.

For vacant units, the numerators of the factors were derived based on the distribution of vacant units from the Housing Vacancy Survey (HVS), a quarterly vacancy survey conducted by the Bureau of the Census.

The denominators of the factors were obtained by summing the weights, with all previous factors applied, on all records in a cell. For the Spanish/non-Spanish and vacant cells, this was the weight after the second stage of the ratio estimation procedure. For the Black/non-Black cells, this was the weight after the Spanish/non-Spanish portion of the third stage of the ratio estimation procedure.

The second stage and third stage of the ratio estimation procedure were iterated to bring the AHS sample estimates into closer agreement with all independent estimates used. The numerators of the factors were the same ones used previously. The denominators of the factors in this iterative process were obtained by summing the existing weights on all records in a cell. For example, for the second stage of the ratio estimation procedure, the existing weight after the third stage of the ratio estimation procedure from the previous iteration was used. The final weight that resulted from all iterations was used to produce the tabulations in this report.

The overall estimation procedure reduced the sampling error substantially for most statistics below what would have been obtained by simply weighting the sample by the inverse of the probability of selection.

ACCURACY OF THE ESTIMATES

There are two types of possible errors associated with estimates based on data from sample surveys—sampling and nonsampling errors. A description of the sampling and nonsampling errors associated with the AHS national sample is given below.

Sampling errors. These errors result from the fact that the particular sample used for this survey is only one of a large number of possible samples that could have been selected using the same sample design. Even if all interviewing conditions were the same, estimates from each of the samples would differ from each other. The amount by which the estimates from all possible samples differ from one another is known as the sampling error. The standard error is commonly used to measure sampling error. It indicates how precisely an estimate from a particular sample measures the average result from all possible samples. In addition, the standard error also partially reflects the variation in the estimates due to some nonsampling errors, but it does not measure any systematic biases in the data. The accuracy of the estimates contained in this report depends on the sampling and nonsampling error, as measured by the estimated standard error, and biases and other nonsampling errors not measured by the standard error.

The sample estimate and the estimated standard error permit the construction of intervals such that the average result from all possible samples lies within the interval with a known level of confidence. For example, if all possible samples were selected and surveyed under the same general conditions and the estimate and estimated standard error were computed for all the samples, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result from all possible samples.

For intervals computed using estimates and estimated standard errors from this report, the average result from all possible samples either is or is not contained within the interval. However, it can be said that there is only a 1 in 10 chance that the sample selected will yield a 90-percent confidence interval that does not contain the average result from all possible samples.

The figures presented in the standard error tables are approximations to the standard errors for the estimates in this report. These approximations were necessary in order to produce standard errors applicable to a wide range of characteristics at a reasonable cost. The standard error tables provide an indication of the order of magnitude of the standard errors rather than the actual standard errors for any specific characteristic.

There are various types of estimates which can be made using the data in this report. For example, one can make an estimate of the total number of housing units having a specific characteristic (known as an estimate of a level); a percentage of housing units having a specific characteristic; a ratio of two different characteristics; the difference between two estimates; or medians. Other types of estimates can be made, but these are the most commonly used. Procedures for computing estimated standard errors for these types of estimates are given below.

Standard error table locator. To help identify which standard error table to use for a specific type of estimate from this report, a standard error table locator is provided. The rows of this table identify the population groups on the boxhead of the tables in this report, and the columns indicate the types of housing characteristics. For example, for general characteristics of the national housing inventory, table 1a should be used for estimating standard errors of estimates of levels; table 1b should be used for estimating standard errors of estimated percentages of these housing units; for fuels and type of heating and cooling equipment in rural areas, table 6a should be used for estimating standard errors of estimates of levels; and table 6b should be used for estimating standard errors of estimated percentages of these housing units.

Standard errors of estimates of levels. Tables 1a to 7a present estimated standard errors for estimates of national and regional housing characteristics for 1985. Linear interpolation should be used to determine estimated standard errors for estimates not specifically shown in tables 1a to 7a. The following is an illustration of the use of table 1a.

Table 1-1 of this report shows that in the United States there were 5,626,000 occupied housing units with householders under the age of 25 years in 1985. The standard error table locator shows that table 1a should be used for this type of characteristic. Interpolation in standard error table 1a shows that the estimated standard error of an estimate of this size is 119,000. The following procedure was used in interpolating.

The information in the table below was taken from standard error table 1a. The entry for x is the standard error sought.

Size of estimate (thousands)	Standard error (thousands)
5,000	113
5,626	x
7,500	136

By vertically interpolating between 113,000 and 136,000, "x" is determined to be 119,000.

$$113{,}000 + \frac{5{,}626{,}000 - 5{,}000{,}000}{7{,}500{,}000 - 5{,}000{,}000}\,(136{,}000\text{-}113{,}000) = 119{,}000$$

The 90-percent confidence interval for the estimated number of occupied housing units with householders under age 25 is from 5,436,000 to 5,816,000. Thus, the average estimate from all possible samples of these types of housing units will lie within an interval computed in this way for approximately 90 percent of all possible samples.

Standard errors of estimates of percentages. Estimated percentages from this report are computed using sample data for both the numerator and the denominator. The numerator is a subclass of the denominator. The reliability of an estimated percentage depends upon both the size of the percentage and the total upon which the percentage is based (i.e., the denominator). Estimated percentages are more reliable than the corresponding estimates of the numerators of the percentages, particularly if the estimated percentages are 50 percent or more. Tables 1b to 7b present estimated standard errors of national and regional estimated percentages of housing units for 1985. Two-way interpolation should be used for standard errors of estimated percentages not specifically shown in tables 1b to 7b.

Included in tables 1b to 7b are estimated standard errors for estimates of zero percent. These are considered to be overestimates of the true standard error and should be used primarily for the construction of confidence intervals for characteristics when an estimate of zero is obtained. The following is an illustration of the use of table 1b. Table 1-1 shows that of the 10,397,000 families with female householders in the United States in 1985, 730,000 or 7 percent were of Hispanic origin with own children under 18. The standard error table locator shows that table 1b should be used. Interpolation in standard error table 1b (i.e., interpolation on both the denominator and the percent) shows that the standard error on the above percent is 0.4. The following procedure was used in interpolating.

The information in the table below was taken from standard error table 1b. The entry for p is the standard error sought.

Denominator of percent (thousands)	Estimated percent (thousands)		
	5	7	10
10,000	0.4	a	0.5
10,397		p	
12,500	0.3	b	0.4

First, interpolate horizontally between 0.4 and 0.5 to get the entry for cell "a." The entry for cell "a" is 0.4.

$$0.4 + \frac{7 - 5}{10 - 5}\,(0.5 - 0.4) = 0.4$$

Next, interpolate horizontally between 0.3 and 0.4 to get the entry for cell "b." The entry for cell "b" is 0.3.

$$0.3 + \frac{7 - 5}{10 - 5}\,(0.4 - 0.3) = 0.3$$

Finally, interpolate vertically between 0.4 and 0.3 to get the entry for cell "p." The entry for "p" is 0.4.

$$0.4 + \frac{10{,}397{,}000 - 10{,}000{,}000}{12{,}500{,}000 - 10{,}000{,}000}\,(0.3 - 0.4) = 0.4$$

Thus, the 90-percent confidence interval for this estimated percentage is between 6.4 and 7.6 percent.

Standard errors of ratios. For ratios of the form (100) (x/y), where x is not a subclass of y, the standard error tables for estimated percentages under estimate the standard error of the ratio when there is little or no correlation between x and y. For this type of ratio, a better approximation of the standard error may be obtained by letting the standard error of the ratio be approximately equal to the following:

$$(100)\,\frac{x}{y}\sqrt{\left(\frac{s_x}{x}\right)^2 + \left(\frac{s_y}{y}\right)^2}$$

where x = numerator of the ratio
y = denominator of the ratios
s_x = estimated standard error of the numerators
s_y = estimated standard error of the denominator

S_x and s_y are computed according to the method used for estimated standard errors of levels. The following is an illustration of how to compute the estimated standard error of a ratio.

Table 2.1 of this report shows that there were 45,526,000 owner-occupied housing units with family households in the United States in 1985. The estimated standard error of this estimate is determined to be 238,000 using linear interpolation in standard error table 1a. Table 2.1 also shows that there were 10,619,000 owner-occupied housing units with nonfamily households in the United States in

1985. The estimated standard error of this estimate is 159,000. This standard error also was determined using linear interpolation in standard error table 1A. The ratio of owner-occupied, family households to owner-occupied, nonfamily households is 429. The estimated standard error of this ratio is 6.8 and is calculated as follows:

$$100\left(\frac{45{,}526{,}000}{10{,}619{,}000}\right)\sqrt{\left(\frac{238{,}000}{45{,}526{,}000}\right)^2+\left(\frac{159{,}000}{10{,}619{,}000}\right)^2}=6.8$$

Standard errors of differences. The estimated standard errors shown in tables 1a to 7a are not directly applicable to the difference between two estimates. The estimated standard error of a difference can be computed by the following:

$$s_{x-y}=\sqrt{s_x^2+s_y^2}$$

where s_x and s_y are the estimated standard errors for the two estimates x and y, respectively. They can be computed in the same manner as for estimated standard errors of levels. This formula is quite accurate for the difference between estimates of the same characteristics in two different areas or the difference between separate and uncorrelated characteristics in the same area. If a high positive correlation exists between the two characteristics, the formula will overestimate the true error. If there is a high negative correlation, the formula will underestimate the true standard error. The following illustration shows how to compute the estimated standard error of a difference.

Table 2-1 shows that in the United States there were 46,703,000 owner-occupied 1-unit, detached housing units in 1985. The estimated standard error on this estimate is 239,000. Table 2-1 also shows that there were 2,211,000 owner-occupied 1-unit, attached housing units in the United States in 1985 with an estimated standard error of 75,000 housing units. The estimated difference between 1985 owner-occupied housing units with 1-unit, detached and with 1-unit, attached is 44,492,000 and the estimated standard error of this difference is 250,000; as computed by the following:

$$250{,}000=\sqrt{(239{,}000)^2+(75{,}000)^2}$$

The 90-percent confidence interval for the difference of 44,492,000 is from 44,092,000 to 44,892,000, and it can be concluded that the average estimate of this difference, derived from all possible samples, lies within an interval computed in this way for approximately 90 percent of all possible samples.

Standard errors of medians. For medians presented in certain tables in this report, the estimated standard error depends on the distribution of the characteristic and the total number of housing units which comprise the distribution. A common method for approximating the reliability of the estimated median is to construct an interval about the estimated median such that the average median from all possible samples lies within the interval with a known level of confidence. The following procedure should be used to estimate the upper and lower limits of a 90-percent confidence interval of a median.

1. From the appropriate standard error table for estimated percentages, determine the estimated standard error of a 50-percent characteristic based on the total number of housing units from the distribution.

2. Add to and subtract from 50 percent 1.6 times the estimated standard error determined in step 1 to obtain the upper and lower percentage limits from which the confidence interval will be determined.

3. Determine the lower endpoint of the confidence interval by linearly interpolating within the category of the distribution which contains the lower percentage limit. The upper endpoint of the confidence interval is determined in the same manner using the upper percentage limit.

For about 90 out of 100 possible samples, the average median from all possible samples will lie within this 90-percent confidence interval. The following example illustrates how to compute a 90-percent confidence interval for a median.

Table 1-1 of this report shows the median number of persons in housing units occupied by married-couple households with Black householders was 4.2 in 1985. The total number of housing units upon which the distribution is based is 1,837,000 housing units.

1. From table 1b, the standard error of a 50-percent characteristic based on 1,837,000 housing units is 2.0 percentage points.

2. To obtain a 90-percent confidence interval, add to and subtract from 50 percent 1.6 times the estimated standard error from step 1 giving upper and lower percentage limits of 46.8 and 53.2.

3. From the distribution in table 1-1 for the number of persons in married-couple occupied units with Black householders, the interval with four persons contains the 46.8 percent derived in step 2. (For the purpose of calculating the median, the category of four persons is considered to be from 3.5 to 4.5 persons). About 491,000 housing units or 26.7 percent fall below this

interval and 636,000 housing units or 34.6 percent fall within this interval.

By linear interpolation, the lower limit of the 90-percent confidence interval is found to be about 4.1.

$$3.5 + (4.5\text{-}3.5)\frac{(46.8 - 26.7)}{34.6} = 4.1$$

Similarly, the interval with four persons for married-couple families with Black householders contains the 53.2 percent derived in step 2. About 491,000 housing units or 26.7 percent fall below this interval and 636,000 housing units or 34.6 percent fall within this interval. The upper limit of the 90-percent confidence interval is found to be about 4.3.

$$3.5 + (4.5\text{-}3.5)\frac{(53.2 - 26.7)}{34.6} = 4.3$$

Thus, the 90-percent confidence interval ranges from 4.1 to 4.3 persons.

Nonsampling errors. Nonsampling errors can be attributed to many sources. The respondent may be unable or unwilling to provide the correct response. The interviewers may be unable to find the unit or they may be unable to obtain information about all the cases. They may record the data incorrectly. Either the respondent or the interviewer may interpret the questions differently than they were intended. The collected data may be keyed incorrectly. The sample frames may be incomplete, introducing some coverage error. Processing of the data introduces errors due to rounding or adjusting for missing values. In addition to these errors, there are other errors of collection, response, processing, coverage, and estimation of missing data. Not all of these errors are unique to sample surveys since they can, and do, occur in complete censuses as well.

Reinterview program. The 1985 AHS-N reinterview served as a check for interviewer evaluation and quality control. This check was made at a subsample of the original households to determine if the following was done during the original interview:

a. The sample unit and all units within the same structure of the sample unit were listed correctly.
b. The correct unit was visited.
c. The correct information on "tenure" was obtained.
d. The correct information on "household composition" was obtained.
e. The correct information on "type of housing unit" was obtained.
f. The correct information on "occupancy status" was obtained.

The 1985 AHS-N reinterview study was done for three groups of items. They are units in structure and description of structure, number and type of rooms, and appliances, including the age and fuel of the appliances. All items measured showed low levels of inconsistency except those listed in the table below. Included in the table are the levels of inconsistency.

Item	Level of inconsistency for occupied units
Number of living rooms	Moderate
Number of dining rooms	Moderate
Number of family rooms	Moderate
Number of "other" types of rooms	Moderate
Age of refrigerator	–
Age of garbage disposal	–
Age of oven/cooking burner	–
Age of dishwasher	–
Age of clotheswasher	Moderate
Central air conditioning fuel	High
Cookstove or range with oven	Moderate to High

Dashes in the table represent items for which there were not enough observations to compute reliable estimates or items which had low levels of inconsistency. Low levels of inconsistency indicate that the response error is insignificant relative to the standard error in this report. Moderate levels of inconsistency indicate that the response error is not insignificant compared to the standard error in this report. High levels of inconsistency indicate that the response error is very significant compared to the standard error in this report, and caution should be used when examining estimates of these characteristics.

Cross-tabulations involving those items which are subject to high levels of inconsistency may also be subject to a large distortion as a consequence and, thus, are considered to be less reliable than comparable cross-tabulations which do not involve these data. Since the reinterview programs only measured inconsistencies for a sample of the items on the AHS questionnaire, there may be other items with high levels of inconsistency.

Reinterview studies were also conducted in conjunction with AHS enumerations prior to 1985. These studies included items dealing with poor housing quality, attitudes about the neighborhood, certain housing costs, journey-to-work, and mobility data. The following table shows the items which had moderate or high levels of inconsistency. While these questions were not included in the 1985 reinterview study, questions from previous enumerations were not altered enough to lead one to believe that the level of inconsistent responses would change.

Item	Level of inconsistency
Open cracks or holes on inside of building	Moderate to High
Holes in floors	Moderate to High
Broken plaster or peeling paint on ceilings and walls	High
Mice or rats	Moderate
Working electric outlet in all rooms	High
Concealed wiring	High
Blown fuses/tripped circuit breakers	Moderate to High
Neighborhood conditions: street noise; roads in need of repair; crime; trash, litter, junk in streets or on properties; boarded up/ abandoned structures; nonresidential activities; odors, smoke, gas	Moderate to High
Satisfactory neighborhood services: police protection; hospitals/health clinics; public transportation; shopping; elementary schools	Moderate to High
Electricity cost	High
Gas cost	High
Oil, coal, kerosene, wood or other fuel cost	Moderate to High
Fire/hazard insurance	Moderate to High
Real estate taxes	Moderate to High
Cost of real estate taxes	Moderate to High
Cost of water supply and sewage disposal	High
Cost of garbage collection	Moderate to High
Gross income	High
Type of vacant	Moderate to High
Prefer to live in same area or somewhere else	Moderate

A possible explanation for the results of the reinterview studies, as well as the surveys themselves, is that respondents may lack precise information. Also, since the results of the reinterview studies are derived from sample surveys, there is sampling error associated with these estimates of nonsampling error. The possibility of such errors should be taken into account when considering the results of these studies.

Coverage errors. AHS misses approximately 25 percent of the new mobile homes (i.e., those built after January 1, 1980). It is believed that most of the difference is due to poor coverage of new mobile home parks in address ED's.

The coverage of old construction housing units is only as good as the coverage of the 1980 census. The third stage of the ratio estimation procedure attempted to correct for these deficiencies.

Another area of the AHS sample where coverage deficiencies exist is the sampling of building permits to represent conventional (i.e., nonmobile home) new construction. Due to time constraints, only permits issued more than 6 months before interviewing began were eligible to be selected to represent conventional new construction. This is more of a problem for single-unit rather than multiunit structures. In fact, the time lag between issuance of a permit and completion of construction for multiunit structures is generally more than 6 months depending on the size of the structure. Also, new construction in special places such as colleges or military bases is not covered. This is a deficiency in both permit and nonpermit areas.

In identifying whole-structure additions in address and area ED's, units which were in sample were screened to see if they were eligible for interview. The screening operation involved asking a series of questions. Therefore, the quality of coverage in these areas is only as good as the quality of the responses to these questions. It is conceivable that eligible units were omitted and ineligible units were included because the respondents' answers to the screening questions were incorrect. In addition, the quality of the listing of addresses will also affect the coverage of whole structure additions.

It is also believed that a coverage deficiency exists for units that were nonresidential at the time of the 1980 census, but have since converted to residential units. The magnitude of this deficiency is not known.

The second and third stages of ratio estimation correct these deficiencies for the total number of housing units only. Biases of subtotals will still exist.

Processing errors. Several types of errors are associated with the processing of the data. The first type of processing error which may be introduced is keying error. A quality assurance operation conducted in conjunction with the keying of the data helps to insure that less than 0.4 percent of the data fields keyed from the questionnaire will be in error.

Another type of processing error is imputation error. If certain fields on a questionnaire are blank, values are assigned by the computer. These are generally items for which 1980 census data is available, as well as items that had an item nonresponse rate of 1.0 percent or less in 1983. It is not known how close these imputed values are to the actual values.

A problem may also exist for items for which there are no imputations for item response. Totals for these items and any subcategories of these items may be underestimated. Percent distributions may also be distorted.

Nonsampling error also occurs because of noninterview. The noninterview adjustments assume that interviewed units of similar size and geographic location (i.e., MSA status, urban/rural status) can adequately represent noninterviews. The extent to which this assumption does not hold true will determine the magnitude of the nonsampling error from these units.

Finally, another type of processing error is rounding error. The data are processed using double precision to minimize the effect of the rounding errors. However, the error may still be significant for small percentages and small medians when these figures are derived from relatively large bases. Thus, confidence intervals formed from the standard errors may be distorted. This should be taken into consideration when analyzing the results of this survey.

Standard Error Table Locator: Population Group by Type of Characteristic

(Tables "a" used for estimates; tables "b" used for percentages)

Population group[1]	Table number by characteristics group			
	General[2]	Fuel and type of heating/cooling equipment	Neighborhood[3]	Special[4]
United States:				
Total[5]	1a, 1b	5a,5b	5a,5b	6a, 6b
Year-round or seasonal vacants	4a; 4b	5a, 5b	5a, 5b	6a, 6b
Black	1a, 1b	5a, 5b	5a, 5b	6a, 6b
Hispanic	[6]2a,[6]2b	5a, 5b	5a, 5b	6a, 6b
Elderly	1a, 1b	5a, 5b	5a, 5b	6a, 6b
Urban	2a, 2b	5a, 5b	5a, 5b	6a, 6b
Rural	3a, 3b	6a, 6b	5a, 5b	6a, 6b
Mobile home	1a, 1b	6a, 6b	5a, 5b	6a, 6b
New construction	1a, 1b	5a, 5b	5a, 5b	6a, 6b
In (P)MSA's—Central cities	2a, 2b	5a, 5b	5a, 5b	6a, 6b
In (P)MSA's—Suburbs	2a, 2b	5a, 5b	5a, 5b	6a, 6b
Outside (P)MSA's	4a, 4b	7a, 7b	7a, 7b	7a, 7b
Regions:				
Northeast	2a, 2b	5a, 5b	5a, 5b	6a, 6b
Midwest	1a, 1b	5a, 5b	5a, 5b	6a, 6b
South	3a, 3b	6a, 6b	5a, 5b	6a, 6b
West	1a, 1b	5a, 5b	5a, 5b	6a, 6b

[1]For multiple population groups (for example; Blacks in the Northeast or new construction in central cities) use the standard error table with the highest standard error for a given estimate.

[2]General includes all characteristics except fuels and heating/cooling equipment, neighborhood items, and special items.

[3]Neighborhood items include all characteristics in "neighborhood" tables except "mobile home in group."

[4]Special items include all characteristics pertaining to cooperatives or condominiums; no complete bathroom; less than 1,500 square feet of detached, one-family or mobile homes; well serving 1 to 5 units; mobile homes in a group of seven or more; area within 300 feet includes open space park, farm, or ranch; and major street repairs needed.

[5]Total includes total housing units, year-round, occupied, owner, renter, physical problems, moved in past year, below poverty level.

[6]Use table 1 for the following Hispanic deficiency items: sagging roof; missing bricks, siding, and other outside material; broken windows; fuel other than electricity, gas, or oil; bars on windows of buildings within 300 feet; 1.51 or more persons per room; 400 to 699 square feet per person; water supply stoppage in last 3 months; no toilet working for at least 6 hours in last 3 months; sewage disposal—public sewer with breakdown lasting 6 hours or more in last 3 months; uncomfortably cold for 24 or more hours last winter; signs of rats in last 3 months; and broken plaster or peeling paint in interior.

Table 1a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error				Size of estimate	Standard error			
	United States, elderly, Hispanic, mobile home, or new construction	Mid-west region	West region	Black		United States, elderly, Hispanic, mobile home, or new construction	Mid-west region	West region	Black
0	3	3	3	3	7,500	136	116	108	70
5	4	4	4	4	10,000	155	122	108	-
10	5	5	5	5	12,500	170	121	98	-
25	8	8	8	8	15,000	184	114	76	-
50	12	12	12	12	17,500	195	100	-	-
100	16	16	16	16	20,000	205	72	-	-
250	26	26	26	26	22,500	213	-	-	-
500	37	36	36	36	25,000	220	-	-	-
1,000	52	51	51	49	50,000	242	-	-	-
2,500	81	77	76	71	75,000	176	-	-	-
5,000	113	102	98	82	90,000	-	-	-	-

Table 1b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	35.1	35.1	35.1	35.1	35.1	35.1	35.1	36.8
10	21.3	21.3	21.3	21.3	21.3	21.3	22.5	26.0
25	9.8	9.8	9.8	9.8	9.9	11.7	14.2	16.4
50	5.1	5.1	5.1	5.1	7.0	8.3	10.1	11.6
100	2.6	2.6	2.6	3.6	4.9	5.9	7.1	8.2
250	1.1	1.1	1.5	2.3	3.1	3.7	4.5	5.2
500	0.5	0.7	1.0	1.6	2.2	2.6	3.2	3.7
1,000	0.3	0.5	0.7	1.1	1.6	1.9	2.3	2.6
2,500	0.11	0.3	0.5	0.7	1.0	1.2	1.4	1.6
5,000	0.05	0.2	0.3	0.5	0.7	0.8	1.0	1.2
7,500	0.04	0.2	0.3	0.4	0.6	0.7	0.8	0.9
10,000	0.03	0.2	0.2	0.4	0.5	0.6	0.7	0.8
12,500	0.02	0.15	0.2	0.3	0.4	0.5	0.6	0.7
15,000	0.02	0.13	0.2	0.3	0.4	0.5	0.6	0.7
17,500	0.02	0.12	0.2	0.3	0.4	0.4	0.5	0.6
20,000	0.01	0.12	0.2	0.3	0.3	0.4	0.5	0.6
22,500	0.01	0.11	0.2	0.2	0.3	0.4	0.5	0.5
25,000	0.01	0.10	0.15	0.2	0.3	0.4	0.5	0.5
50,000	0.01	0.07	0.10	0.2	0.2	0.3	0.3	0.4
75,000	0.01	0.06	0.08	0.13	0.2	0.2	0.3	0.3
90,000	0.01	0.05	0.08	0.12	0.2	0.2	0.2	0.3

Table 2a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error		Size of estimate	Standard error	
	Urban, central cities, MSA-suburb, or Hispanic	Northeast region		Urban, central cities, MSA-suburb, or Hispanic	Northeast region
0	2	2	2,500	76	72
5	3	3	5,000	106	93
10	5	5	7,500	127	103
25	8	8	10,000	145	105
50	11	11	15,000	172	84
100	15	15	20,000	191	-
250	24	24	25,000	206	-
500	34	34	50,000	227	-
1,000	48	47	75,000	164	-

Table 2b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	32.1	32.1	32.1	32.1	32.1	32.1	32.1	34.4
10	19.1	19.1	19.1	19.1	19.1	19.1	21.0	24.3
25	8.6	8.6	8.6	8.6	9.2	11.0	13.3	15.4
50	4.5	4.5	4.5	4.7	6.5	7.8	9.4	10.9
100	2.3	2.3	2.3	3.4	4.6	5.5	6.7	7.7
250	0.9	1.0	1.4	2.1	2.9	3.5	4.2	4.9
500	0.5	0.7	1.0	1.5	2.1	2.5	3.0	3.4
1,000	0.2	0.5	0.7	1.1	1.5	1.7	2.1	2.4
2,500	0.09	0.3	0.4	0.7	0.9	1.1	1.3	1.5
5,000	0.05	0.2	0.3	0.5	0.7	0.8	0.9	1.1
7,500	0.03	0.2	0.2	0.4	0.5	0.6	0.8	0.9
10,000	0.02	0.2	0.2	0.3	0.5	0.5	0.7	0.8
15,000	0.02	0.12	0.2	0.3	0.4	0.4	0.5	0.6
20,000	0.01	0.11	0.2	0.2	0.3	0.4	0.5	0.5
25,000	0.01	0.10	0.14	0.2	0.3	0.3	0.4	0.5
50,000	0.01	0.07	0.10	0.15	0.2	0.2	0.3	0.3
75,000	0.01	0.06	0.08	0.12	0.2	0.2	0.2	0.3

Table 3a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error		Size of estimate	Standard error	
	Rural	South region		Rural	South region
0	3	3	2,500	84	81
5	4	4	5,000	117	110
10	5	5	7,500	141	127
25	8	8	10,000	160	139
50	12	12	15,000	189	147
100	17	17	20,000	211	139
250	27	27	25,000	227	110
500	38	38	30,000	239	14
1,000	53	53	33,000	244	-

Table 3b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	36.5	36.5	36.5	36.5	36.5	36.5	36.5	37.9
10	22.4	22.4	22.4	22.4	22.4	22.4	23.2	26.8
25	10.3	10.3	10.3	10.3	10.3	12.1	14.7	17.0
50	5.4	5.4	5.4	5.4	7.2	8.6	10.4	12.0
100	2.8	2.8	2.8	3.7	5.1	6.1	7.3	8.5
250	1.1	1.1	1.5	2.3	3.2	3.8	4.6	5.4
500	0.6	0.8	1.1	1.7	2.3	2.7	3.3	3.8
1,000	0.3	0.5	0.8	1.2	1.6	1.9	2.3	2.7
2,500	0.12	0.3	0.5	0.7	1.0	1.2	1.5	1.7
5,000	0.06	0.2	0.3	0.5	0.7	0.9	1.0	1.2
7,500	0.04	0.2	0.3	0.4	0.6	0.7	0.8	1.0
10,000	0.03	0.2	0.2	0.4	0.5	0.6	0.7	0.8
15,000	0.02	0.14	0.2	0.3	0.4	0.5	0.6	0.7
20,000	0.01	0.12	0.2	0.3	0.4	0.4	0.5	0.6
25,000	0.01	0.11	0.15	0.2	0.3	0.4	0.5	0.5
30,000	0.01	0.10	0.14	0.2	0.3	0.3	0.4	0.5
33,000	0.01	0.09	0.13	0.2	0.3	0.3	0.4	0.5

Table 4a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error	Size of estimate	Standard error
0	3	5,000	206
5	4	7,500	291
10	5	10,000	376
25	8	12,500	461
50	12	15,000	545
100	17	17,500	629
250	28	20,000	713
500	41	22,500	798
1,000	63	25,000	882
2,500	119		

Table 4b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	36.2	36.2	36.2	36.2	36.2	36.2	36.2	37.6
10	22.1	22.1	22.1	22.1	22.1	22.1	23.0	26.6
25	10.2	10.2	10.2	10.2	10.2	12.0	14.6	16.8
50	5.4	5.4	5.4	5.4	7.1	8.5	10.3	11.9
100	2.8	2.8	2.8	3.7	5.0	6.0	7.3	8.4
250	1.1	1.1	1.5	2.3	3.2	3.8	4.6	5.3
500	0.6	0.7	1.1	1.6	2.3	2.7	3.3	3.8
1,000	0.3	0.5	0.7	1.2	1.6	1.9	2.3	2.7
2,500	0.11	0.3	0.5	0.7	1.0	1.2	1.5	1.7
5,000	0.06	0.2	0.3	0.5	0.7	0.8	1.0	1.2
7,500	0.04	0.2	0.3	0.4	0.6	0.7	0.8	1.0
10,000	0.03	0.2	0.2	0.4	0.5	0.6	0.7	0.8
12,500	0.02	0.15	0.2	0.3	0.5	0.5	0.7	0.8
15,000	0.02	0.14	0.2	0.3	0.4	0.5	0.6	0.7
17,500	0.02	0.13	0.2	0.3	0.4	0.5	0.6	0.6
20,000	0.01	0.12	0.2	0.3	0.4	0.4	0.5	0.6
22,500	0.01	0.11	0.2	0.2	0.3	0.4	0.5	0.6
25,000	0.01	0.11	0.15	0.2	0.3	0.4	0.5	0.5

Table 5a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error	Size of estimate	Standard error
0	3	7,500	152
5	4	10,000	172
10	6	12,500	189
25	9	15,000	204
50	13	17,500	217
100	18	20,000	227
250	29	22,500	237
500	41	25,000	245
1,000	57	50,000	270
2,500	90	75,000	195
5,000	126	90,000	

Table 5b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.9
10	25.1	25.1	25.1	25.1	25.1	25.1	25.1	28.9
25	11.8	11.8	11.8	11.8	11.8	13.1	15.8	18.3
50	6.3	6.3	6.3	6.3	7.8	9.2	11.2	12.9
100	3.2	3.2	3.2	4.0	5.5	6.5	7.9	9.1
250	1.3	1.3	1.6	2.5	3.5	4.1	5.0	5.8
500	0.7	0.8	1.1	1.8	2.5	2.9	3.5	4.1
1,000	0.3	0.6	0.8	1.3	1.7	2.1	2.5	2.9
2,500	0.13	0.4	0.5	0.8	1.1	1.3	1.6	1.8
5,000	0.07	0.3	0.4	0.6	0.8	0.9	1.1	1.3
7,500	0.04	0.2	0.3	0.5	0.6	0.8	0.9	1.1
10,000	0.03	0.2	0.3	0.4	0.5	0.7	0.8	0.9
12,500	0.03	0.2	0.2	0.4	0.5	0.6	0.7	0.8
15,000	0.02	0.15	0.2	0.3	0.4	0.5	0.6	0.7
17,500	0.02	0.14	0.2	0.3	0.4	0.5	0.6	0.7
20,000	0.02	0.13	0.2	0.3	0.4	0.5	0.6	0.6
22,500	0.01	0.12	0.2	0.3	0.4	0.4	0.5	0.6
25,000	0.01	0.12	0.2	0.3	0.3	0.4	0.5	0.6
50,000	0.01	0.08	0.11	0.2	0.2	0.3	0.4	0.4
75,000	0.01	0.07	0.09	0.15	0.2	0.2	0.3	0.3
90,000	0.01	0.06	0.09	0.13	0.2	0.2	0.3	0.3

Table 6a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error	Size of estimate	Standard error
0	6	7,500	197
5	6	10,000	224
10	8	12,500	247
25	12	15,000	266
50	17	17,500	282
100	24	20,000	296
250	38	22,500	309
500	53	25,000	319
1,000	75	30,000	336
2,500	117	35,000	347
5,000	164	40,000	353

Table 6b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	53.2	53.2	53.2	53.2	53.2	53.2	53.2	53.3
10	36.2	36.2	36.2	36.2	36.2	36.2	36.2	37.7
25	18.5	18.5	18.5	18.5	18.5	18.5	20.6	23.8
50	10.2	10.2	10.2	10.2	10.2	12.0	14.6	16.9
100	5.4	5.4	5.4	5.4	7.1	8.5	10.3	11.9
250	2.2	2.2	2.2	3.3	4.5	5.4	6.5	7.5
500	1.1	1.1	1.5	2.3	3.2	3.8	4.6	5.3
1,000	0.6	0.7	1.1	1.6	2.3	2.7	3.3	3.8
2,500	0.2	0.5	0.7	1.0	1.4	1.7	2.1	2.4
5,000	0.11	0.3	0.5	0.7	1.0	1.2	1.5	1.7
7,500	0.08	0.3	0.4	0.6	0.8	1.0	1.2	1.4
10,000	0.06	0.2	0.3	0.5	0.7	0.9	1.0	1.2
12,500	0.05	0.2	0.3	0.5	0.6	0.8	0.9	1.1
15,000	0.04	0.2	0.3	0.4	0.6	0.7	0.8	1.0
17,500	0.03	0.2	0.3	0.4	0.5	0.6	0.8	0.9
20,000	0.03	0.2	0.2	0.4	0.5	0.6	0.7	0.8
22,500	0.03	0.2	0.2	0.3	0.5	0.6	0.7	0.8
25,000	0.02	0.15	0.2	0.3	0.5	0.5	0.7	0.8
30,000	0.02	0.14	0.2	0.3	0.4	0.5	0.6	0.7
35,000	0.02	0.13	0.2	0.3	0.4	0.5	0.6	0.6
40,000	0.01	0.12	0.2	0.3	0.4	0.4	0.5	0.6

Table 7a. Standard Errors of Estimated Numbers of Housing Units

(Numbers in thousands)

Size of estimate	Standard error	Size of estimate	Standard error
0	9	5,000	285
5	9	7,500	389
10	9	10,000	491
25	15	12,500	592
50	21	15,000	692
100	29	17,500	791
250	47	20,000	891
500	68	22,500	990
1,000	100	25,000	1090
2,500	176		

Table 7b. Standard Errors of Estimated Percentages of Housing Units

Base of percentage (thousands)	Estimated percentage							
	0 or 100	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	50
5	62.9	62.9	62.9	62.9	62.9	62.9	62.9	65.2
10	45.9	45.9	45.9	45.9	45.9	45.9	45.9	46.1
25	25.4	25.4	25.4	25.4	25.4	25.4	25.4	29.1
50	14.5	14.5	14.5	14.5	14.5	14.7	17.8	20.6
100	7.8	7.8	7.8	7.8	8.7	10.4	12.6	14.6
250	3.3	3.3	3.3	4.0	5.5	6.6	8.0	9.2
500	1.7	1.7	1.8	2.8	3.9	4.7	5.6	6.5
1,000	0.8	0.9	1.3	2.0	2.8	3.3	4.0	4.6
2,500	0.3	0.6	0.8	1.3	1.7	2.1	2.5	2.9
5,000	0.2	0.4	0.6	0.9	1.2	1.5	1.8	2.1
7,500	0.11	0.3	0.5	0.7	1.0	1.2	1.5	1.7
10,000	0.08	0.3	0.4	0.6	0.9	1.0	1.3	1.5
12,500	0.07	0.3	0.4	0.6	0.8	0.9	1.1	1.3
15,000	0.06	0.2	0.3	0.5	0.7	0.8	1.0	1.2
17,500	0.05	0.2	0.3	0.5	0.7	0.8	1.0	1.1
20,000	0.04	0.2	0.3	0.4	0.6	0.7	0.9	1.0
22,500	0.04	0.2	0.3	0.4	0.6	0.7	0.8	1.0
25,000	0.03	0.2	0.3	0.4	0.6	0.7	0.8	0.9