

3.0 THE 1985 NATIONAL SAMPLE

The AHS sample underwent a major redesign in the years following the release of data from the 1980 census. The 1985 National Sample not only reflects the use of 1980 Census data but differs from the previous 1983 AHS sample with respect to the following major elements:

- A decrease in the number of PSUs from 461 to 401,
- A decrease in the number of housing units eligible for interview from 71,800 to 48,000,
- A change in the within-ED sampling procedure intended to reduce the contribution to the variance of estimates made by this stage of sampling,
- Improvements in the sampling of building permits to include new construction,
- Improvements in the methods for maximizing the coverage of housing units not represented in the 1980 Census or building permit frames, and
- A new supplementary sample of neighbors of AHS sample housing units.

3.1 Selection of Sample Areas

In the redesigned National AHS, there are a total of 401 strata. Of the total number of strata, there are 177 self-representing strata containing only one PSU which was selected with certainty. Those PSUs not contained in self-representing strata were grouped into 224 non-self representing strata. The task of grouping PSUs into strata was accomplished by employing a multivariate clustering algorithm. Tenure, race of householder, change in the housing inventory from 1970 to 1980, change in the population from 1970 to 1980, and value of housing were the AHS stratifiers which were the input variables to the clustering algorithm. One PSU was selected from each non-self-representing stratum with probability proportionate to the 1985 projected number of housing units in the PSU. The redesigned National AHS therefore contains 401 PSUs in total. There was no formation of a smaller sampling plan nested within the sampling plan just described. (This smaller design was referred to as Sampling Plan B in Section 1.1 above.)

3.2 Sampling Rates Within Sample PSUs

The national average sampling rate for the 1985 National AHS was around 1 in 1,900. As was the case for the 1973 National AHS design, two samples of approximately equal size were generated. The first sample was the primary or basic sample while the second sample was referred to as the supplementary sample. That portion of the supplementary sample which fell in rural areas constituted the rural supplement. The rural supplement will be enumerated in 1987, 1991, and 1995.

In the address EDs of sample PSUs, systematic samples of housing units were selected from the 1980 Census Sample Housing Unit Record File. A housing unit record on this file contains all data recorded on the housing unit's 1980 Census questionnaire except the housing unit's address and telephone number. To select the two samples (i.e., the primary and supplementary samples), the within-PSU sampling rate was doubled and every other sample hit was assigned to the supplementary sample.

In areas EDs of each sample PSU, four 1980 Census housing units were drawn from the address listings in each sample area segment, and these were assigned to the primary sample. Four additional units were selected from the same area segment, and these were assigned to the supplementary sample. (Refer to Section 1.3.B for the definition off an area segment.) The within-PSU sampling interval was adjusted to account for the fact that four units were being selected from an area segment for the primary sample and four units were being selected from the same segment for the supplementary sample.

Building permits were also sampled to represent newly constructed housing units that were built after the 1980 Census. The within-PSU new construction sampling intervals were adjusted so that every other new construction sample hit was assigned to the supplementary sample.

3.3 Description of the Within-PSU Sampling Frames

3.3.A The List or Address Enumeration District Frame

Enumeration districts (EDs) having a proportion of addresses which were complete and accurate of 96 percent or more were classified as list or address EDs in both the old National AHS and the new National AHS. The list of addresses for an ED is found in the census ED address register, generated in the census enumeration. An address ED must be geographically located within a jurisdiction which issues building permits for new construction.

In the 1973 National AHS design, clusters of housing units were selected from Census ED address registers. Prior to the formation of clusters, enumeration districts were sampled according to the procedures described in Section 1.3.

In the 1985 National AHS design, an unclustered systematic sample of housing units was selected in address EDs, using th 1980 Census Sample Housing Unit Record File. Enumeration districts no longer had to be sampled, as there was no need to key ED address registers or construct clusters of housing units. Since the 1980 Census Sample Housing Units Record file was used as the address ED sampling frame, it was possible to use 1980 Census housing characteristics as AHS stratifiers so that the reliability of the survey estimates would be increased. Housing unit records on the 1980 Census Sample Housing Unit Record file located in a sample PSU were stratified according to the following characteristics:

1. Geographic Location (Central City, Urbanized Area outside of Central City, Urban outside of Urbanized Areas, Rural)

2. Tenure
3. Number of Rooms
4. Value of Unit (for Owner-Occupied Units)
Gross Rent (for Renter-Occupied Units)

To fully understand the differences between the address ED component of the old and new AHS National sample designs, it is necessary to discuss the major differences between the Census ED address registers and the Census Sample Housing Unit Record File. As mentioned earlier, a record on the Census Housing Unit Record File contains all data recorded on the housing unit's 1980 Census Questionnaire except the housing units address and telephone number. The Census ED address register is a list of housing unit addresses within an ED recorded by Census enumerators who canvassed the Ed. A listing line in the Census address register included the Street name and house number of the address where applicable, the block number of the address, the number of the housing units at the address, and the Census serial numbers assigned to the housing units at each address.

Housing unit records that are adjacent to one another on the Census Sample Housing Unit Record File do not necessarily correspond to housing units that are physically adjacent, yet listing lines which are adjacent on the Census ED address register do correspond to housing units which are physically adjacent. It is apparent that the Census ED address registers are a much better resource than the Census Housing Unit Record File for constructing compact clusters of housing units.

Listing lines of the Ed address registers, while corresponding to neighboring housing units, do not contain any demographic information about the housing units at the addresses, so that if stratification of housing units was to be undertaken, the stratifiers had to correspond to geographic characteristics such as those mentioned in Section 1.3.

The old National AHS address Ed design can be compared to the new National AHS address ED design from the perspective of sampling variance. With respect to variance, the unclustered, stratified, systematic sample of the new design will produce survey estimates with lower variances than the clustered sample of the old design.

3.3.B The Area Enumeration District Frame

An enumeration district could be classified as an area ED either because it was not within a jurisdiction which issued building permits for new construction or it was within a jurisdiction which issued building permits for new construction, but more than 4 percent of the addresses within the ED were incomplete.

The methods of sampling area segments in the new AHS National design were similar to those used in the old National design, yet the selection methods within the sample area segment differed between the old and new designs. Since in the new design the sample area segment correspond to an administrative block used in the 1980 Census canvassing

operations, it was possible to identify addresses of housing units in the sample area segment that were recorded in the ED address register, as the administrative block number was present for all addresses in the ED address register.

The objective of the within-area segment sample selection was to first choose four housing units which had received the 1980 Census long-form questionnaires for the primary sample, and then choose four housing units which had received the 1980 Census long-form questionnaires for the rural supplement using the ED address register listings. It should be noted that the selection of housing units which were 1980 Census long-form questionnaire recipients within area EDs results in 1980 being the starting point for any longitudinal analysis involving long-form questionnaire variables such as household income, monthly utility costs, year built, etc. rather than the first AHS enumeration, using the new National AHS design, being the starting point for the longitudinal analysis. If there was an insufficient number of housing units which had received long-form questionnaires within the area segment from which to draw, then housing units which had received short-form questionnaires were selected for the primary and/or the rural supplemental sample so that there were four primary sample housing units and four rural supplement housing units. Since the sample units had been designated using census ED address registers, there were addresses available for the sample units. If the addresses were incomplete, the enumerator was given the address listings for all housing units in the administrative block. These were then given to AHS interviewers so that they could locate sample housing units within area segments. It should be stressed that the sampling procedures just described were applicable to both permit-issuing area EDs and non-permit issuing area EDs.

3.3.C The Building Permit Frame

The method of sampling building permits to represent new construction in the new AHS National sample design was similar to the building permit sampling methods used in the old design (see Section 1.3.B) with three exceptions.

In the new AHS National design, clusters of four new construction units were formed using building permit information from sample building permit offices, and then they were sampled. When the sample clusters were identified, one new construction unit was subsampled from each cluster. This sampling method would result in AHS new construction estimates having smaller variances than new construction estimates derived from sample clusters of two or four new construction units as was done in the old design.

The National AHS new construction sampling was coordinated with the new construction sampling of other Census Bureau demographic surveys. The sampling of AHS new construction clusters was executed so as to maximize the overlap between the AHS sample permit offices and the sample permit offices of other demographic surveys.

Whereas in the old National AHS sample design, one-half of the new construction cluster was allocated to the primary sample and one-half to the rural supplement sample, in the new design, the new construction sampling rates for the selection of clusters were doubled so that every other sample cluster was assigned to the rural supplement sample.

The third exception was the starting permit issuance date for the new construction sampling. In the old design, the starting point for sampling new construction was the permit issuance date of January 1970. In the new design, the starting date for permit sampling varied by region and size of structure. Table 3.2 shows the starting permit issuance for the region and size of structure categories. An explanation of the origin of these starting dates is provided in Section 3.5.C discussing coverage improvement sampling.

3.4 Exclusive Use of Small Multi-Unit Structures

In the redesigned AHS National sample, no other current Census Bureau demographic survey will have sample clusters in multi-unit structures having two to fifteen units, and containing AHS sample units. Sampling methods were devised for the address ED, area ED, and building permit sampling to achieve this condition. This sampling design feature will make it possible for AHS to overcome the difficulties, inherent in the old AHS National design, of maintaining a longitudinal record of splits and mergers of housing units because AHS and one or more of the current Census Bureau demographic surveys had sample units in a multi-unit structure. Although AHS does not have exclusive use of multi-unit structures of sixteen or more units, only a minor percentage of the total number of mergers and splits of housing units is found in these larger multi-unit structures.

3.5 Coverage Improvement Samples

There were housing units that did not appear on any of the sampling frames previously discussed, and unless steps were taken to construct sampling frames or use sampling frames not listed in Sections 3.3 to give representation to housing units missing from address ED, area ED, and building permit frames, the survey estimates could be potentially biased.

3.5.A Coverage Improvement in Address EDs

Use of 1980 Census Coverage Improvement Housing Unit Samples

As stated previously, the AHS address and area ED sampling frame was the 1980 Census Sample Housing Unit Record File, and obviously housing units not enumerated in the 1980 Census would not be represented by this frame. The Housing Unit Coverage Study (HUCS) was undertaken as part of the 1980 Census Coverage Evaluation program. In this study, the April 1980 CPS A-sample units were matched to Census records. Those units which could not be matched to the Census were considered Census misses. Census misses which were in 1980-design sample PSUs became HUCS sample housing units. For the redesigned AHS National Survey, 300 HUCS sample housing units were selected from the HUCS nonmatches to give representation to housing units in address and area EDs missed in the 1980 Census.

Use of Health Interview Survey Segment Listing Sheets

The previous section describes how the Housing Unit Coverage Study was used to locate housing units that existed at the time of the 1980 Census enumeration but were missed by census enumerators. It was also necessary to devise a sampling plan that would pick up

housing units that would not have been within the scope of the Housing Unit Coverage Study. The sampling plan had to pick up non-residential-to residential conversions, mobile homes in parks established after the 1980 Census, mobile homes established at new addresses outside of mobile parks after the 1980 Census, and housing units moved to new sites after the 1980 Census.

The sampling plan designed for coverage improvement in address EDs utilized segment listing sheets compiled by Health Interview Survey enumerators. The sample clusters of housing units in the Health Interview Survey were selected from an all-area segment sample design; that is, no sample clusters were constructed and selected from 1980 census generated lists of housing units. The HIS area segments located within address EDs corresponded to Census official blocks or block partitions. As the Census official block or block partition was an area segment, HIS field enumerators canvassed the block and listed all housing units in the block in late 1984. A "year built" question was asked of each housing unit that was listed by the HIS field enumerator, since residential structures built after April 1980 would have been sampled in the HIS building permit frame.

Sample clusters were not designated in all HIS sample area segments. A subsample of HIS sample area segments, where the listing operation was done but no designation of sample clusters occurred, was selected by AHS. Two noncompact clusters, each cluster composed of four housing units, were selected from the subsampled HIS sample area segments. An attempt was made to match the addresses of housing units in the sample clusters shown on the HIS listing sheets to census ED address register listings for those housing units built prior to April 1, 1980. Housing units which were nonmatches were then screened in the field by AHS enumerators to see if they were housing units which met AHS eligibility requirements. If they did, then they were added to the AHS address ED coverage improvement sample.

3.5.B Coverage Improvement in Area EDs

In AHS sample area segments, sample clusters of housing units had been designated from the area segment listing sheets completed by field enumerators. (Refer to Section 1.3.B for a description of the designation of clusters in area segments.) In nonpermit-issuing area EDs, one sample cluster was designated, and in permit-issuing EDs two sample clusters were designated from the area segment listing sheets whenever possible. Coverage Improvement Screener forms were administered to housing units in each sample cluster. In permit-issuing area EDs, new construction housing units were sampled from the building permit universe, so that housing units in sample clusters built after April 1, 1980 were deleted from further screening. Addresses of listed units within sample clusters built prior to April 1, 1980 were matched to the appropriate ED Address Register, and nonmatches were added to the AHS coverage improvement sample. In nonpermit-issuing EDs, listed units in sample clusters which were new construction units as well as sample cluster units which could not be matched to listings in census Ed Address Registers were added to the AHS sample. The AHS sampling plan in area EDs had been designed so that AHS would have exclusive use of their sample area segments; that is, no other survey would have sample clusters in the area segment. AHS would then have a chance to select any unit that was added to the sample area segment between the initial listing and subsequent updates of the area segment.

3.5.C New Construction Permit Lag

In the old AHS National design, the building permit universe was composed of permits issued from January 1, 1970 up through five months before the AHS National Survey began. As the average time from permit issuance to building completion was five months, structures associated with permits issued in January would have been completed after the 1970 Census, so that duplication between the building permit frame and the Census housing unit address list frame would have been prevented. Unfortunately, there were a considerable number of structures whose building permits had been issued prior to January 1, 1970 and which were not completed until after the Census. These housing units were not represented in either the building permit universe or on the 1970 Census Housing Unit file and they are referred to as permit lag units (see Section 1.4). In the new National AHS sample design, the optimal month defining the building permit universe start point was derived using the following approach. Given any month prior to the 1980 Census Day, a number of housing units associated with building permits issued in this month and all months up to March 31st would be completed by Census Day. There would also be a number of housing units associated with building permits issued before the given month and all months prior which would not be completed until after April 1, 1980. It is evident that housing units in the first group have two chances of being selected, one in the building permit universe and the other in the Census Housing Unit Record file, while the housing units in the second group have no chance of being selected. The dates shown in Table 3-1 are the point at which the two group sizes are equal, so that each permit lag housing unit is represented by a census duplicate which has a chance of being selected in the building permit sampling as well as the census list sampling.

TABLE 3-1

PERMIT ISSUANCE DATES DEFINING PERMIT ELIGIBILITY FOR NEW CONSTRUCTION SAMPLING

Size of Structure	Monthly Reporters				Annual Reporters
	Region				All
	NE	NC	South	West	Regions
1-2 units	7/79	8/79	9/79	7/79	'80
3-4 units	6/79	6/79	7/79	7/79	'79
5+ units	7/78	4/79	3/79	3/79	'79

3.6 Neighbors' Sample

As part of the 1985 National AHS design, a sample of neighbors was generated, where a group of neighbors was considered a compact cluster of housing units. The Department of housing and Urban Development is interested in determining the degree of homogeneity among adjacent housing units and persons residing within these housing units with respect to demographic characteristics such as tenure, type of structure, age, gross rent, race, and value of unit. Also of interest was the change or transition in groups of neighbors with respect to these characteristics.

Housing units selected in the address ED, area ED, and the building permit frames were subsampled, and the subsampled housing units were designated neighbor group kernels. Field enumerators were given the address of the neighbor group kernel and told to locate the ten housing units closest to the neighbor group kernel and list their addresses. A total of 680 sample groups of neighbors were formed with 566 located in address EDs, 63 located in sample area segments, and 51 located in new construction developments. The neighbor group sample will be interviewed in 1985, 1989, and 1993. If there were fewer than ten units near the kernel, or if some could not be interviewed, the cluster has fewer than ten neighbors.

4.0 METROPOLITAN STATISTICAL AREA (MSA) SAMPLE SELECTION

The purpose of the AHS-Metropolitan Statistical Area sample is to provide estimates of housing characteristics for individual MSAs. The MSAs selected for the AHS are interviewed on a rotating basis. A list of 60 MSAs was non-randomly selected to represent the largest and fastest growing MSAs. This sample was originally intended to be the basis of a three-panel, 60 MSA survey, with groups of the 60 MSAs being interviewed each year, providing a representative sample of the nation. The largest MSAs were initially interviewed with large samples. From 1978 on, however, budget cutbacks forced the sample sizes to be reduced (see below for more details).

Within the selected MSAs, MSA samples were drawn in the same way as described for the national sample with the following exceptions:

Each MSA was divided into permit-issuing areas and non-permit-issuing areas, which were then sampled separately.

EDs of Type B, where permits are required for new construction and addresses compiled for the 1970 Census were incomplete or inadequate, do not use area samples in the MSA surveys as they do in the national sample. They use address listings, just like Type C EDs. They were rare enough in the selected MSAs that the risk of not being able to find the unit based on its inadequate address was considered acceptable. To help find the unit, the enumerator was given a list of the five units on either side of the sample unit, and the name of the 1970 occupant.

Central cities were sampled separately from the rest of each MSA. The sampling rate, nevertheless, was about the same in central cities as in the suburbs of each MSA, except for 12 MSAs where especially large samples were drawn. These 12 can be identified in Table 4 of the Geography Section. In these 12, equal sample sizes were taken from the central city and suburban portions of the MSA, so the sampling rates were different.

In address-listing areas, sampling was based on the 20 percent of units which answered "long form" questionnaires in the 1970 Census.

Occupied and vacant housing units were sampled separately from special places and group quarters.

Occupied housing units were stratified by race (non-Black/Black); tenure (owner/renter); number of persons related to head, including head (1, 2, 3, 4, 5+); and income of head and relatives (\$0-3K, 3-6K, 6-10K, 10-15K, 15+K) -- a total of 100 strata.

Vacant units were stratified into four categories: inexpensive (under \$80 rent or \$15,000 value), medium, expensive (\$120+ rent or \$25,000+ value), and other (i.e., units not for sale or rent, such as seasonally vacant units).

Special places and group quarters were stratified by census tract and census ED within Central City and within the suburban portions of the MSAs.

Clusters of two were used for the sample from long-form questionnaires. This means two adjacent questionnaires were chosen from the stratified list of questionnaires. The units were not necessarily geographically close. Clusters of four were used for area segments, building permits, special places, and group quarters.

Building permits are sampled up to 5 months before the end of interviewing, not the beginning.

In address-listing areas, new units in sample structures are not listed and are not sampled. Such units were therefore included in the Coverage Improvement Program.

Coverage improvement for new construction (after April 1, 1970) from old permits (before January 1, 1970) was conducted substantially differently from the national sample. A sample of permit offices was taken and a sample of 1969 permits in them, wherever data could be obtained. One-to-two unit structures were then sampled at one-fourth the normal AHS rate for the MSA. Larger structures were subdivided into clusters of two and sampled at one-half the normal rate. In MSAs where necessary data could not be obtained, permits identified by the Survey of Construction were sampled at one-third the normal rate.

5.0 CHANGES IN THE MSA SAMPLE

Unlike the National Survey, the AHS-MSA Survey was not totally redesigned, yet important changes occurred. MSAs that remained in the sample were redefined to conform with the

1983 Census boundaries; new MSAs were added while MSAs were dropped. For Houston, a totally new sample was drawn from the 1980 Census. In some MSAs, certain areas containing existing sample were targeted for sample supplementation. These areas containing existing housing units selected from the 1970 Census Housing Unit Record files are referred to as salted zones, and sample supplementation was necessary in these areas to prevent confidentiality problems with the release of survey micro-data.

Starting in 1984, there are 44 MSAs in the Survey which have been divided into four groups. Each group will be interviewed on a four-year cycle. (See Table 2 in the Introduction to the Codebook.)

5.1 Sampling Frame Used for Selection of New Sample

In addition to new MSAs, new samples of housing units were selected for counties or MCDs appended to an MSA whose geographical definition had been updated, and for salted zones of an MSA where 1970 Census-based sample housing units existed. For counties or MCDs (Minor Civil Divisions) added to the MSA due to the change in the MSA definition and for new MSAs, permit-issuing enumeration districts were separated from nonpermit-issuing enumeration districts as the sample selection procedures for permit-issuing EDs differed from the sample selection procedures for nonpermit-issuing EDs. New samples were selected in the permit-issuing portions of salted zones. All new sample housing units located in permit-issuing enumeration districts were selected from the 1980 Census Complete Count Housing Unit Record file. Note that in the 1970 Census-based design, housing units were selected from the 1970 Census Sample Housing Unit Record file which included a sample of about twenty percent of the housing units enumerated in the 1970 Census and given a "long-form" questionnaire. For a MSA having salted zones and new counties or MCDs, due to the change in the MSA definition, the salted zones had to be sampled separately from the added counties or MCDs as the sampling rate used in salted zones differed from the one used in added counties or MCDs.

5.2 Stratification for New Sample Selection in Permit Issuing EDs

Housing unit records on the 1980 Census Complete Count Housing Unit Record file, for housing units located in permit-issuing EDs of salted zones or appended counties and MCDs, were stratified according to the following variables:

1. Central City of MSA/Balance of MSA
2. Tenure
3. Contract Rent
4. Value
5. Number of Rooms

Renter-related strata were oversampled from the 1980 Complete Count Housing Unit Record file. It should be noted that this stratification plan differed considerably from the stratification plan used in the 1970 Census-based design.

When housing units were initially selected from the 1970 Census materials for the MSA Survey, central cities were sampled separately from the rest of each MSA (see Section 4.0 above). Samples of housing were selected from salted zones and/or new counties or MCDs within an existing MSA in such a way so that the final weights of sample housing units located in the central city were equal to the final weights of sample housing units located in the balance of the MSA.

For the 1980 Census-based survey component, a distinction was made between institutionalized group quarters and non-institutionalized group quarters. Group quarters were classified as institutional if there were one or more persons under care of custody such as nursing homes, halfway houses, and orphanages. Examples of non-institutional group quarters are rooming and boarding houses, hotels and motels, and college dormitories. Sampling procedures used for the non-institutionalized group quarters remained the same as those instituted by the 1970 Census-based sampling, but for institutionalized group quarters, each institution was given a measure of size one and they were selected using equal probability systematic sampling.

5.3 Cluster Sizes Used in New Sample Selection

Whereas the 1970 Census-based sampling procedure in permit-issuing EDs resulted in the selection of clusters of two adjacent long-form questionnaires from the stratified list of census sample housing units, the 1980 Census-based sample in permit-issuing areas was unclustered. New sample units selected in permit-issuing EDs were split into two equal-sized replicates. The replicates were formed by assigning every other sample hit to the second replicate.

Clusters of two new construction units formed using building permit information were selected in the new construction sampling in the 1980 Census-based survey component, while new construction clusters of size four were used in the 1970 Census-based survey component. In the salted zones, new MSAs, and added counties and MCDs, clusters of four newly constructed units were initially formed from permits within a sample building permit office. These clusters were then sampled. The procedures for the formation and the sampling of the clusters of size four did not differ from the procedures used in the new construction sampling of the 1970s, but following the sample selection of clusters of size four, two housing units were randomly selected from the clusters of size four.

5.4 Reduction of MSA Survey Samples

In the original design, each MSA sample is divided into 12 equal-sized and equally representative parts. Each month a different one is interviewed. A few interviews may extend into the following month, and new construction may be interviewed even later in the year, but these units are still considered to "belong" to the panel in which they were

originally assigned, and are identified in IMONTH as belonging to that panel, regardless of when they are interviewed. An overall sample cut-back was undertaken in 1977, by omitting the March panel. In 1981 five more panels were omitted for large-sample MSAs, so that in three MSAs (Boston, Detroit, and Washington) only the June-August and October panels were interviewed. In 1982, the sample was reduced in the remaining nine panels for 7 of 12 MSAs to achieve a sample size of 4,250 units in all MSAs. In 1983 and later surveys, all MSAs were cut back, particularly among owned units, to have a smaller sample size, with at least half the sample being renters whenever possible. No interviewing is done in January through March from 1983 on; any cases retained from those panels have been assigned new panel numbers. The purpose of oversampling renters was to increase the reliability of HUD estimates of rent level in each market.

The housing units selected from the 1980 Census Complete Count Housing Unit Record file for salted zones, new counties or MCDs within existing MSAs, and new MSAs were not part of the 1984 and 1985 Survey sample reductions.

In the 1985 Survey reduction, clusters consisting of owner-occupied housing units, clusters consisting of renter housing units, and clusters consisting of both renter and owner-occupied housing units were all reduced, although the reduction rates were lowest for clusters consisting of renter housing units. Subsamples of housing unit clusters that had been deleted in the previous enumeration sample reduction were reinstated for the 1985 AHS-MSA Survey. Prior to the subsampling, clusters were stratified by MSA sector (central city versus balance). Wherever possible, reinstated housing units were from panels 04-09 (April-December). Following the reduction and reinstatement procedures, all housing units remaining in panels 01-03 (January-March) were reassigned to panels 04-12.

CHAPTER 4: ALLOCATION VARIABLES

As described under 'Missing Data' in the Introduction, some variables have Not Answered codes (8, 98, etc.) to show missing data, while other variables have data allocated from a similar home, so the data do not appear to be missing. When data in one variable are allocated, a code is put into another variable, the allocation variable, to show that the data really were missing in the original interview. For surveys from 1984 on, the Missing Data section in the Introduction explained how to use the record layout to find the allocation variables. For surveys up through 1983, this section shows the allocation variables, the codes in them, and how many cases in each file have each code.

Each allocation variable, like ALL03, is present on each household, to show when allocations are made in three other variables. For example, in 1981N, ALL03 is present on every household to show whether NUNITS, PHONE, or MOVED was allocated in that household:

If ALL03 is	0 then none of the variables is allocated in this household
	1 then only NUNITS is allocated
	2 then only PHONE is allocated
	3 then NUNITS and PHONE are both allocated
	4 then only MOVED is allocated
	5 then NUNITS and MOVED are allocated
	6 then PHONE and MOVED are allocated
	7 then all three variables are allocated
	9 then none of the variables is allocated

Thus any of codes 1, 3, 5, or 7 means that the variable NUNITS is allocated. Similarly, 2, 3, 6, or 7 means that PHONE is allocated, and 4, 5, 6, or 7 means that MOVED is allocated.

The value entered below the allocation variable is a "combination code." These combination codes have the following meanings:

1	The allocation was made if the allocation variable is 1, 3, 5, or 7
2	The allocation was made if the allocation variable is 2, 3, 6, or 7
4	The allocation was made if the allocation variable is 4, 5, 6, or 7

Note that more than one allocation variable may be listed for one variable. For example, the variable ZRENT (Recoded Gross Rent) has one allocation variable for each component of gross rent which was subject to allocation (cost of electricity, cost of gas, contract rent, etc). In our example for NUNITS, two allocation variables are listed for all SMSA survey years prior to 1984, reflecting the fact that a different allocation variable was used if the unit was occupied or vacant.

Location and Field Length in the Computer Tapes

On the CTAP line, the first number shows the starting column of the variable on the Census Bureau tapes, and the second number shows the field length.

Similarly, the location on the Abt tapes is shown on the ATAP line. Again, the first number shows the starting column number and the second shows the field length. As described in the Introduction to the Codebook, Abt tapes have been reformatted: one layout is used for all national files; another layout is used for SMSA files. Therefore, there are only two entries on the ATAP line: an entry in the 81N column applies to all national files; an entry in the 82S column applies to all SMSA files.

QUES 19229	21229	21229	23229	21229	35310	35310	35310	35310	35310	35310	35310	35310	35310							
OYUNEMP1	REF.3045																			
+																				
QUES 19234	21234	21234	23234	21234	35315	35315	35315	35315	35315	35315	35315	35315	35315							
OYVET1	REF.3046																			
+																				
QUES 19237	21237	21237	23237	21237	35318	35318	35318	35318	35318	35318	35318	35318	35318							
OYWELF1	REF.3047																			
+																				
QUES 19233	21233	21233	23233	21233	35314	35314	35314	35314	35314	35314	35314	35314	35314							
OYWKCHP1	REF.3048																			
+																				
QUES 19235	21235	21235	23235	21235	35316	35316	35316	35316	35316	35316	35316	35316	35316							
ONAMCHD	REF.3049																			
+																				
QUES 43532																				
OCOFTEL	REF.3050																			
+																				
QUES 43533																				
OALLO1	REF.6001																			
+																				
0	78483	60280	79675	78670	77351	76703	69852	66715	67336	50494	57209	46028	65859	99232	106529	99713	124641	127858	131547	119209
1																				
2																				
3	59	128	286	239	556	246	127	1240	210	786	175	350	703	600	566	232	243	483		
4	1		13	20	29			1	9	228	13	12	5	65	189	49	37	436		
5										1				5	5			13		
7																				
9																				
C1	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS	BEDRMS
C2	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS	ROOMS
C4	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT	BUILT
CTAP	589	1	589	1	589	1	589	1	589	1	589	1	589	1	589	1	589	1	589	1
ATAP	1064	1																		
USED	26	36	52	47	72	73	34	33	66	1	4	8	1	4	9	7	4	3	11	2
OALLO2	REF.6002																			
+																				
0	78077	60022	79433	78439	77055	75241	68555	66586	66363	50781	56811	45774	65852	98172	105606	98945	123904	126720	130058	118618
1	282	215	244	228	239															
2	9	5	10	3	4															
3	1		1	1	1	37	9	35	6	6	2	5	2	3	2	2	28	14	10	7
4	172	159	282	251	630	1670	1408	1331	1186	758	12	15	182	1477	1704	1424	1466	1404	1759	1516
5	2	4	6	5	13															
6																				
7																				
9																				
C1	GRADE1	GRADE1	GRADE1	GRADE1	GRADE1	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS
C2	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL	HFUEL
C4	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN	KITCHEN
CTAP	590	1	590	1	590	1	590	1	590	1	590	1	590	1	590	1	590	1	590	1
ATAP	1065	1																		
USED	26	39	67	49	77	53	31	33	47	1	4	8	1	4	9	7	4	3	11	2

358
377

OALLO3 REF.6003

0	78446	60318	79910	78873	77872	76203	69252	66979	66764	50660	57139	45977	65916	99256	106887	99981	124955	127162	131125	119446
1	1	2	3	7	713	681	909	674	819	1	103	302	352	352	352	394	816	636	646	
2	95	88	62	58	63					82	68									
4	1		1																	
6																				
7																				
9																				
C1	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS	NUNITS
C2	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE	PHONE
C4	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED	MOVED
CTAP	591	1	591	1	591	1	729	1	729	1	723	1	382	1	618	1	618	1	650	1
ATAP	1066	1																		
USED	26	45	63	85	75	70	38	33	76	1	4	8	1	4	9	12	4	3	16	2

OALLO4 REF.6004

0	78364	60118	79361	78310	76825	76615	69801	67382	67355	51370	57195	46012	65970	99406	107085	100063	124972	127792	131703	119752
1	4	228	493	464	977	80	83	79	90		2	4	21	106	121	50	54	144	28	
2						6	2	12	23		1		4	4	8	4	4	9	4	
3	1		3		5	22	9	12	4	46			2	14	15	9	12	40	2	38
4	174	60	118	155	132	226	83	470	81	125	24	29	36	120	81	263	359	146	89	346
5			1	2	3			1					1		1					
6																				
7																				
9																				
C1	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	BATHS	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB	PLUMB
C2	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS	FLOORS
C4	TPARK	TPARK	TPARK	TPARK	TPARK	CFUEL	CFUEL	CFUEL	CFUEL	TPARK	TPARK	CFUEL	CFUEL	CFUEL	CFUEL	CFUEL	CFUEL	CFUEL	CFUEL	CFUEL
CTAP	592	1	592	1	592	1	730	1	730	1	730	1	724	1	383	1	619	1	651	1
ATAP	1067	1																		
USED	26	37	65	46	62	67	36	31	72	1	4	8	1	4	5	12	4	3	15	2

OALLO5 REF.6005

0	77981	59769	78832	77936	76347	76554	69583	67645	67246	51246	56885	45789	65906	99252	106840	99976	125028	127625	131582	119684
---	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	-------	--------	--------	--------	--------

310
379

6		223	164	125	403	643	14	13	9	12	369	6059	4648	154	4	20	25	25	22	16	17		
7							324	337	546	421	369	6059	4648	154	4	334	341	377	436	428	446	335	
9							2					6831	4652	7139	11591	14036	14036	16793	16793	21456			
C1	AMTG	BUYG	BUYG	BUYG	BUYG	BUYG	AMTE	AMTE	AMTE	BUYG	COSTG	AMTG	BUYG	BUYG	AMTE	BUYG	AMTE	AMTE	AMTE	BUYG	BUYG	BUYG	
C2	BUYG	BUYG	BUYG	BUYG	BUYG	BUYG	AMTE	AMTE	AMTE	BUYG	PAYG	BUYG	BUYG	AMTE	BUYG	AMTE	AMTE	AMTE	AMTE	BUYG	BUYG	BUYG	
C4	AMTE	AMTE	AMTE	AMTE	AMTE	AMTE	BUYE	BUYE	BUYE	BUYE	COSTE	AMTE	AMTE	BUYE	BUYE	BUYE	BUYE	BUYE	BUYE	AMTE	AMTE	AMTE	
CTAP	596	1	596	1	596	1	734	1	734	1	387	623	1	623	1	655	1	655	1	655	1	419	1
ATAP	1071	1										655	1										
USED	26	43	59	58	75	75	51	29	31	36	1	4	8	1	4	4	5	7	4	3	10	2	
OALL09	REF.6009																						
0	77172	59391	78865	77265	76393	74187	67262	65029	64972	50589	50349	40714	63774	95172	103120	96188	120814	123187	127194	118348			
1	58	25	35	84	79	748	742	713	720	97	35	17	507	875	989	795	1034	1363	973	239	239	920	
2	953	752	857	828	746					345	671	501											
3	1	3	1	6	5	161	93	126	106	5	7	2	61	183	180	192	188	242	273	7	7		
4						1379	1407	1386	1205	4			1393	2782	2544	2607	2644	2599	2685	44	44		
5						124	121	124	118	103			127	262	111	193	231	264	211	123	123		
6	146	83	96	353	90	350	354	578	434	371	101	164											
7	213	154	122	395	631	2					6059	4647	172	378	369	396	490	484	491	313	313		
9																							
C1	BUYW	BUYW	BUYW	BUYW	BUYW	BUYW	AMTO	AMTO	AMTO	PAYO	AMTO	BUYW	AMTO	AMTO	AMTO	AMTO	AMTO	AMTO	AMTO	AMTO	AMTO		
C2	AMTO	AMTO	AMTO	AMTO	AMTO	AMTO	BUYO	BUYO	BUYO	COSTW	AMTO	AMTO	BUYO	BUYO	BUYO	BUYO	BUYO	BUYO	BUYO	BUYO	BUYO		
C4	BUYO	BUYO	BUYO	BUYO	BUYO	BUYO	AMTG	AMTG	AMTG	PAYW	BUYO	BUYO	AMTG	AMTG	AMTG	AMTG	AMTG	AMTG	AMTG	AMTG	AMTG		
CTAP	597	1	597	1	597	1	735	1	735	1	388	624	1	624	1	656	1	656	1	656	1	420	
ATAP	1072	1										656	1										
USED	26	42	59	58	70	70	33	29	31	36	1	4	8	1	4	5	7	4	3	10	2		
OALL10	REF.6010																						

0	75758	58304	77640	76194	75081	74917	67878	65740	65399	50466	48803	39157	63414	95087	102583	95993	120623	123157	126943	118309		
1	810	503	544	486	485	46	45	40	61	253	726	641	53	87	94	80	127	102	123	561	561	
2						1550	1604	1511	1531	113		2358	3960	4053	3810	3810	4001	4206	4114	154	154	
3	69	72	49	73	55	17	13	15	17	40	68	26	24	44	67	35	45	37	45	147	147	
4	1190	985	1057	1247	1213					313	1125	1147										
5	488	379	544	499	438					18	414	413										
6						75	74	78	95				16	92	113	73	124	152	118	57	57	
7	228	165	142	432	672	344	365	572	452	342	6086	4661	169	382	403	380	481	485	484	265	265	
9						2					6831	4652	7139	11591	14148	14036	16793	21456				
C1	AMTT	AMTT	AMTT	AMTT	AMTT	BUYT	BUYT	BUYT	BUYT	COSTT	AMTT	AMTT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	
C2	BUYT	BUYT	BUYT	BUYT	BUYT	AMTW	AMTW	AMTW	AMTW	PAYT	AMTW	AMTW	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	BUYT	
C4	AMTW	AMTW	AMTW	AMTW	AMTW	BUYW	BUYW	BUYW	BUYW	COSTO	AMTW	AMTW	BUYW	BUYW	BUYW	BUYW	BUYW	BUYW	BUYW	BUYW	BUYW	
CTAP	598	1	598	1	598	1	736	1	736	1	389	625	1	625	1	657	1	657	1	657	1	421
ATAP	1073	1										657	1									
USED	26	42	59	58	71	71	32	29	31	36	1	4	8	1	4	5	7	4	3	10	2	

	83N	81N	80N	79N	78N	77N	76N	75N	74N	73N	83S	82S	81S	80S	79S	78S	77S	76S	75S	74S
P.205	83N	81N	80N	79N	78N	77N	76N	75N	74N	73N	83S	82S	81S	80S	79S	78S	77S	76S	75S	74S
OALL11	REF.6011																			
0	75850	58163	76981	76120	75405	74839	67809	65541	65338	51065	54666	44382	63235	94970	102493	95895	121107	123398	127634	119468
1	978	943	1192	1029	965	158	134	126	179	.	1299	919	43	84	91	118	178	135	125	
2	3	4	4	3	3	552	537	531	468	.	7	2	725	1211	1358	917	1253	1569	1396	
3	792	477	896	850	857	184	170	221	178	.	135	109	329	683	638	1044	438	473	259	
4	619	499	480	463	387	1216	1329	1537	1392	1	782	430	1702	2704	2733	2397	2425	2564	2413	17
5	137	104	98	86	83						197	108								
6	108	164	263	299	132						66	52								
7	56	54	62	84	112					479	70	43								656
9						2				.	6831	4652	7139	11591	14148	14036	16793	21456		
C1	COSTE	COSTE	COSTE	COSTE	COSTE	PAYE	PAYE	PAYE	PAYE	OTHF	COSTE	COSTE	PAYE	PAYE	PAYE	PAYE	PAYE	PAYE	PAYE	PAYE
C2	PAYE	PAYE	PAYE	PAYE	PAYE	RENT	RENT	RENT	RENT	PAYF	PAYE	PAYE	PAYE	RENT	RENT	RENT	RENT	RENT	RENT	RENT
C4	RENT	RENT	RENT	RENT	RENT	AMTT	AMTT	AMTT	AMTT	IFF	RENT	RENT	AMTT	AMTT	AMTT	AMTT	AMTT	AMTT	AMTT	AMTT
CTAP	599	1	599	1	599	1	737	1	737	1	390	1	626	1	626	1	626	1	626	1
ATAP	1074	1																		
USED	26	52	60	58	75	49	29	31	36	1	4	8	1	4	5	7	4	3	10	2
OALL12	REF.6012																			
0	76504	58741	77594	76616	75857	75216	68114	66130	65797	50697	55854	44932	63603	96132	103542	96544	121610	124496	128189	118600
1	26	30	41	39	50	378	387	369	343	242	64	17	265	541	401	445	573	511	507	298
2	1027	906	1094	1021	891	135	82	88	71	85	997	882	248	521	513	880	286	265	91	363
3	4	6	2	9	8	69	41	46	20	35	7	6	18	38	58	40	33	60	46	169
4	7	2	7	5	6	494	533	497	470	453	13	4	990	799	1596	899	1237	1328	1161	636
5	105	166	264	298	127	467	593	566	570	6	56	49	788	1377	996	1303	1338	1162	1545	23
6	28	30	21	17	40					10	37	8								23
7	842	527	953	926	965	190	229	260	284	17	194	147	122	244	207	260	324	317	288	29
9						2				.	6831	4652	7139	11591	14148	14036	16793	21456		
C1	PAYW	PAYW	PAYW	PAYW	PAYW	COSTG	COSTG	COSTG	COSTG	CARS	PAYW	PAYW	COSTG	COSTG	COSTG	COSTG	COSTG	COSTG	COSTG	COSTG
C2	COSTG	COSTG	COSTG	COSTG	COSTG	PAYG	PAYG	PAYG	PAYG	SECOND	COSTG	COSTG	PAYG	PAYG	PAYG	PAYG	PAYG	PAYG	PAYG	PAYG
C4	PAYG	PAYG	PAYG	PAYG	PAYG	COSTE	COSTE	COSTE	COSTE	COSTF	PAYG	PAYG	PAYG	COSTE	COSTE	COSTE	COSTE	COSTE	COSTE	COSTE
CTAP	600	1	600	1	600	1	738	1	738	1	391	1	627	1	627	1	627	1	627	1
ATAP	1075	1																		
USED	26	43	57	57	70	31	29	31	36	1	4	8	1	4	5	7	4	3	10	2
OALL13	REF.6013																			
0	76651	58972	77792	76821	76035	76100	69099	67076	66714	50395	56218	45238	64799	97876	100650	98209	123493	123086	130387	118197
1	299	231	339	309	287	39	79	66	59	17	158	93	40	84	56	74	153	3539	101	39
2	103	174	263	300	134	427	465	442	404	350	64	52	801	817	5732	873	1055	859	909	896
3	42	25	23	28	46	5	4	1	1	4	32	34	5	6	14	7	3	1	2	15
4	543	430	543	496	441	15	8	14	13	759	498	453	22	22	24	16	48		25	931
5	60	47	55	46	38	127	75	78	64	2	54	28	222	497	494	866	247	267	55	17
6						65	44	42	44	17			27	90	135	100	90	104	117	45

362
-38T

7	845	529	961	931	963	171	205	237	256	1	198	147	118	260	208	226	312	283	231	1	
9						2					6831	4652	7139	11591	14148	14036	16793	21456			
C1	COSTO	COSTO	COSTO	COSTO	COSTO	PAYO	PAYO	PAYO	PAYXTEKUR	COSTO	COSTO	COSTO	PAYO	COSTM	COSTM	COSTM	PAYO	PAYO	PAYO	PAYO	
C2	PAYO	PAYO	PAYO	PAYO	PAYO	COSTM	COSTM	COSTM	XLOC	PAYO	PAYO	PAYO	PAYO	COSTM	COSTM	COSTM	COSTM	COSTM	COSTM	PAYO	
C4	COSTM	COSTM	COSTM	COSTM	COSTM	PAYM	PAYM	PAYM	PAYMTRUCKS	COSTM	COSTM	COSTM	PAYM	PAYM	PAYM	PAYM	PAYM	PAYM	PAYM	COSTM	
CTAP	601	601	601	601	601	739	739	739	733	1	628	628	628	660	660	660	660	660	660	424	
ATAP	1076	1076	1076	1076	1076	1	1	1	1	1	660	660	660	660	660	660	660	660	660	1	
USED	26	42	59	58	70	33	29	31	36	1	4	8	1	4	5	7	4	3	10	2	
OALL14	REF.6014																				

0	71987	55178	73265	72018	71360	75928	68884	66855	66538	48757	51373	41421	64843	97642	105100	98101	123466	126429	130142	105479	
1	5205	4243	5123	5418	5243	275	257	255	219	5268	4118	458	458	629	630	642	584	571	743	437	
2	320	214	285	213	194	124	76	78	68	238	233	224	224	502	501	878	255	237	69	1645	
3	44	37	56	40	37	80	52	82	45	1194	52	56	88	205	426	171	141	165	234	99	
4	109	175	267	299	126	356	481	426	407	881	67	52	272	434	430	343	588	424	401	8538	
5						18	25	24	26	1	182	140	40	26	47	18	63	47	24	802	
6	790	501	892	859	918	168	204	236	252	712	42	25	109	214	179	218	304	266	214	1922	
7	88	60	88	84	66	2					6831	4652	7139	11591	14148	14036	16793	21456			
9																					
C1	SAL1	SAL1	SAL1	SAL1	SAL1	COSTT	COSTT	COSTT	QDIV	SAL1	SAL1	SAL1	COSTT	COSTT	COSTT	COSTT	COSTT	COSTT	COSTT	COSTT	
C2	COSTT	COSTT	COSTT	COSTT	COSTT	PAYT	PAYT	PAYT	QSS	COSTT	COSTT	COSTT	PAYT	PAYT	PAYT	PAYT	PAYT	PAYT	PAYT	COSTT	
C4	PAYT	PAYT	PAYT	PAYT	PAYT	COSTO	COSTO	COSTO	COSTPROFIT	PAYT	PAYT	PAYT	COSTO	COSTO	COSTO	COSTO	COSTO	COSTO	COSTO	COSTO	
CTAP	602	602	602	602	602	740	740	740	734	1	629	629	661	661	661	661	661	661	661	425	
ATAP	1077	1077	1077	1077	1077	1	1	1	1	1	661	661	661	661	661	661	661	661	661	1	
USED	26	42	78	70	74	30	29	31	36	1	4	8	1	4	5	7	4	3	10	2	
OALL15	REF.6015																				

0	74373	57297	76081	74750	73776	76425	69460	67345	66973	49638	53234	42866	65897	99330	106909	99891	124879	127460	131191	116640	
1	123	85	117	124	140	133	107	665	654	2217	1692	26	30	322	404	480	522	679	636	3484	
2	701	563	723	741	787	223	235	228	228	228	228	228	228	228	228	228	228	228	228	17	
3	186	169	218	223	235	228	228	228	228	228	228	228	228	228	228	228	228	228	228	17	
4	2423	1759	2164	2285	2249	228	228	228	228	228	228	228	228	228	228	228	228	228	228	17	
5	33	20	35	21	34	228	228	228	228	228	228	228	228	228	228	228	228	228	228	17	
6	457	343	401	479	425	228	228	228	228	228	228	228	228	228	228	228	228	228	228	17	
7	247	172	237	308	298	228	228	228	228	228	228	228	228	228	228	228	228	228	228	17	
9																					
C1	SAL4	SAL4	SAL4	SAL4	SAL4	OTHF	OTHF	OTHF	QWELF	SAL4	SAL4	SAL4	SAL4	PAYF	PAYF	PAYF	PAYF	PAYF	PAYF	OTHF	
C2	SAL3	SAL3	SAL3	SAL3	SAL3	PAYF	PAYF	PAYF	QRENT	SAL3	SAL3	SAL3	SAL3	PAYF	PAYF	PAYF	PAYF	PAYF	PAYF	OTHF	
C4	SAL2	SAL2	SAL2	SAL2	SAL2	IFF	IFF	IFF	QINT	SAL2	SAL2	SAL2	SAL2	IFF	IFF	IFF	IFF	IFF	IFF	PAYF	
CTAP	603	603	603	603	603	741	741	741	735	1	630	630	662	662	662	662	662	662	662	426	
ATAP	1078	1078	1078	1078	1078	1	1	1	1	1	662	662	662	662	662	662	662	662	662	1	
USED	26	42	77	69	74	30	29	31	36	1	4	8	1	4	5	7	4	3	10	2	
OALL16	REF.6016																				

0	76692	59040	78139	76955	75955	76005	69028	66966	66471	49638	55535	44537	65769	99007	106552	99320	124230	126753	130152	116467
1	1662	1246	1656	1757	1725	201	236	176	282	1484	1333	125	125	318	353	277	307	318	341	341
2	21	10	12	24	18	142	113	116	156	18	11	11	11	164	206	206	206	200	449	449
3	2					58	59	72	55	1	1	1	1	73	83	73	83	149	208	208
4	106	70	117	115	156	521	525	599	570	127	121	134	134	303	380	508	536	606	601	198
5	20	14	19	32	32	6	4	1	6	1	19	14	6	24	28	8	10	4	5	17
6	34	23	29	37	49	3	9	4	7	31	24	24	24	7	7	7	11	10	22	22
7	6	5	4	11	8	13	5	22	8	1906	7	4	4	14	14	14	18	99	49	3371

368
387

USED	62	36	31	.	1	4	5	6	3	3	19
OALL32 REF.6032											
+	0										
9	76949	69979	67956		66034	99652	107313	100371	125401	128139	131827
C1	2				7139	11591	14148	14036	16793	21456	
C2	AIRSYS	AIRSYS	AIRSYS		AIRSYS	AIRSYS	AIRSYS	AIRSYS	AIRSYS	AIRSYS	AIRSYS
C4	AIR	AIR	AIR		AIR	AIR	AIR	AIR	AIR	AIR	AIR
CTAP	HEQUIP	HEQUIP	HEQUIP		HEQUIP	HEQUIP	HEQUIP	HEQUIP	HEQUIP	HEQUIP	HEQUIP
ATAP	758	1758	1758		679	1679	1679	1679	1679	1679	1679
USED	1098	1			679	1					
OALL33 REF.6033	62	29	31		1	4	5	6	3	3	19
+	0										
9	76949	69979	67956		66034	99652	107313	100371	125401	128139	131827
C1	2				7139	11591	14148	14036	16793	21456	
C2	VALUE	VALUE	VALUE		VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE
C4	CELLAR	CELLAR	CELLAR		CELLAR	CELLAR	CELLAR	CELLAR	CELLAR	CELLAR	CELLAR
CTAP	NUMAIR	NUMAIR	NUMAIR		NUMAIR	NUMAIR	NUMAIR	NUMAIR	NUMAIR	NUMAIR	NUMAIR
ATAP	759	1759	1759		680	1680	1680	1680	1680	1680	1680
USED	1099	1			680	1					
OALL34 REF.6034	44	32	31		1	4	5	1	3	3	14
+	0										
9	76949	69979	67956		66034	99652	107313	100371	125401	128139	131827
C1	2				7139	11591	14148	14036	16793	21456	
C2	PAYG	PAYG	PAYG		PAYG	PAYG	PAYG	PAYG	PAYG	PAYG	PAYG
C4	PAYE	PAYE	PAYE		PAYE	PAYE	PAYE	PAYE	PAYE	PAYE	PAYE
CTAP	RENT	RENT	RENT		RENT	RENT	RENT	RENT	RENT	RENT	RENT
ATAP	760	1760	1760		681	1681	1681	1681	1681	1681	1681
USED	1100	1			681	1					
OALL35 REF.6035	48	29	31		1	4	5	1	3	3	14
+	0										
9	76949	69979	67956		66034	99652	107313	100371	125401	128139	131827
C1	2				7139	11591	14148	14036	16793	21456	
C2	PAYT	PAYT	PAYT		PAYT	PAYT	PAYT	PAYT	PAYT	PAYT	PAYT
C4	PAYO	PAYO	PAYO		PAYO	PAYO	PAYO	PAYO	PAYO	PAYO	PAYO
CTAP	PAYW	PAYW	PAYW		PAYW	PAYW	PAYW	PAYW	PAYW	PAYW	PAYW
ATAP	761	1761	1761		682	1682	1682	1682	1682	1682	1682
USED	1101	1			682	1					
OALL36 REF.6036	30	29	31		1	4	5	1	3	3	14
+	0										
9	P.208	83N	81N		83S	82S	81S	80S	79S	78S	77S
C1	77N	76N	75N		83S	82S	81S	80S	79S	78S	77S
C2	77N	76N	75N		83S	82S	81S	80S	79S	78S	77S
C4	78N	78N	74N		73N	74N	74N	74N	74N	74N	74S
CTAP	79N	79N	79N		73N	73N	73N	73N	73N	73N	74S
ATAP	80N	80N	80N		73N	73N	73N	73N	73N	73N	74S
USED	81N	81N	81N		73N	73N	73N	73N	73N	73N	74S
OALL36 REF.6036	76535	69418	67222		65494	98638	106196	99293	10486	11765	130016
+	118	169	157		109	186	222	162	263	286	
3	43	45	47		1	16	18	12	113001	114507	

4	252	345	528	429	812	876	900	39	42	1811
5	1	2	1	1	1	1	3	2	2	
7	1	1	1				1	1610	1537	
9	2			7139	11591	14148	14036	16793	21456	
C1	PARKSZPARKSZPARKSZ									
C2	TPARK TPARK TPARK									
C4	GRADE1GRADE1GRADE1									
CTAP	762 1 762 1 762 1									
ATAP	1102	1		683	1	683	1	683	1	683
USED	33	33	33							
OALL37	REF.6037									
+	0									

0	76949	68053	65518							
4	1926	2438								
9	2									
C1										
C2	CLIMB CLIMB									
C4	763 1 763 1 763 1									
CTAP										
ATAP	1103	1								
USED	47	29	31							
OALLO1U	REF.6038									
+	0									

0	3208	2120	60381	91995	98468	91903	124569	127430		
1	2	16	20	14	18	20	19	18		
2	12	1	9	9	9	4	6	12		
3	406	347	580	639	842	912	655	574		
4	15	15	24	22	30		36	24		
5	38	23	59	48	71		111	76		
6	60372	48174	12089	18515	22005	21566	16793	21456		
7	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM		
8	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF		
9	YIMS	YIMS	YIMS	YIMS	YIMS	YIMS	YIMS	YIMS		
C1	641 1 641 1 873 1 873 1 873 1 898 1 898 1 874 1									
C2	895 1									
C4	4 8 1 4 8 8 8 8 10									
CTAP	60 58 58 36									
ATAP	1104	1								
USED	26	39								
OALLO2U	REF.6039									
+	0									

0	3581	2438	60932	92571	99100	92595	124983	127844		
1	57	51	87	87	231	147	271	183		
2	2	2	8	7	13	18	22	15		
3	10	11	12	11	32	17	38	21		
4	9	13	32	38	67	55	75	65		
5	9	3	2	3	8	3	8	5		
6	13	4	11	11	5	2	2	1		
7	60372	48174	12089	18515	22005	21566	16793	21456		
8	YINT	YINT	YINT	YINT	YINT	YINT	YINT	YINT		
9	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV		
C1	YSS YSS YSS YSS YSS YSS YSS YSS YSS YSS									
C2	YSS YSS YSS YSS YSS YSS YSS YSS YSS YSS									
C4	YSS YSS YSS YSS YSS YSS YSS YSS YSS YSS									

CTAP 616 1 616 1 616 1 616 1 616 1 974 1	642 1 642 1 874 1 874 1 874 1 874 1 899 1 899 1 875 1
ATAP 1105 1	896 1
USED 26 39 60 58 58 36	4 4 4 8 8 8 8 8 10
OALLO3U REF.6040	
+	
0 78508 60384 79949 78907 77925 76933	3642 2499 61046 92691 99400 92786 125318 128063
1 12 8 9 8 6 5	16 9 15 18 12 34 33
2 7 11 8 4 8 7	6 9 9 8 26 30 30
3 3 1 1 1 1 3	1 1 1 1 1 1 3
4 4 2 3 1 3 4	2 2 3 1 9 12 8
5 5	
6 6	
7 12 3 5 11 2	14 4 10 10 1 1
9	60372 48174 12089 18515 22005 21566 16793 21456
C1 YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP	.YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP YUNEMP
C2 YWELF YWELF YWELF YWELF YWELF YWELF YWELF YWELF	.YWELF YWELF YWELF YWELF YWELF YWELF YWELF YWELF
C4 YRENT YRENT YRENT YRENT YRENT YRENT YRENT YRENT	.YRENT YRENT YRENT YRENT YRENT YRENT YRENT YRENT
CTAP 617 1 617 1 617 1 617 1 975 1	.643 1 643 1 875 1 875 1 875 1 900 1 876 1
ATAP 1106 1	897 1
USED 26 39 60 58 58 36	4 4 4 8 8 8 8 10
OALLO4U REF.6041	
+	
0 78524 60401 79965 78916 77936 76946	3658 2515 61065 92700 99425 92817 125357 128101
1 2 1 1 5 2 1 3	1 1 4 6 14 7 24 16
2 1 2 1 1 1 1	3 1 1 2 3 4 9 8
3 3 1 1 1 1 3	1 1 1 2 3 2 2 3
4 4 4 2 4 2 4	3 2 4 10 12 10 11 11
5 5	
7 12 3 5 11 2	15 4 10 10 1 1
9	60372 48174 12089 18515 22005 21566 16793 21456
C1 YVET YVET YVET YVET YVET YVET YVET YVET	.YVET YVET YVET YVET YVET YVET YVET YVET
C2 YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP	.YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP YGOVNP
C4 YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP	.YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP YUKCMP
CTAP 618 1 618 1 618 1 618 1 976 1	.644 1 644 1 876 1 876 1 876 1 901 1 877 1
ATAP 1107 1	898 1
USED 26 39 60 58 58 36	4 4 4 8 8 8 8 6
OALLO5U REF.6042	
+	
0 78518 60394 79962 78909 77934 76939	3655 2507 61043 92695 99400 92789 125324 128091
1 11 7 9 7 4 5	7 10 21 17 40 35 58 35
2 1 1 3 1 4	3 1 7 3 9 6 8 4
3 3 1 1 1 1	1 1 1 1 1 1 1 1
4 1 4 1 3 1	1 1 3 2 6 8 10 7
5 5	
6 1 1 1	15 4 10 10 1 1
7 11 3 5 10 2	60372 48174 12089 18515 22005 21566 16793 21456
9	.YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR
C1 YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR	.YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR YOUTPR
C2 YALIM YALIM YALIM YALIM YALIM YALIM YALIM YALIM	.YALIM YALIM YALIM YALIM YALIM YALIM YALIM YALIM
C4 YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP	.YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP YPRVNP
CTAP 619 1 619 1 619 1 619 1 977 1	.645 1 645 1 877 1 877 1 877 1 902 1 878 1
ATAP 1108 1	899 1

USED	26	39	60	58	58	36	4	8	1	4	8	8	8	6
OALLOU	REF.6043													
0	78478	60338	79892	78844	77892	76893	3591	2436	60916	92595	99213	92652	125211	128000
1	1	2	2	3	2		1	70	121	98	190	173	123	98
2	40	60	64	63	36	41	68	9	28	12	22	36	20	20
3	7	4	8	4	11	9	4	7	14	20	26	12	25	13
4	15	4	10	15	3	6	17	1	3					2
6				2										
7														
9														
C1	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF
C2	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS
C4	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER
CTAP	620	1	620	1	620	1	646	1	878	1	878	1	903	1
ATAP	1109	1					900	1						
USED	26	39	60	58	58	36	4	8	1	4	8	8	8	6

P.209	83N	81N	80N	79N	78N	77N	76N	75N	74N	73N	83S	82S	81S	80S	79S	78S	77S	76S	75S	74S
0	78533	60401	79967	78912	77935	76941	3678	2510	61053	92712	99427	92832	125350	128108						
1	1	2	2	3	2		1	1	1	1	5	3	5	1						
2	1	2	1	4	1	2	1	2	5	4	6	5	13	6						
3				1			2	2	1	1	1									
4	7	2	6	9	7	6	2	8	20	9	12	1	31	21						
5				1		1				1	1			1						
6		1							1	1	4		2	2						
7	1			2					4	1										
9						2														
C1	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV	YDIV						
C2	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS	YSS						
C4	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM						
CTAP	621	1	621	1	621	1	647	1	879	1	879	1	904	1						
ATAP	1110	1					901	1												
USED	26	39	60	58	58	36	4	8	1	4	8	8	8	6						

0	78533	60399	79967	78917	77941	76944	3674	2513	61060	92713	99412	92819	125350	128102
1	2	1	1	3			2	2	2	3	3	3	8	9
2				2										
4	6	8	8	6	3	5	7	6	18	10	41	19	42	28
6														
7	2			3					4	2			1	
9						2								
C1	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF	YSELF
CTAP	621	1	621	1	621	1	60372	48174	12089	18515	22005	21566	16793	21456
ATAP	1109	1												
USED	26	39	60	58	58	36	4	8	1	4	8	8	8	6

374
393

P-210 83N 81N 80N 79N 78N 77N 76N 75N 74N 73N 83S 82S 81S 80S 79S 78S 77S 76S 75S 74S
83N 81N 80N 79N 78N 77N 76N 75N 74N 73N 83S 82S 81S 80S 79S 78S 77S 76S 75S 74S

+ OALL15U REF.6052		+ OALL16U REF.6053		+ OALL17U REF.6054		+ OALL18U REF.6055	
0	78543	60408	79976	78930	77944	76948	
1							
2							
7							
9							
C1	YPRVPM	YPRVPM	YPRVPM	YPRVPM	YPRVPM	YPRVPM	
C2	YVET	YVET	YVET	YVET	YVET	YVET	
C4	YGOVPM	YGOVPM	YGOVPM	YGOVPM	YGOVPM	YGOVPM	
CTAP	629	629	629	629	629	987	
ATAP	1118						
USED	26	39	60	58	58	36	
+ OALL16U REF.6053							
0	78541	60406	79975	78930	77943	76948	
1							
2							
3							
7							
9							
C1	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	YOTHER	
C2	YOUTPR	YOUTPR	YOUTPR	YOUTPR	YOUTPR	YOUTPR	
C4	YALIM	YALIM	YALIM	YALIM	YALIM	YALIM	
CTAP	630	630	630	630	630	988	
ATAP	1119						
USED	26	39	60	58	58	36	
+ OALL17U REF.6054							
0	78541	60402	79973	78928	77942	76948	
2							
3							
4							
6							
7							
9							
C1	YFRM	YFRM	YFRM	YFRM	YFRM	YFRM	
C2	YSLF	YSLF	YSLF	YSLF	YSLF	YSLF	
C4	YIWS	YIWS	YIWS	YIWS	YIWS	YIWS	
CTAP	631	631	631	631	631	989	
ATAP	1120						
USED	26	39	60	58	58	36	
+ OALL18U REF.6055							
0	78542	60407	79975	78930	77944	76948	
1							
3							
4							
5							

47813
PASS3
TRAN3
VEHCL3
1077 1

734
1
2

49960
PASS4
TRAN4
VEHCL4
1119 1

165
1
1

50530
PASS5
TRAN5
VEHCL5
1161 1

34

50663
PASS6
TRAN6
VEHCL6
1203 1

5

50692
PASS7
TRAN7
VEHCL7
1245 1

9
C1 PASS3 PASS3
C2 TRAN3 TRAN3
C4 VEHCL3 VEHCL3
CTAP 1168 1 1476 1
USED 6
OALLW14 REF.6063
+

0 60402 79964
1 2 7
4 2 4
7 2 1
9

C1 PASS4 PASS4
C2 TRAN4 TRAN4
C4 VEHCL4 VEHCL4
CTAP 1216 1 1518 1
USED 6
OALLW15 REF.6064
+

0 60407 79973
1 1 1
4 4 2
7 7 1
9

C1 PASS5 PASS5
C2 TRAN5 TRAN5
C4 VEHCL5 VEHCL5
CTAP 1264 1 1560 1
USED 6
OALLW16 REF.6065
+

0 68407 79974
1 1 2
9

C1 PASS6 PASS6
C2 TRAN6 TRAN6
C4 VEHCL6 VEHCL6
CTAP 1312 1 1602 1
USED 6
OALLW17 REF.6066
+

0 60408 79975
1 1 1
9

C1 PASS7 PASS7
C2 TRAN7 TRAN7
C4 VEHCL7 VEHCL7
CTAP 1360 1 1644 1
USED 6
OALLW18 REF.6067
+

378
397

0	60408	79975
1		1
9		
C1	PASS	PASS
C2	TRANS	TRANS
C4	VEHCL8	VEHCL8
CTAP	1408	1686
USED		6
+ DALLW19 REF.6068		

9		
C1		
C2		
C4		
CTAP		
+ DALLW21 REF.6069		

0	57702	78932
1	1858	838
2	625	85
3	69	121
4	41	
5	17	
6	35	
7	61	
9		

C1	WTIME1	DISTJ1
C2	DISTJ1	TIMEJ1
C4	TIMEJ1	
CTAP	1073	1393
USED		6
+ DALLW22 REF.6070		

0	59453	79569
1	618	315
2	234	29
3	27	63
4	34	
5	6	
6	12	
7	24	
9		

C1	WTIME2	DISTJ2
C2	DISTJ2	TIMEJ2
C4	TIMEJ2	
CTAP	1121	1435
USED		6

1	
50696	
PASS8	
TRANS	
VEHCL8	
1287	1

50697	
PASS9	
TRANS	
VEHCL9	
1329	1

30842	
-------	--

825	
36	
97	

18897	
WTIME1	
DISTJ1	
TIMEJ1	
994	1

14176	
-------	--

341	
20	
45	

36115	
WTIME2	
DISTJ2	
TIMEJ2	
1036	1

379
398

	83N	81N	80N	79N	78N	77N	76N	75N	74N	73N	83S	82S	81S	80S	79S	78S	77S	76S	75S	74S					
+ P.212	83N	81N	80N	79N	78N	77N	76N	75N	74N	73N	83S	82S	81S	80S	79S	78S	77S	76S	75S	74S					
+ OALLW23	REF.6071																								
	0	60068		79832																	2770				
	1	246	102																		85				
	2	56	9																		6				
	3	10	33																		23				
	4	9	2																		47813				
	5	2	6																		WTIME3				
	6	6	11																		DISTJ3				
	7	11																			TIMEJ3				
	9																				1078 1				
C1	WTIME3 DISTJ3																								
C2	DISTJ3 TIMEJ3																								
C4	TIMEJ3																								
CTAP	1169 1 1477 1																								
USED	6																								
+ OALLW24	REF.6072																								
	0	60317		79942																	703				
	1	64	23																		29				
	2	12	1																		2				
	3	5	10																		3				
	4	2																			49960				
	5	2																			WTIME4				
	6	3																			DISTJ4				
	7	2																			TIMEJ4				
	9	3																			1120 1				
C1	WTIME4 DISTJ4																								
C2	DISTJ4 TIMEJ4																								
C4	TIMEJ4																								
CTAP	1217 1 1519 1																								
USED	6																								
+ OALLW25	REF.6073																								
	0	60389		79969																	158				
	1	11	5																		7				
	2	4																			2				
	3	2	2																		2				
	4	1																			50530				
	6	1																							
	7																								
	9																								

C1 WTIMES DISTJ5
 C2 DISTJ5 TIMEJ5
 C4 TIMEJ5
 CTAP 1265 1 1561 1
 USED 6
 OALLW26 REF.6074

+
 0 60406 79973
 1 1 2
 2 1 1
 3 1 1
 6 6
 9 9

C1 WTIMES DISTJ6
 C2 DISTJ6 TIMEJ6
 C4 TIMEJ6
 CTAP 1313 1 1603 1
 USED 6
 OALLW27 REF.6075

+
 0 60408 79976
 2 2
 6 6
 9 9

C1 WTIMES DISTJ7
 C2 DISTJ7 TIMEJ7
 C4 TIMEJ7
 CTAP 1361 1 1645 1
 USED 6
 OALLW28 REF.6076

+
 0 60408 79976
 9 9

C1 WTIMES DISTJ8
 C2 DISTJ8 TIMEJ8
 C4 TIMEJ8
 CTAP 1409 1 1687 1
 USED 6
 OALLW29 REF.6077

+
 9 9
 C1
 C2
 C4
 CTAP
 OALLW31 REF.6078

+
 0 58403
 1 2005
 9 9
 C1 AMPM1
 C2

WTIMES
 DISTJ5
 TIMEJ5
 1162 1

31
 2
 1

50663
 WTIMES
 DISTJ6
 TIMEJ6
 1204 1

3
 1
 1

50692
 WTIMES
 DISTJ7
 TIMEJ7
 1246 1

1
 50696
 WTIMES
 DISTJ8
 TIMEJ8
 1288 1

50697
 WTIMES
 DISTJ9
 TIMEJ9
 1330 1

30676
 1124
 18897
 AMPM1

382
401

1 1
9 AMPM6
C1
C2
C4
CTAP 1314 1
OALLW37 REF.6084
+
0 60408
9
C1 AMPM7
C2
C4
CTAP 1362 1
OALLW38 REF.6085
+
0 60408
9
C1 AMPM8
C2
C4
CTAP 1410 1
OALLW39 REF.6086
+
9
C1
C2
C4
CTAP
1

4
50663
AMPM6
1205 1
5
50692
AMPM7
1247 1
1
50696
AMPM8
1289 1
50697
AMPM9
1331 1

Allocation Procedures

The Census Bureau uses a technique known as "hot decking" to allocate missing answers: it assigns a value to unanswered questions by copying the response of the last similar unit processed. The criteria used to define "similar" units are shown in the matrices on the next pages. In general, they include tenure, age, sex, race, and general unit descriptors. Users may decide that the allocation criteria used by the Census Bureau do not meet their own analysis requirements and may wish to reallocate missing values according to different criteria.

Before the processing of an AHS file, a series of matrices are created. These matrices are used to allocate missing answers in the order that they appear in the file. Units are processed in geographic order, so the last similar unit is normally located in approximately the same neighborhood. The Census Bureau has occasionally changed its allocation criteria. For simplicity, we present here the general matrices that were used until 1983 and the revised matrices which were used starting in 1984. In practice, there are many more matrices, one for each variable subject to allocation and, in some cases, different matrices are used for different types of household members for a given variable.

Until 1983, there were three basic matrices. Matrix 1 was used to allocate missing values for **NUNITS** (number of units in the Building) and **FLOORS** (number of stories in the building). Matrix 2 was used to allocate all other variables subject to allocation with the exception of the Income Variables which were allocated according to the criteria shown in Matrix 3. A different Matrix 3 is used for income from different sources and for different types of household members. (See footnotes to Matrix 1).

Starting in 1984, the criteria for allocations were refined, but the basic allocation procedures remain unchanged. The revised allocation criteria are shown in matrices 7 through 10. For example, the number of rooms in the unit (bedrooms, kitchens, bathrooms, etc.) and utility costs are now allocated on the basis of household size (see Matrix 5) and heating fuel (see Matrix 7) rather than race, sex, and number of units in the building. The criteria for allocating income variables have also changed, as a result of changes in the information being collected starting in 1984 (see Matrices 9 and 10).

As AHS records are processed, the value of each variable encountered on the record being read is entered in the appropriate cell of the appropriate matrix, as long as the answer is not missing. For example, if the record being read in 1983 pertains to a owner-occupied unit, with a non-black reference person, located in a 2 unit building (**NUNITS**=4), the value "4" is entered in the top cell of Matrix 1. (Owner, Non-Black Reference Person). The matrix is updated each time that a record contains a reported value (i.e., non-missing). When a missing value is encountered, the last value found in the appropriate cell of the appropriate matrix is used to allocate the missing answer. The process continues until all records in the file are processed.

1974-1983 Allocation Matrices

MATRIX 1: NUNITS and FLOORS:

Occupied or URE:		<u>All</u>
Owner:	Non-Black Reference Person	X
	Black Reference Person	X
Renter:	Non-Black Reference Person	X
	Black Reference Person	X
Vacant		X

MATRIX 2: All Other Variables Except Income

Occupied or URE:		<u>Mobile Homes</u>		<u>One Unit</u>		<u>Two + Units</u>	
		Male	Female	Male	Female	Male	Female
		Owner:	Non-Black Reference Person	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
Renter:	Non-Black Reference Person	X	X	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
Vacant:	For Sale				X		X
	For Rent				X		X
	Other				X		X

MATRIX 3: Income Variables

		<u>Non-Black Reference Person</u>				<u>Black Reference Person</u>			
		<u>Age</u>		<u>Age</u>		<u>Age</u>		<u>Age</u>	
		<u><25</u>	<u>25-34</u>	<u>35-64</u>	<u>65+</u>	<u><25</u>	<u>25-34</u>	<u>35-64</u>	<u>65+</u>
Owner:	Value < \$10,000	M	F	M	F	M	F	M	F
	\$10-24,999	X	X	X	X	X	X	X	X
	\$25-49,999	X	X	X	X	X	X	X	X
	\$50,000 or more	X	X	X	X	X	X	X	X
Renter:	Contract Rent < \$100	X	X	X	X	X	X	X	X
	\$100-149	X	X	X	X	X	X	X	X
	\$150-199	X	X	X	X	X	X	X	X
	\$200 or more	X	X	X	X	X	X	X	X

Notes: For non-relatives, their own race, age, and sex are used instead of the Reference Person's.

- For wage & salary, there are separate matrices for: reference person, spouse, child of reference person, head of any subfamily, spouse of any subfamily, child of any subfamily, other relatives, non-relatives.
- For farm and business income, there are four matrices: for farms and for businesses, respectively and for relatives and non-relatives.
- For all other income sources, there are three matrices for each variable: for 1 person families, 2-3 people, 4+ people, there is one matrix for each variable relating to non-relatives.

1984-1993 Allocation Matrices

MATRIX 4: Number of Units in the Building (NUNITS)

	Number of Stories in the Building (FLOORS)					
	1-4	5-7	8-14	15-20	21+	Missing or NA
Occupied or URE						
Owner	X	X	X	X	X	X
Renter	X	X	X	X	X	X
Vacant	X	X	X	X	X	X

MATRIX 5: Number Bedrooms, Full Bathrooms, Kitchen, Living Rooms, Dining Rooms, Family Rooms, Business Rooms, and Other Rooms

	HOUSEHOLD SIZE (PER)						
	1	2	3	4	5	6	7+
Occupied: Owner	X	X	X	X	X	X	X
Renter	X	X	X	X	X	X	X
Vacant for Rent	X	X	X	X	X	X	X
Vacant for Sale	X	X	X	X	X	X	X
URE and Other Vacant	X	X	X	X	X	X	X

MATRIX 6: Number of Stories (FLOORS)

	Number of Units in the Building (NUNIT)					
	1	2-4	5-9	10-19	20-49	50+
Occupied or URE:						
Owner	X	X	X	X	X	X
Renter	X	X	X	X	X	X
Vacant	X	X	X	X	X	X

MATRIX 7: Utility Use and Costs (Electricity, Gas, Fuel Oil, Other, Garbage/Trash, Water and Sewage)

		Heating Fuel (HFUEL)					
		Electricity		Gas		Other	
		Male	Female	Male	Female	Male	Female
Occupied:							
Owner:	Non-Black Reference Person	X	X	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
Renter:	Non-Black Reference Person	X	X	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
URE:	Owner		X		X		X
	Renter		X		X		X
Vacant:	For Rent		X		X		X
	For Sale		X		X		X

MATRIX 8: All Other variables except Income

		Mobile Home		One Unit		2+ Units	
		Male	Female	Male	Female	Male	Female
Occupied:							
Owner:	Non-Black Reference Person	X	X	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
Renter:	Non-Black Reference Person	X	X	X	X	X	X
	Black Reference Person	X	X	X	X	X	X
URE & Vacant:	Renter or For Rent		X		X		X
	Owner or For Sale		X		X		X
	Other Vacant		X		X		X

MATRIX 9: Wage and Salary Income of Family Members and Total Income of Non-Relatives

	<u>Non-Black Family Members</u>						<u>Black Family Members</u>					
	Age						Age					
	<u><25</u>		<u>25-64</u>		<u>65+</u>		<u><25</u>		<u>25-64</u>		<u>65+</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
Owners:	Value < \$60,000											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$60,000 or more											
	X	X	X	X	X	X	X	X	X	X	X	X
Renters:	Contract Rent < \$300											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$300 +											
	X	X	X	X	X	X	X	X	X	X	X	X

Note: Separate matrices are constructed for the reference person, spouse of reference person, child of reference person, head of any subfamily, spouse of any subfamily, child of any subfamily, other relatives, and non-relatives. Each person age, race, and sex is used.

MATRIX 10: Other Sources of Income for Family Members

	<u>Non-Black Family Members</u>						<u>Black Family Members</u>					
	Age						Age					
	<u><25</u>		<u>25-64</u>		<u>65+</u>		<u><25</u>		<u>25-64</u>		<u>65+</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
One Person Family												
Owners:	Value < \$60,000											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$60,000 or more											
	X	X	X	X	X	X	X	X	X	X	X	X
Renters:	Contract Rent < \$300											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$300 +											
	X	X	X	X	X	X	X	X	X	X	X	X
Two or More Persons												
Owners:	Value < \$60,000											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$60,000 or more											
	X	X	X	X	X	X	X	X	X	X	X	X
Renters:	Contract Rent < \$300											
	X	X	X	X	X	X	X	X	X	X	X	X
	\$300 +											
	X	X	X	X	X	X	X	X	X	X	X	X

Note: All together there are 18 matrices to allocate family income from other sources (other than wage and salary): nine matrices to allocate whether any family member receives income from nine different sources: Business, Farm, Social Security, etc. and nine matrices to allocate the combined family income amount from these other sources depending on the type(s) of income sources reported.