

Metropolitan Housing

GENERAL

Volume II presents cross-tabulations of housing and household characteristics enumerated in the Censuses of Housing and Population, taken as of April 1, 1960. Most of the data are presented separately for owner-occupied and renter-occupied housing units and, with the exception of data on value and rent, cover all housing—urban and rural, farm and nonfarm. The data for vacant units are restricted to units available for sale or for rent. The housing unit is the reporting unit for this volume.

A separate chapter in Volume II is published for the United States and for each of the nine geographic divisions, giving statistics for total, inside standard metropolitan statistical areas, and outside standard metropolitan statistical areas. A chapter is published also for each standard metropolitan statistical area of 100,000 inhabitants or more in the United States and Puerto Rico, with separate statistics for each urban place of 100,000 inhabitants or more in the area. For areas in the United States, a series of standard tables is presented; hence, the content is the same for all publication areas. For the areas and places in Puerto Rico, the statistics differ only in detail.

The purpose of this volume is to provide cross-tabulations of housing and household characteristics for analytical uses. For example, the tabulation of gross rent according to condition and plumbing facilities provides more specific information than a simple distribution of units by rent and another by condition and plumbing facilities. The principal subjects which are cross-tabulated by various characteristics are: Value, gross rent, income, household composition, condition and plumbing, number of rooms, and number of units in structure. Other subjects involved in the cross-tabulations include: Persons, persons per room, type of household, year moved into unit, year structure built, number of bedrooms, number of bathrooms, air conditioning, heating equipment, automobiles available, and ratio of value or gross rent to income (see index of subjects on page viii). Selected characteristics are tabulated for units in which specified facilities are shared or lacking. For vacant units, duration of vacancy is included in the tabulations; and in the chapters which contain data for urban places of 100,000 inhabitants or more, data on the presence of an elevator in the structure are included in the tabulations for occupied units. Simple distributions of housing characteristics of the type covered in this volume are available in *1960 Census of Housing, Volume 1, States and Small Areas*, and simple distributions of household characteristics are available in Series PC(1)-C reports which constitute chapter C of *1960 Census of Population, Volume 1, Characteristics of the Population*.

In addition to the tables for all housing units (tables 1 to 10), cross-tabulations for housing units with nonwhite household heads are presented in tables 11 to 14 for areas having a specified number of such units. In the chapters which contain data for individual standard metropolitan statistical areas and urban places, tables 11 to 14 are included when applicable, and similar data are presented in tables 15 to 18 for housing units with white

household heads of Spanish surname or household heads of Puerto Rican birth or parentage when there is a specified number of such units.

All the statistics in this volume are based on information for samples of housing units. For the great majority of the items, a sample of 25 percent of the units was used; for the remaining items, the sample consisted of either 20 percent or 5 percent of the units.

DESCRIPTION OF TABLES

Content of tables.—A series of standard tables is presented for each publication area. Tables 1 to 8 present statistics for owner-occupied and renter-occupied units. Tables 9 and 10 present statistics for available vacant units, separately for units for sale and units for rent. Tables 11 to 14 (and 15 to 18) are presented only for specified areas, as described below. The subjects that are cross-tabulated in each table are specified in the index on page viii.

Tables 1 and 2.—Value is cross-tabulated by selected characteristics in table 1 and gross rent is cross-tabulated by largely the same set of characteristics in table 2. Both tables are subject to some restrictions. Table 1 is restricted to owner-occupied units having only one housing unit in the property and no business. Units in multiunit structures and trailers are excluded from the tabulation; and in the rural portion of the area units on farms and all units on places of 10 acres or more (whether farm or nonfarm) are excluded. Table 2 is restricted to renter-occupied nonfarm units.

Tables 3, 4, 5, 6, and 7.—Selected characteristics are cross-tabulated by income of primary families or individuals, condition and plumbing facilities of the unit, number of rooms in the unit, number of units in structure, and household composition in tables 3, 4, 5, 6, and 7, respectively. Comparable cross-tabulations are provided for owner-occupied and renter-occupied units. Table 6 in the chapters which contain data for urban places of 100,000 inhabitants or more carries an additional item, elevator in structure. Statistics on "elevator in structure" indicate the number of units in structures of four stories or more with elevator; the data are limited to occupied housing units (owner and renter combined).

Table 8.—In this table, the data are limited to units in which specified facilities (access to the unit, kitchen or cooking equipment, flush toilet inside structure, bathtub or shower inside structure) are shared or lacking. Except for number of units in structure, data are presented for renter-occupied units only. Each of the categories relating to sharing or lacking facilities is described in the section on "Living quarters."

Tables 9 and 10.—In table 9, duration of vacancy is cross-tabulated by selected housing characteristics, separately for vacant units available for sale and units available for rent. Table 10 is a cross-tabulation of monthly rent by selected housing characteristics for vacant units available for rent, excluding units on places of 10 acres or more in the rural portions of the area.

Tables 11 to 14.—Data for housing units with nonwhite household heads are presented in tables 11 to 14. The tables are presented for the United States and each division, inside and outside standard metropolitan statistical areas (unless there are fewer than 25,000 such units). In the chapters for individual areas, the tables are presented for each standard metropolitan statistical area and urban place having 25,000 or more such

units. Tables 11 to 14 contain essentially the same subjects as tables 1 to 4 (see "Cross-classification of subjects by table number" on page viii).

Tables 15 to 18.—Tables 15 to 18 appear only in chapters which contain data for individual standard metropolitan statistical areas and urban places. These tables, which have the same subject content as tables 11 to 14, present data for housing units with white household heads of Spanish surname (in Arizona, California, Colorado, New Mexico, and Texas) or for housing units with household heads of Puerto Rican birth or parentage (in the other States). These tables are presented for each standard metropolitan statistical area and urban place having 25,000 or more such units. No data are published for these units for the United States or divisions.

Consistency in tables.—The total number of owner-occupied units is the same in tables 3, 4, 5, and 7, and the total number of renter-occupied units is the same. They may differ slightly from the comparable totals in table 6, which are based on a sample of different size. In table 1, however, the total number of owner-occupied units will be smaller because some types of units, including farm units, are excluded from statistics on value (see definition of "value"). In table 2 (except in the tables for places of 100,000 inhabitants or more, which appear in the chapters for individual areas), the number of renter-occupied units also will be smaller than the total in tables 3, 4, 5, and 7 because of the exclusion of farm units in the rural portion of the area. In tables 9 and 10, data on rent and sale price exclude data for certain vacant units.

Within a table, distributions may not always add precisely to the same totals when the subjects are tabulated at different sample rates (see section on "Sample design"). Moreover, for distributions by value (or sale price), rent, value-income ratio, and gross rent as percentage of income, differences occur because certain units are excluded from the statistics by definition.

Disclosure of data.—Medians are not shown where the base is smaller than the required minimum. The minimum depends on the rate at which the specified item was tabulated (see section on "Sample design"). A plus (+) or a minus (−) sign after a median indicates that the median is above or below that number. For example, a median of "\$5,000-" for value of property indicates that the median fell in the interval "less than \$5,000" and was not computed.

Leaders (---) in a data column indicate that either there are no cases in the category or the data are suppressed, for the reason described above. Leaders are also used where data are inapplicable.

MAPS

Included in Part 1 of Volume II are a map of the United States showing the outlines of the geographic divisions and a map showing the location and names of all the standard metropolitan statistical areas in the United States as defined for the 1960 Censuses. In Parts 2 to 7 of Volume II, which contain data for individual standard metropolitan statistical areas, a map of the area is shown on page 2 of the chapter for the respective area; included also in Parts 2 to 6 is a map showing the location and names of all the standard metropolitan statistical areas in the United States.

COMPARABILITY WITH 1950 CENSUS

Similar cross-tabulations of housing and household characteristics were provided from the 1950 Census of Housing. In *1950 Census of Housing, Volume II, Nonfarm Housing Characteristics*, data were published for the United States and each of the nine divisions, by housing inside standard metropolitan areas, urban housing outside standard metropolitan areas, and rural housing outside standard metropolitan areas. Data were published also for each standard metropolitan area of 100,000 inhabitants or more, with separate figures for each city of 100,000 inhabitants or more. The 1950 statistics were restricted to conterminous United States, that is, United States excluding Alaska and

Hawaii; also, the 1950 statistics were restricted to nonfarm housing.

The subjects involved in the cross-tabulations in 1950 were largely the same as those tabulated in 1960 and, as in 1960, were presented for owner-occupied and for renter-occupied units. There were a few differences in subjects and in the selection of items that were cross-tabulated. New items for the 1960 program for Volume II are: Year moved into unit; elevator in structure; bedrooms; access, cooking, or plumbing facilities shared or lacking; air conditioning; automobiles available; and duration of vacancy. On the other hand, contract rent and television were cross-tabulated with selected characteristics in 1950 but not in 1960. In the 1950 tabulations, the principal subjects which were cross-classified by various characteristics were: Value, gross rent, contract rent, income, value-income ratio, gross rent as percentage of income, sex and age of head (household composition), type of household, condition and plumbing, number of rooms, and type of structure (number of units in structure).

The 1950 program differs from the 1960 program in several other respects. The 1950 tabulations for Volume II were restricted to occupied nonfarm units, which comprised all occupied housing in urban areas and all occupied housing not on farms in rural areas. The 1950 data for the area are, therefore, not comparable with the 1960 data; except for data on value and rent, 1960 data for the area cover both farm and nonfarm units. The separate data in Volume II for individual places of 100,000 inhabitants or more are not affected by this difference, however, since housing in places of this size was classified as nonfarm in both 1950 and 1960. Further, no 1950 data were tabulated by color or ethnic origin of the head of the household and no cross-tabulations were provided for vacant units. In some instances, certain metropolitan areas for example, comparability is also affected by differences in boundaries.

Changes were made in the definitions of some of the major concepts, particularly in the definition of the unit of enumeration and the definition of farm housing. They were made in order to improve the usefulness of the data although it was recognized that comparability with previous censuses would be affected.

Procedures for collecting and processing the data in 1960 also differed from 1950. In this respect, the 1960 Census contained several innovations. One of the innovations was the use of forms which household members themselves were asked to complete—the Advance Census Report form used on a nationwide basis for complete-count items, and the Household Questionnaire used in the more populous sections of the country for sample items. Information for items not completed by the respondents was obtained by enumerators in direct interview. Other innovations included the division of the census period into two stages, the greater use of sampling, the use of formal field review procedures, and the more extensive use of the electronic computer and related equipment to process the data and produce the final tables. These innovations were designed primarily to improve the quality of the statistics and to reduce the time required to collect and publish the data; at the same time, they have introduced an element of difference between the 1960 statistics and those of earlier censuses.

Changes and innovations are discussed in the explanations of the individual items and in the section on "Collection and processing of data."

HOUSING DATA FROM OTHER CENSUSES

Cross-tabulations of housing and household characteristics, as well as simple distributions, were published from the 1940 Census of Housing, which was the first complete census of housing. The cross-tabulations published in 1940, however, were somewhat less extensive than those published in 1960.

Because of differences in scope and in some of the concepts, the cross-tabulations appearing in the 1960 and 1940 reports are not entirely comparable. The 1940 cross-classifications were published for the United States and regions (by inside and outside principal metropolitan districts), for States, for principal metropolitan districts (having a central city of 100,000 inhabitants or more or total population of 150,000 or more), and for cities of 100,000 inhabitants or more. Limited data were published also for cities of 50,000 to 100,000 inhabitants. With respect to metropolitan areas, the 1960 and 1940 criteria and boundaries differ. Generally, the 1960 standard metropolitan statistical area, which usually comprises entire counties, is larger than the 1940 metropolitan district, which included the minor civil divisions containing the thickly settled territory in and around a city (or cities) of 50,000 inhabitants or more. The principal subjects used in the 1940 cross-classifications were contract or estimated rent and type of structure; for the United States, regions, and the larger metropolitan districts, income, size of household, and sex and age of head also were principal subjects. Differences in concepts are discussed in Volume I of the 1960 Housing reports and in chapter C of Volume I of the 1960 Population reports.

1960 PUBLICATION PROGRAM

Final housing reports.—Results of the 1960 Census of Housing are published in Volumes I to VII and in a joint housing and population series consisting of reports for census tracts. A series of special reports for local housing authorities constitutes the remainder of the final reports. Volumes I to IV and the census tract reports are issued as series of individual reports, with Volumes I and II issued also as bound volumes. Volumes V to VII are issued only as bound volumes.

The source of Volumes I, II, III, VI, and VII and the housing data in the census tract reports is the April enumeration of the 1960 Census of Housing. The special reports for local housing authorities are based on results of the April enumeration and, for most areas, on data collected at a later date for nonsample households.

Data for Volumes IV and V are based largely on the enumeration of units in a sample of land area segments, started in late 1959 and completed in 1960. Separate data are published for the United States and 17 selected metropolitan areas (15 standard metropolitan statistical areas and 2 standard consolidated areas). The areas consist of the New York-Northeastern New Jersey and the Chicago-Northwestern Indiana Standard Consolidated Areas and the following standard metropolitan statistical areas: Atlanta, Boston, Dallas, Detroit, Los Angeles-Long Beach, Philadelphia, Seattle, Baltimore, Buffalo, Cleveland, Minneapolis-St. Paul, Pittsburgh, St. Louis, San Francisco-Oakland, and Washington, D.C. The first nine areas named (the two consolidated areas and seven standard metropolitan statistical areas) are the areas for which separate data are published in Part 2 of Volume IV.

The titles and contents of the reports are described on page iv. For the most part, the reports are comparable with those published from the 1950 Census of Housing. The 1960 Volumes I, II, and VI are similar to 1950 Volumes I, II, and III, respectively. Volume III of 1960 corresponds to the series of reports on block statistics which constituted 1950 Volume V. Volume IV of 1960 has no 1950 counterpart but corresponds to Volumes I and III of the 1956 National Housing Inventory. Volume V of 1960 corresponds to Volume IV of 1950 and, in part, to Volume II of the 1956 National Housing Inventory. In 1950, census tract reports were published as Volume III of the 1950 Census of Population. Special reports for local housing authorities were published for

219 areas in *1950 Census of Housing, Series HC-6, Special Tabulations for Local Housing Authorities*. The type of data presented in 1960 Volume VII has not been published in previous census reports.

As stated on page iv, data for the types of areas covered in Volume II are provided in several series of housing reports. Data for the United States are provided in Volumes I, IV, V, VI, and VII (and for regions or divisions in Volumes I, IV, and V). Simple distributions of housing characteristics for each standard metropolitan statistical area and its constituent parts (each county, each place of 50,000 inhabitants or more, the urban balance, and the rural portion of the area) are provided in Volume I. For places, data on selected items are provided by city blocks in the individual reports which comprise Volume III. For standard metropolitan statistical areas, as well as places, data on selected housing and population items by census tracts are published in the census tract reports. For the 17 metropolitan areas listed above, Volumes IV and V provide data on components of inventory change and residential finance. Data on selected household and population characteristics of persons 60 years old and over are published in Volume VII for the largest standard metropolitan statistical area in each State; additional data on housing of persons 60 and over for these large SMSA's and selected data for all SMSA's and urban places of 100,000 inhabitants or more are available in unpublished form.

Preliminary and advance reports.—Statistics for many of the subjects covered in the census were released in several series of preliminary and advance reports. The figures in the preliminary and advance reports are superseded by the data in the final reports.

Population reports.—Population data are available for the same types of areas that are covered in this volume of housing data. Simple distributions of household characteristics are published in Series PC(1)—A, B, and C reports which constitute chapters A, B, and C of *1960 Census of Population, Volume I, Characteristics of the Population*. For selected population characteristics, cross-tabulations are provided in chapter D of Volume I and in *1960 Census of Population, Volume II, Subject Reports*.

AVAILABILITY OF UNPUBLISHED DATA

During the processing of the data for publication of Volume II, more data were tabulated than it was possible to print in the final reports. Data for nonwhite households in tables 11 to 14 have been tabulated for each division, each standard metropolitan statistical area of 100,000 inhabitants or more and each place of 100,000 inhabitants or more, even though the number of units with nonwhite household heads is less than 25,000. Tables 1 to 14 also are available in unpublished form for each SMSA with less than 100,000 inhabitants.

A few additional items for trailers and vacant units have been tabulated but not published for each standard metropolitan statistical area and urban place of 100,000 inhabitants or more. Persons, year moved into unit, rooms, year structure built, condition and plumbing, heating equipment, and gross rent have been tabulated for trailers by tenure and type of trailer (whether mobile or on a permanent foundation); and number of rooms by rent or sale price has been tabulated for available vacant units with all plumbing facilities.

Photocopies of unpublished data can be provided at cost. Certain special tabulations can be prepared on a reimbursable basis. Requests for photocopies or for additional information should be addressed to Chief, Housing Division, Bureau of the Census, Washington 25, D.C.

AREA AND RESIDENCE CLASSIFICATIONS

STANDARD METROPOLITAN STATISTICAL AREAS

It has long been recognized that for many types of analysis it is necessary to consider as a unit the entire area, in and around a city, in which the activities form an integrated economic and social system. Prior to the 1950 Census, areas of this type had been defined in somewhat different ways for different purposes and by various agencies. Leading examples were the metropolitan districts of the 1940 Census of Housing, the industrial areas of the Census of Manufactures, and the labor market areas of the Bureau of Employment Security. To permit all Federal statistical agencies to utilize the same areas for the publication of general-purpose statistics, the Bureau of the Budget has established "standard metropolitan statistical areas" (SMSA's). Every city of 50,000 inhabitants or more according to the 1960 Census of Population is included in an SMSA. The boundaries of the SMSA are shown in the chapter for the individual area.

The definitions and titles of standard metropolitan statistical areas are established by the Bureau of the Budget with the advice of the Federal Committee on Standard Metropolitan Statistical Areas. This Committee is composed of representatives of the major statistical agencies of the Federal Government. The criteria used by the Bureau of the Budget in establishing the SMSA's are presented below. (See the Bureau of the Budget publication *Standard Metropolitan Statistical Areas*, U.S. Government Printing Office, Washington 25, D.C., 1961.)

The definition of an individual standard metropolitan statistical area involves two considerations: First, a city or cities of specified population to constitute the central city and to identify the county in which it is located as the central county; and second, economic and social relationships with contiguous counties which are metropolitan in character, so that the periphery of the specific metropolitan area may be determined.¹ Standard metropolitan statistical areas may cross State lines.

Population criteria.—The criteria for population relate to a city or cities of specified size according to the 1960 Census of Population.

1. Each standard metropolitan statistical area must include at least:

- a. One city with 50,000 inhabitants or more, or
- b. Two cities having contiguous boundaries and constituting, for general economic and social purposes, a single community with a combined population of at least 50,000, the smaller of which must have a population of at least 15,000.

2. If each of two or more adjacent counties has a city of 50,000 inhabitants or more (or twin cities under 1b) and the cities are within 20 miles of each other (city limits to city limits), they will be included in the same area unless there is definite evidence that the two cities are not economically and socially integrated.

Criteria of metropolitan character.—The criteria of metropolitan character relate primarily to the attributes of the contiguous county as a place of work or as a home for a concentration of nonagricultural workers.

3. At least 75 percent of the labor force of the county must be in the nonagricultural labor force.²

4. In addition to criterion 3, the county must meet at least one of the following conditions:

¹ Central cities are those appearing in the standard metropolitan statistical area title. A "contiguous" county either adjoins the county or counties containing the largest city in the area, or adjoins an intermediate county integrated with the central county. There is no limit to the number of tiers of outlying metropolitan counties so long as all other criteria are met.

² Nonagricultural labor force is defined as those employed in nonagricultural occupations, those experienced unemployed whose last occupation was a nonagricultural occupation, members of the Armed Forces, and new workers.

a. It must have 50 percent or more of its population living in contiguous minor civil divisions³ with a density of at least 150 persons per square mile, in an unbroken chain of minor civil divisions with such density radiating from a central city in the area.

b. The number of nonagricultural workers employed in the county must equal at least 10 percent of the number of nonagricultural workers employed in the county containing the largest city in the area, or the county must be the place of employment of 10,000 nonagricultural workers.

c. The nonagricultural labor force living in the county must equal at least 10 percent of the number in the nonagricultural labor force living in the county containing the largest city in the area, or the county must be the place of residence of a nonagricultural labor force of 10,000.

5. In New England, the city and town are administratively more important than the county, and data are compiled locally for such minor civil divisions. Here, towns and cities are the units used in defining standard metropolitan statistical areas. In New England, because smaller units are used and more restricted areas result, a population density criterion of at least 100 persons per square mile is used as the measure of metropolitan character.

Criteria of integration.—The criteria of integration relate primarily to the extent of economic and social communication between the outlying counties and central county.

6. A county is regarded as integrated with the county or counties containing the central cities of the area if either of the following criteria is met:

- a. Fifteen percent of the workers living in the county work in the county or counties containing central cities of the area, or
- b. Twenty-five percent of those working in the county live in the county or counties containing central cities of the area.

Only where data for criteria 6a and 6b are not conclusive are other related types of information used as necessary. This information includes such items as average telephone calls per subscriber per month from the county to the county containing central cities of the area; percent of the population in the county located in the central city telephone exchange area; newspaper circulation reports prepared by the Audit Bureau of Circulation; analysis of charge accounts in retail stores of central cities to determine the extent of their use by residents of the contiguous county; delivery service practices of retail stores in central cities; official traffic counts; the extent of public transportation facilities in operation between central cities and communities in the contiguous county; and the extent to which local planning groups and other civic organizations operate jointly.

Criteria for titles.—The criteria for titles relate primarily to the size and number of central cities.

7. The complete title of an SMSA identifies the central city or cities and the State or States in which the SMSA is located:

- a. The name of the standard metropolitan statistical area includes that of the largest city.
- b. The addition of up to two city names may be made in the area title, on the basis and in the order of the following criteria:

(1) The additional city has at least 250,000 inhabitants.

(2) The additional city has a population of one-third or more of that of the largest city and a minimum population of 25,000, except that both city names are used in those instances where cities qualify under criterion 1b. (A city which qualified as a secondary central city in 1950 but which does not qualify in 1960 has been temporarily retained as a central city.)

c. In addition to city names, the area titles will contain the name of the State or States in which the area is located.

³ A contiguous minor civil division either adjoins a central city in a standard metropolitan statistical area or adjoins an intermediate minor civil division of qualifying population density. There is no limit to the number of tiers of contiguous minor civil divisions so long as the minimum density requirement is met in each tier.

Inside and outside SMSA's.—In the data for the United States and divisions, separate figures are provided for housing units inside and outside SMSA's. The tables for housing "inside SMSA's" for the United States present statistics for the total of the 212 SMSA's in the United States (190 SMSA's with 100,000 inhabitants or more, for which separate statistics are provided in Volume II, and 22 SMSA's with less than 100,000 inhabitants). Similarly, the tables for "inside SMSA's" for each of the nine divisions present statistics for the total of the SMSA's, or parts of SMSA's, within the respective division. The map on page ix shows the location and boundaries of all the SMSA's in the United States.

Relation to earlier censuses.—In 1950, data were presented for standard metropolitan areas (SMA's) which were established in connection with cities of 50,000 inhabitants or more in 1950. In 1940, a somewhat similar type of area called the "metropolitan district" was used. In 1958, the criteria for delineating SMA's were revised by the Bureau of the Budget, and in 1959 the areas were designated as standard metropolitan statistical areas (SMSA's). In some cases, the 1960 SMSA has the same boundaries as the 1950 SMA; in others, parts have been added or deleted. The relationship can be readily determined by comparing the 1960 and 1950 boundaries for the particular area.

In 1950, a total of 168 standard metropolitan areas were identified in conterminous United States and separate statistics were published in the 1950 Volume II for the 152 areas with 100,000 inhabitants or more (the Honolulu Standard Metropolitan Area was not included in the 1950 Volume II program). A few of the 1950 SMA's were split into several SMSA's for 1960. Some entirely new SMSA's were added to the metropolitan territory and some changes were made in the boundaries of the existing SMA's; in terms of 1950 counts, the net addition resulting from the designation of new metropolitan territory and changes in boundaries amounted to approximately 6 percent of the total units in the 1950 SMA's.

URBAN-RURAL AND FARM-NONFARM RESIDENCE

Although this volume contains no separate statistics for urban and rural housing or for farm and nonfarm housing, these concepts are applied when determining which units are included in

the data on rent and value. For other characteristics, all units are included—urban and rural, farm and nonfarm.

Urban housing comprises all housing in (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, villages, and towns (except towns in New England, New York, and Wisconsin); (b) the densely settled urban fringe, whether incorporated or unincorporated, of urbanized areas; (c) towns in New England and townships in New Jersey and Pennsylvania which contain no incorporated municipalities as subdivisions and have either 25,000 inhabitants or more or a population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile; (d) counties in States other than the New England States, New Jersey, and Pennsylvania that have no incorporated municipalities within their boundaries and have a density of 1,500 persons or more per square mile; and (e) unincorporated places of 2,500 inhabitants or more. In other words, urban housing comprises all housing units in urbanized areas and in places of 2,500 inhabitants or more outside urbanized areas.⁴ Housing not classified as urban constitutes rural housing.

In rural territory, farm residence is determined on the basis of number of acres in the place and total sales of farm products in 1959. An occupied housing unit is classified as a farm housing unit if it is located on a place of 10 or more acres from which sales of farm products amounted to \$50 or more in 1959, or on a place of less than 10 acres from which sales of farm products amounted to \$250 or more in 1959. Occupied units for which cash rent is paid are classified as nonfarm housing if the rent does not include any land used for farming (or ranching). For vacant units, number of acres in the place was reported but no information was obtained on sales of farm products.

The definition of urban housing in 1950 was substantially the same as that used in 1960. Farm residence in 1950, which was restricted to rural territory, was determined by the respondent's answer to the question, "Is this house on a farm (or ranch)?" In addition, the instructions to the enumerators specified that a house was to be classified as nonfarm if the occupants paid cash rent for the house and yard only.

A more detailed explanation of residence (including definitions of urban and rural territory, urbanized area, place, and farm-nonfarm residence) is given in Volume I of the 1960 Housing reports.

DEFINITIONS AND EXPLANATIONS

The definitions and explanations of terms should be interpreted in the context of the 1960 Census procedures for collecting the data. Data were collected by a combination of self-enumeration, direct interview, and observation by the enumerator.

Items to be filled through self-enumeration appeared on forms which were supplied to households with the request that the household members themselves complete them. In completing the self-enumeration items, the respondent had the explanations and wording that were printed on the forms. His answers were accepted unless the enumerator found it necessary to clarify or correct them.

If the self-enumeration form was not filled or if the answers were incomplete or inconsistent, the enumerator obtained the information through direct interview and recorded it directly on a form specially designed for electronic data processing by FOSDIC (see section on "Collection and processing of data"). The enumerator was instructed to read the questions from the FOSDIC schedule and record the replies as given. If the respondent did not understand a question, the enumerator was to explain it based on his understanding of the definitions and instructions in the Enumerator's Reference Manual.

Information for vacant units was obtained by the enumerator largely from owners, landlords, neighbors, or other persons presumed to know the situation, and the enumerator recorded the information directly on the FOSDIC schedules. A few items, in-

cluding condition of unit, were always determined by the enumerator on the basis of his observation and, therefore, did not appear among the self-enumeration items.

The intent of the questions on the two types of forms is the same, although the wording of some of the questions and response categories on the direct-interview forms is briefer than on the self-enumeration forms. Furthermore, the direct-interview forms omit many of the instructions given on the self-enumeration forms. The differences, however, probably do not contribute in any important way to a lack of comparability of the data obtained from the two methods of enumeration. Through the use of the self-enumeration forms, respondents were given more uniform explanations of some of the questions than would have been possible in direct interview. On the other hand, the less detailed wording on the direct-interview forms was supplemented by the instructions given to the enumerator.

The questions and the response categories used in self-enumeration compared with those used by the enumerator in direct interview are exhibited in Volume I of the 1960 Housing reports. For population items, the wording on the self-enumeration forms is exhibited in chapter C of Volume I of the 1960 Population reports.

⁴ An urbanized area contains at least one city (or "twin central cities") of 50,000 inhabitants or more in 1960, as well as the surrounding densely settled incorporated places and unincorporated areas.

AREA AND RESIDENCE CLASSIFICATIONS

STANDARD METROPOLITAN STATISTICAL AREAS

It has long been recognized that for many types of analysis it is necessary to consider as a unit the entire area, in and around a city, in which the activities form an integrated economic and social system. Prior to the 1950 Census, areas of this type had been defined in somewhat different ways for different purposes and by various agencies. Leading examples were the metropolitan districts of the 1940 Census of Housing, the industrial areas of the Census of Manufactures, and the labor market areas of the Bureau of Employment Security. To permit all Federal statistical agencies to utilize the same areas for the publication of general-purpose statistics, the Bureau of the Budget has established "standard metropolitan statistical areas" (SMSA's). Every city of 50,000 inhabitants or more according to the 1960 Census of Population is included in an SMSA. The boundaries of the SMSA are shown in the chapter for the individual area.

The definitions and titles of standard metropolitan statistical areas are established by the Bureau of the Budget with the advice of the Federal Committee on Standard Metropolitan Statistical Areas. This Committee is composed of representatives of the major statistical agencies of the Federal Government. The criteria used by the Bureau of the Budget in establishing the SMSA's are presented below. (See the Bureau of the Budget publication *Standard Metropolitan Statistical Areas*, U.S. Government Printing Office, Washington 25, D.C., 1961.)

The definition of an individual standard metropolitan statistical area involves two considerations: First, a city or cities of specified population to constitute the central city and to identify the county in which it is located as the central county; and second, economic and social relationships with contiguous counties which are metropolitan in character, so that the periphery of the specific metropolitan area may be determined.¹ Standard metropolitan statistical areas may cross State lines.

Population criteria.—The criteria for population relate to a city or cities of specified size according to the 1960 Census of Population.

1. Each standard metropolitan statistical area must include at least:

- a. One city with 50,000 inhabitants or more, or
- b. Two cities having contiguous boundaries and constituting, for general economic and social purposes, a single community with a combined population of at least 50,000, the smaller of which must have a population of at least 15,000.

2. If each of two or more adjacent counties has a city of 50,000 inhabitants or more (or twin cities under 1b) and the cities are within 20 miles of each other (city limits to city limits), they will be included in the same area unless there is definite evidence that the two cities are not economically and socially integrated.

Criteria of metropolitan character.—The criteria of metropolitan character relate primarily to the attributes of the contiguous county as a place of work or as a home for a concentration of nonagricultural workers.

3. At least 75 percent of the labor force of the county must be in the nonagricultural labor force.²

4. In addition to criterion 3, the county must meet at least one of the following conditions:

¹ Central cities are those appearing in the standard metropolitan statistical area title. A "contiguous" county either adjoins the county or counties containing the largest city in the area, or adjoins an intermediate county integrated with the central county. There is no limit to the number of tiers of outlying metropolitan counties so long as all other criteria are met.

² Nonagricultural labor force is defined as those employed in nonagricultural occupations, those experienced unemployed whose last occupation was a nonagricultural occupation, members of the Armed Forces, and new workers.

a. It must have 50 percent or more of its population living in contiguous minor civil divisions³ with a density of at least 150 persons per square mile, in an unbroken chain of minor civil divisions with such density radiating from a central city in the area.

b. The number of nonagricultural workers employed in the county must equal at least 10 percent of the number of nonagricultural workers employed in the county containing the largest city in the area, or the county must be the place of employment of 10,000 nonagricultural workers.

c. The nonagricultural labor force living in the county must equal at least 10 percent of the number in the nonagricultural labor force living in the county containing the largest city in the area, or the county must be the place of residence of a nonagricultural labor force of 10,000.

5. In New England, the city and town are administratively more important than the county, and data are compiled locally for such minor civil divisions. Here, towns and cities are the units used in defining standard metropolitan statistical areas. In New England, because smaller units are used and more restricted areas result, a population density criterion of at least 100 persons per square mile is used as the measure of metropolitan character.

Criteria of integration.—The criteria of integration relate primarily to the extent of economic and social communication between the outlying counties and central county.

6. A county is regarded as integrated with the county or counties containing the central cities of the area if either of the following criteria is met:

- a. Fifteen percent of the workers living in the county work in the county or counties containing central cities of the area, or
- b. Twenty-five percent of those working in the county live in the county or counties containing central cities of the area.

Only where data for criteria 6a and 6b are not conclusive are other related types of information used as necessary. This information includes such items as average telephone calls per subscriber per month from the county to the county containing central cities of the area; percent of the population in the county located in the central city telephone exchange area; newspaper circulation reports prepared by the Audit Bureau of Circulation; analysis of charge accounts in retail stores of central cities to determine the extent of their use by residents of the contiguous county; delivery service practices of retail stores in central cities; official traffic counts; the extent of public transportation facilities in operation between central cities and communities in the contiguous county; and the extent to which local planning groups and other civic organizations operate jointly.

Criteria for titles.—The criteria for titles relate primarily to the size and number of central cities.

7. The complete title of an SMSA identifies the central city or cities and the State or States in which the SMSA is located:

- a. The name of the standard metropolitan statistical area includes that of the largest city.
- b. The addition of up to two city names may be made in the area title, on the basis and in the order of the following criteria:

(1) The additional city has at least 250,000 inhabitants.

(2) The additional city has a population of one-third or more of that of the largest city and a minimum population of 25,000, except that both city names are used in those instances where cities qualify under criterion 1b. (A city which qualified as a secondary central city in 1950 but which does not qualify in 1960 has been temporarily retained as a central city.)

c. In addition to city names, the area titles will contain the name of the State or States in which the area is located.

³ A contiguous minor civil division either adjoins a central city in a standard metropolitan statistical area or adjoins an intermediate minor civil division of qualifying population density. There is no limit to the number of tiers of contiguous minor civil divisions so long as the minimum density requirement is met in each tier.

Inside and outside SMSA's.—In the data for the United States and divisions, separate figures are provided for housing units inside and outside SMSA's. The tables for housing "inside SMSA's" for the United States present statistics for the total of the 212 SMSA's in the United States (190 SMSA's with 100,000 inhabitants or more, for which separate statistics are provided in Volume II, and 22 SMSA's with less than 100,000 inhabitants). Similarly, the tables for "inside SMSA's" for each of the nine divisions present statistics for the total of the SMSA's, or parts of SMSA's, within the respective division. The map on page ix shows the location and boundaries of all the SMSA's in the United States.

Relation to earlier censuses.—In 1950, data were presented for standard metropolitan areas (SMA's) which were established in connection with cities of 50,000 inhabitants or more in 1950. In 1940, a somewhat similar type of area called the "metropolitan district" was used. In 1958, the criteria for delineating SMA's were revised by the Bureau of the Budget, and in 1959 the areas were designated as standard metropolitan statistical areas (SMSA's). In some cases, the 1960 SMSA has the same boundaries as the 1950 SMA; in others, parts have been added or deleted. The relationship can be readily determined by comparing the 1960 and 1950 boundaries for the particular area.

In 1950, a total of 168 standard metropolitan areas were identified in conterminous United States and separate statistics were published in the 1950 Volume II for the 152 areas with 100,000 inhabitants or more (the Honolulu Standard Metropolitan Area was not included in the 1950 Volume II program). A few of the 1950 SMA's were split into several SMSA's for 1960. Some entirely new SMSA's were added to the metropolitan territory and some changes were made in the boundaries of the existing SMA's; in terms of 1950 counts, the net addition resulting from the designation of new metropolitan territory and changes in boundaries amounted to approximately 6 percent of the total units in the 1950 SMA's.

URBAN-RURAL AND FARM-NONFARM RESIDENCE

Although this volume contains no separate statistics for urban and rural housing or for farm and nonfarm housing, these concepts are applied when determining which units are included in

the data on rent and value. For other characteristics, all units are included—urban and rural, farm and nonfarm.

Urban housing comprises all housing in (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, villages, and towns (except towns in New England, New York, and Wisconsin); (b) the densely settled urban fringe, whether incorporated or unincorporated, of urbanized areas; (c) towns in New England and townships in New Jersey and Pennsylvania which contain no incorporated municipalities as subdivisions and have either 25,000 inhabitants or more or a population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile; (d) counties in States other than the New England States, New Jersey, and Pennsylvania that have no incorporated municipalities within their boundaries and have a density of 1,500 persons or more per square mile; and (e) unincorporated places of 2,500 inhabitants or more. In other words, urban housing comprises all housing units in urbanized areas and in places of 2,500 inhabitants or more outside urbanized areas.⁴ Housing not classified as urban constitutes rural housing.

In rural territory, farm residence is determined on the basis of number of acres in the place and total sales of farm products in 1959. An occupied housing unit is classified as a farm housing unit if it is located on a place of 10 or more acres from which sales of farm products amounted to \$50 or more in 1959, or on a place of less than 10 acres from which sales of farm products amounted to \$250 or more in 1959. Occupied units for which cash rent is paid are classified as nonfarm housing if the rent does not include any land used for farming (or ranching). For vacant units, number of acres in the place was reported but no information was obtained on sales of farm products.

The definition of urban housing in 1950 was substantially the same as that used in 1960. Farm residence in 1950, which was restricted to rural territory, was determined by the respondent's answer to the question, "Is this house on a farm (or ranch)?" In addition, the instructions to the enumerators specified that a house was to be classified as nonfarm if the occupants paid cash rent for the house and yard only.

A more detailed explanation of residence (including definitions of urban and rural territory, urbanized area, place, and farm-nonfarm residence) is given in Volume I of the 1960 Housing reports.

DEFINITIONS AND EXPLANATIONS

The definitions and explanations of terms should be interpreted in the context of the 1960 Census procedures for collecting the data. Data were collected by a combination of self-enumeration, direct interview, and observation by the enumerator.

Items to be filled through self-enumeration appeared on forms which were supplied to households with the request that the household members themselves complete them. In completing the self-enumeration items, the respondent had the explanations and wording that were printed on the forms. His answers were accepted unless the enumerator found it necessary to clarify or correct them.

If the self-enumeration form was not filled or if the answers were incomplete or inconsistent, the enumerator obtained the information through direct interview and recorded it directly on a form specially designed for electronic data processing by FOSDIC (see section on "Collection and processing of data"). The enumerator was instructed to read the questions from the FOSDIC schedule and record the replies as given. If the respondent did not understand a question, the enumerator was to explain it based on his understanding of the definitions and instructions in the Enumerator's Reference Manual.

Information for vacant units was obtained by the enumerator largely from owners, landlords, neighbors, or other persons presumed to know the situation, and the enumerator recorded the information directly on the FOSDIC schedules. A few items, in-

cluding condition of unit, were always determined by the enumerator on the basis of his observation and, therefore, did not appear among the self-enumeration items.

The intent of the questions on the two types of forms is the same, although the wording of some of the questions and response categories on the direct-interview forms is briefer than on the self-enumeration forms. Furthermore, the direct-interview forms omit many of the instructions given on the self-enumeration forms. The differences, however, probably do not contribute in any important way to a lack of comparability of the data obtained from the two methods of enumeration. Through the use of the self-enumeration forms, respondents were given more uniform explanations of some of the questions than would have been possible in direct interview. On the other hand, the less detailed wording on the direct-interview forms was supplemented by the instructions given to the enumerator.

The questions and the response categories used in self-enumeration compared with those used by the enumerator in direct interview are exhibited in Volume I of the 1960 Housing reports. For population items, the wording on the self-enumeration forms is exhibited in chapter C of Volume I of the 1960 Population reports.

⁴ An urbanized area contains at least one city (or "twin central cities") of 50,000 inhabitants or more in 1960, as well as the surrounding densely settled incorporated places and unincorporated areas.

2-unit structures, comparability may be affected slightly by the method of enumerating semidetached structures in 1950. Comparability between 1950 and 1960 data may also be affected by the change in concept from dwelling unit to housing unit.

Year structure built.—"Year built" refers to the date the original construction of the structure was completed, not to any later remodeling, addition, or conversion. For trailers, the model year was assumed to be the year built.

The figures on the number of units built during a given period relate to the number of units in existence at the time of enumeration. The figures reflect the number of units constructed during a given period plus the number created by conversions in structures originally built during that period, minus the number lost in structures built during the period. Losses occur through demolition, fire, flood, disaster; change to nonresidential use; or merger to fewer housing units.

Data on year built are more susceptible to errors of response and nonreporting than data on many of the other items. In most cases, the information was given according to memory or estimates of the occupants of the structure or of other persons who had lived in the neighborhood a long time.

Statistics in this volume on the number of new units, according to the data on year built, may differ from figures on new construction collected in the Components of Inventory Change program which employed specialized procedures for collecting the data. (Statistics on new construction units for selected SMSA's, the four regions, and the United States are published in 1960 *Census of Housing, Volume IV, Components of Inventory Change, Part 1A, 1950-1959 Components.*)

Data on year built were collected in the 1950 Census of Housing also. While the definitions were the same, comparability of the data may be affected by relatively large reporting errors.

CONDITION AND PLUMBING FACILITIES

Bathroom.—A housing unit has a complete bathroom if it has a flush toilet and bathtub (or shower) for the exclusive use of the occupants of the unit and also has piped hot water. (The requirement that the unit must have hot water was imposed during the processing of the data in an edit combining the items on bathrooms and water supply.) The facilities must be located inside the structure but need not be in the same room. A partial bathroom consists of toilet or bathing facilities for exclusive use, but not both. Units with a partial bathroom in addition to a complete bathroom are published in the category "more than 1." Units with only a partial bathroom are included in the published category "shared or none" together with units which share or lack bathroom facilities.

No data on number of bathrooms were provided in the 1950 Census; however, data were presented on the number of units with private flush toilet, private bathtub (or shower), and hot water.

Condition and plumbing combined.—Both the condition of a housing unit and the type of plumbing facilities are considered measures of the quality of housing. Categories representing various levels of housing quality have been established by presenting the items in combination.

To measure condition, the enumerator classified each housing unit in one of three categories: Sound, deteriorating, or dilapidated. The plumbing facilities that are combined with condition are: Water supply, toilet facilities, and bathing facilities.

Condition.—The enumerator determined the condition of the housing unit by observation, on the basis of specified criteria related to the extent or degree of visible defects. The types of defects the enumerator was to look for are associated with weather tightness, extent of disrepair, hazards to the physical

safety of the occupants, and inadequate or makeshift construction. These are signs of other structural defects which may be hidden. Defects which would be revealed only by a more careful inspection than is possible during a census, such as the presence of dampness or infestation, inadequate wiring, and rotted beams, are not included in the criteria for determining the condition of a unit.

Sound housing is defined as that which has no defects, or only slight defects which normally are corrected during the course of regular maintenance. Examples of slight defects are: Lack of paint; slight damage to porch or steps; slight wearing away of mortar between bricks or other masonry; small cracks in walls, plaster or chimney; cracked windows; slight wear on floors, doorsills, doorframes, window sills, or window frames; and broken gutters or downspouts.

Deteriorating housing needs more repair than would be provided in the course of regular maintenance. Such housing has one or more defects of an intermediate nature that must be corrected if the unit is to continue to provide safe and adequate shelter. Examples of intermediate defects are: Holes, open cracks, rotted, loose, or missing material over a small area of the foundation, walls, roof, floors, or ceilings; shaky or unsafe porch, steps, or railings; several broken or missing windowpanes; some rotted or loose window frames or sashes that are no longer rainproof or windproof; broken or loose stair treads, or broken, loose, or missing risers, balusters, or railings of inside or outside stairs; deep wear on doorsills, doorframes, outside or inside steps or floors; missing bricks or cracks in the chimney which are not serious enough to be a fire hazard; and makeshift chimney such as a stovepipe or other uninsulated pipe leading directly from the stove to the outside through a hole in the roof, wall, or window. Such defects are signs of neglect which lead to serious structural deterioration or damage if not corrected.

Dilapidated housing does not provide safe and adequate shelter and in its present condition endangers the health, safety, or well-being of the occupants. Such housing has one or more critical defects, or has a combination of intermediate defects in sufficient number or extent to require considerable repair or rebuilding, or is of inadequate original construction. The defects are either so critical or so widespread that the structure should be extensively repaired, rebuilt, or torn down.

Critical defects result from continued neglect or lack of repair, or indicate serious damage to the structure. Examples of critical defects are: Holes, open cracks, or rotted, loose, or missing material (clapboard siding, shingles, bricks, concrete, tile, plaster, or floorboards) over a large area of the foundation, outside walls, roof, chimney, or inside walls, floors, or ceilings; substantial sagging of floors, walls, or roof; and extensive damage by storm, fire, or flood.

To be classified as dilapidated on the basis of intermediate defects, a housing unit must have such defects in sufficient number or extent that it no longer provides safe and adequate shelter. No set number of intermediate defects is required.

Inadequate original construction includes: Shacks, huts, or tents; structures with makeshift walls or roofs, or built of packing boxes, scrap lumber, or tin; structures lacking foundations (walls rest directly on the ground); structures with dirt floors; and cellars, sheds, barns, garages, or other places not originally intended for living quarters and inadequately converted to such use.

The enumerator was instructed to judge each unit on the basis of its own characteristics, regardless of the neighborhood, age of the structure, or the race or color of the occupants. He was cautioned, for example, that although lack of paint is only a slight defect, this and other signs of neglect are warnings to look closely for more serious defects. Also, exterior covering may improve the appearance of a structure but not its condition, and the sturdiness of brick or other masonry walls can be misleading if there are defects in other parts of the structure.

In judging condition, the enumerator was instructed to determine whether the unit was dilapidated or not dilapidated. If the unit was "not dilapidated," then he was to classify it as "sound" or "deteriorating." The use of this technique in 1960 was designed to maintain comparability with the 1950 enumeration of condition when only the two categories, not dilapidated and dilapidated, were reported. The change to the three-way classification of condition in 1960 reflects the growing interest in housing quality and its importance in slum clearance and urban renewal programs.

The new classification and improved training techniques, designed to yield more adequate measures of potential urban blight, were developed by a group of experts working with the census staff. Field studies were conducted to explore the feasi-

bility of the three-way classification and to test various types of training instructions that would define and convey to enumerators the concepts of the three levels of condition. While the 1950 concept and definition of the category "dilapidated" were retained without change for 1960, additional study was required to develop the concepts and terminology for the two other categories.

The enumerator was provided with detailed written instructions and with photographs illustrating the levels of condition. In addition, audio-visual techniques were used in training the enumerator. A filmstrip of photographs in color depicted various types of defects and a recorded narrative explained how to determine the classification of condition on the basis of these defects. (Photographs and instructions from the Enumerator's Reference Manual are reproduced in the United States Summary of Volume I of the 1960 Housing reports.)

Although detailed oral and written instructions and visual aids were provided, it was not possible to achieve uniform results in applying the criteria for determining the condition of a unit. Data on condition for small areas, which depend on the work of only a few enumerators, may have a wider margin of relative error than data for larger areas, which are based on the work of a number of enumerators.

The 1960 and 1950 definitions of "dilapidated" are considered comparable, since the basic 1950 concept of dilapidation was retained in 1960. The 1960 concepts of "sound" and "deteriorating" combined are comparable with the 1950 concept "not dilapidated." It is possible, however, that the change in categories introduced an element of difference between the 1960 and 1950 statistics.

Plumbing facilities.—The facilities referred to are water supply, toilet facilities, and bathing facilities. A unit has piped hot water even though the hot water is not supplied continuously; for example, it may be supplied only at certain times of the day, week, or year. A unit has a flush toilet if it is inside the structure and available for the use of the occupants of the unit. A unit has a bathtub or shower if either facility, supplied with piped water (not necessarily hot water), is inside the structure and available for the use of the occupants of the unit.

The category "with all plumbing facilities" consists of units which have piped hot and cold water inside the structure, and flush toilet and bathtub (or shower) inside the structure for the exclusive use of the occupants of the unit.

The category "lacking some or all facilities" consists of units which do not have all the plumbing facilities specified above. Included in this category are units without piped water, flush toilet, or bath inside the structure; units whose occupants share toilet or bathing facilities with the occupants of another housing unit; and units with only cold water.

Facilities are for *exclusive use* if they are used only by the occupants of the one housing unit, including lodgers or other unrelated persons living in the housing unit. Facilities are *shared* if they are used by occupants of two or more housing units, or if they would be shared with the occupants of a unit now vacant. Shared facilities may be inside one of the units in the structure or may be centrally located where they can be reached by occupants of all units that share them.

Facilities are located *inside the structure* if they are located inside the same structure as the housing unit. They may be located within the housing unit itself, or they may be located in a hallway or in a room used by occupants of several units. It may even be necessary to go outdoors to reach that part of the structure in which the facilities are located. Facilities in the basement or on an enclosed porch, or enclosed by partitions on an otherwise open porch, are "inside the structure." Facilities on an open porch (for example, piped water) are "outside the structure."

The concepts used for plumbing facilities for the 1960 Census are the same as those used for the 1950 Census. If the 1960 categories of "sound" and "deteriorating" are combined, the category "with all plumbing facilities" compares with the 1950 category "not dilapidated, with private toilet and bath, and hot running water."

In the cross-tabulations for vacant available units, tables 9 and 10, the figures on plumbing facilities apply only to sound and deteriorating units; data for dilapidated vacant units are not presented in this report. In table 8, the plumbing facilities refer to bathtub (or shower) inside the structure and flush toilet inside the structure. Units with shared facilities must have piped water inside the structure (not necessarily piped hot water). Units with no bathing and toilet facilities may or may not have piped water inside the structure.

EQUIPMENT

Air conditioning.—Air conditioning is defined as the cooling of air by refrigerating apparatus. Excluded are evaporative coolers and fans or blowers which are not connected to a refrigerating apparatus. A room unit is an individual air conditioner designed to cool one room. A central system is an installation which air conditions a number of rooms. In an apartment building, a central system usually provides air conditioning for all the apartments. The statistics are expressed in terms of the number of housing units with air conditioning; they do not reflect the number of air conditioning installations.

Air conditioning was not included in the 1950 Census.

Automobiles available.—The data on automobiles available apply to passenger automobiles, including station wagons, owned or regularly used by any of the occupants of the housing unit. Passenger cars were to be counted if they were owned by a member of the household or if they were regularly used and ordinarily kept at home, such as some company cars. Not to be counted were taxis, pickups or larger trucks, and dismantled or dilapidated cars in an early stage of being junked. The statistics do not reflect the number of automobiles privately owned or the number of households owning one or more automobiles.

Data on automobiles were not collected in censuses prior to 1960.

Heating equipment.—"Steam or hot water" refers to a central heating system in which heat from steam or hot water is delivered through radiators or heating coils. "Warm air furnace" refers to a central system which provides warm air through ducts leading to the various rooms.

"Floor, wall, or pipeless furnace" includes permanently installed heating units which deliver warm air to the room directly above the furnace or to the room (or rooms) on one or both sides of the wall in which the furnace is installed. These devices do not have ducts leading to other rooms.

"Built-in electric units" are heating units which are permanently installed in floors, walls, or ceilings. Heat pumps are included in this category.

"Other means with flue" describes stoves, radiant gas heaters, fireplaces, and other equipment connected to a chimney or flue which carries off the smoke or fumes. "Other means without flue" describes electric heaters, electric steam radiators, kerosene heaters, radiant gas heaters, and other portable or plug-in devices not connected to a chimney or flue.

In table 9, some of the categories have been combined. The category "steam, hot water, warm air furnace" represents a combination of steam or hot water and warm air furnaces. The category "other" represents a combination of floor, wall, or pipeless furnace; built-in electric units; other means with flue; and other means without flue.

The main type of heating equipment was to be reported even if it was temporarily out of order at the time of enumeration. If two types of heating equipment were used to about the same extent, the type appearing first in the sequence above was to be reported. For vacant units from which the heating equipment had been removed, the equipment used by the last occupants was to be reported. The statistics are expressed in terms of the number of housing units heated by the particular type of equipment; they do not reflect the number of heating installations.

Similar information on heating equipment was collected in the 1950 Census, except that the 1950 data were restricted to occupied units. Furthermore, the 1960 categories "warm air furnace" and "floor, wall, or pipeless furnace" must be combined to be comparable with the single 1950 category "warm air fur-

nace"; the 1960 category "other means with flue" is comparable with the 1950 "noncentral heating, with flue"; and the 1960 category "built-in electric units" combined with "other means without flue" is equivalent to "noncentral heating, without flue" in 1950.

FINANCIAL CHARACTERISTICS

Gross rent.—Gross rent is based on the information reported for contract rent and the cost of utilities and fuel. Contract rent is the monthly rent agreed upon regardless of any furnishings, utilities, or services that may be included. If the rent includes payment for a business unit or additional housing units, an estimate of the rent for the housing unit being enumerated is reported. Rent paid by lodgers or roomers in the household is disregarded.

The computed rent termed "gross rent" is the contract rent plus the average monthly cost of utilities (water, electricity, gas) and fuels such as wood, coal, and oil if these items are paid for by the renter (or paid for him by a relative, welfare agency, or friend) in addition to rent. Thus, gross rent eliminates differentials which result from varying practices with respect to the inclusion of utilities and fuel as part of the rental payment. If the utility or fuel bill covered a business unit or additional housing units, an amount was to be reported for the one housing unit being enumerated. If the renter had just moved into the unit, the cost of the item was to be estimated on the basis of recent experience and general knowledge of utility and fuel costs. Gross rent is not computed for units for which "no cash rent" is paid even though the renter may pay for utilities and fuel.

Rent data exclude rents for farm units in the rural portion of the area. This exclusion, however, does not apply to the data for places of 100,000 inhabitants or more (see chapters for individual SMSA's), since such places are classified as urban. (In Volume I of the 1960 Housing reports, the gross rent data for housing units with nonwhite household heads, Puerto Rican heads, and heads of Spanish surname erroneously included data for rural-farm units; statistics in Volume II supersede those in Volume I.)

The median rent is the theoretical rent which divides the distribution into two equal parts—one-half the cases falling below this rent and one-half the cases exceeding this rent. In the computation of the median, the lower limit of a class interval was assumed to stand at the beginning of the rent group and the upper limit at the beginning of the successive rent group. Medians were rounded to the nearest whole dollar. Renter-occupied units for which "no cash rent" is paid are excluded from the computation of the median.

Data on gross rent were published in 1950 for renter-occupied units, excluding farm units in rural areas. In 1950, however, an additional adjustment was made to gross rent; if the use of furniture was included in the contract rent, the reported estimated rent of the unit without furniture was used in the computation. In areas which include rural housing, comparability with 1960 data may also be affected by the change in the definition of farm residence.

The 1960 rent data indicate rent levels in 1960 and do not reflect changes since 1950 for identical units. In addition to new units coming on the market and withdrawals from the inventory, there have been changes in the renter-occupied inventory through shifts in tenure. Changes reflected by the 1960 and 1950 Census data are not comparable with changes in rents obtained by the Bureau of Labor Statistics for its Consumer Price Index. The data compiled by the Bureau of Labor Statistics represent changes in rent for essentially similar units with comparable services and facilities.

Gross rent data in this volume may differ from data in other reports of the 1960 Census of Housing because of differences in processing procedures.

Gross rent as percentage of income.—The yearly gross rent (monthly gross rent multiplied by 12) is expressed as a percentage of the total income in 1959 of the primary family or primary individual. The percentage was computed separately for each unit and was rounded to the nearest whole number. For gross rent, the specific dollar amounts were used in the computation, except that \$999 was assigned for monthly rentals of \$1,000 or more. For income, midpoints of the coded intervals were used—the intervals being in tens of dollars for incomes up to \$10,000 and in thousands of dollars for incomes over \$10,000, except that a mean of \$50,000 was assigned for incomes of \$25,000 or more. Units for which no cash rent is paid and units occupied by primary families or primary individuals who reported no income or a net loss comprise the category "not computed." Renter-occupied farm units in the rural portion of the area are excluded from the tabulations (see "Gross rent" above).

Similar data are available from the 1950 Census. The statements regarding comparability for gross rent and income separately apply as well to gross rent as a percentage of income. In the computation in 1950, the specific income amounts as well as the specific rental amounts were used; and the percentage was not computed when the gross rent was \$999 or more or when the income was less than \$100 or was \$10,000 or more.

Rent asked.—For vacant units, the monthly rent is the amount asked for the unit. The rent is the amount asked at the time of enumeration and may differ from the rent contracted for when the unit is occupied. The data are restricted to vacant units available for rent. Further, the data exclude rents for vacant units on places of 10 acres or more in the rural portion of the area. This exclusion, however, does not apply to the data for places of 100,000 inhabitants or more (see chapters for individual SMSA's), since such places are classified as urban. The median was computed in the same manner as median gross rent.

In table 10, the cross-tabulation of rent asked by utilities in rent provides information for two kinds of units—those for which the rent includes payment for all utilities and fuel, and those for which the rent includes only some or none of the utilities and fuel. (Refer to the section on "Gross rent" for discussion of utilities and fuel.)

Rent data for nonfarm vacant units are available from the 1950 Census. No information is available on the inclusion of utilities in the rent, however, and no cross-tabulations were published from the 1950 results for vacant units.

Sale price asked.—For vacant units, the sale price is the amount asked for the property including the structure and land. The price is the amount asked at the time of enumeration and may differ from the price at which the property is sold. The data are restricted to properties available for sale which have only one housing unit and no business. Units in multiunit structures were excluded from the tabulations. Units on places of 10 acres or more in the rural portion of the area also were excluded. The latter exclusion, however, does not apply to the data for places of 100,000 inhabitants or more (see chapters for individual SMSA's), since such places are classified as urban. The median was computed in the same manner as median value.

Data on sale price of nonfarm vacant units are available from the 1950 Census; however, no cross-tabulations were published from the 1950 results for vacant units.

Value.—Value is the respondent's estimate of how much the property would sell for on the current market (April 1960). Value data for owner-occupied units are restricted to units having only one housing unit in the property and no business. A business for this purpose is defined as a clearly recognizable commercial establishment such as a restaurant, store, or filling station. Units in multiunit structures and trailers were excluded from the tabulations. In all tables in Volume II except those for

places of 100,000 inhabitants or more, the value statistics reflect the exclusion of another group of units; for the rural portion of the area, units on farms and all units on places of 10 acres or more (whether farm or nonfarm units) were excluded. The values of such units are not provided because of heterogeneity in the use and size of the property.

A property generally consists of the house and the land on which it stands. The estimated value of the entire property including the land was to be reported, even if the occupant owned the house but not the land, or the property was owned jointly with another owner.

The median value of housing units is the theoretical value which divides the distribution into two equal parts—one-half the cases falling below this value and one-half the cases exceeding this value. In the computation of the median, the lower limit of a class interval was assumed to stand at the beginning of the value group and the upper limit at the beginning of the successive value group. Medians were rounded to the nearest hundred dollars.

In 1950, value data were published for nonfarm units (excluding trailers) with only one unit in the property and no business. In rural portions of the area, the 1950 value data excluded values for farm units but included nonfarm units on places of 10 acres or more.

Another difference between 1960 and 1950 statistics is the method of reporting value amounts. In 1960, respondents were asked to select an appropriate class interval, whereas in 1950 specific figures were given by the respondents. This difference is not believed to affect comparability of the data on value to an important extent, but may have affected comparability of the value-income ratio (see section on "Value-income ratio").

The 1960 value data indicate value levels in 1960 and do not reflect changes since 1950 for identical units. Besides additions through new construction and losses through demolition, there have been changes in the owner-occupied inventory through shifts in tenure.

Value-income ratio.—The value-income ratio is the quotient of the value of the housing unit divided by the total income in 1959 of the primary family or primary individual. The ratios were computed for the same owner-occupied units for which value was tabulated; thus, the statistics on value-income ratio reflect the exclusion of certain owner-occupied units. The ratio was computed separately for each unit and was rounded to the nearest tenth. In reporting value, respondents were asked to select an appropriate class interval. The midpoints of the intervals were used in the computation of the value-income ratio, except that a mean of \$3,500 was assigned for values less than \$5,000 and a mean of \$42,000 was assigned for values of \$35,000 or more. The intervals that were used are those specified in table 1, except that the upper intervals used were "\$25,000 to \$34,900" and "\$35,000 or more." For income, midpoints of the coded intervals were used—the intervals being in tens of dollars for incomes up to \$10,000 and in thousands of dollars for incomes over \$10,000, except that a mean of \$50,000 was assigned for incomes of \$25,000 or more. Units occupied by primary families or primary individuals who reported no income or net loss comprise the category "not computed."

Similar data are available from the 1950 Census results. The statements regarding comparability for value and income separately apply as well to value-income ratios. Moreover, the use of class intervals in 1960 rather than specific dollar amounts has introduced an element of difference between the 1960 and 1950 statistics on value-income ratios. In the computation in 1950, the specific values as well as the specific income amounts were used; and the ratio was not computed when value was less than \$100 or was \$99,900 or more, or when the income was less than \$100 or was \$10,000 or more.

HOUSEHOLD CHARACTERISTICS

Data on household characteristics are based on information reported for each member of the household. Each person was enumerated by name, and information was recorded on relationship to head, sex, age, marital status, income, and other population characteristics, as applicable.

Household.—A household consists of all the persons who occupy a housing unit. By definition, therefore, the count of occupied housing units is the same as the count of households. Differences may occur between reports, however, because of differences in processing procedures.

Head of household.—The head of the household is the person considered to be the head by the household members. However, if a married woman living with her husband is reported as the head, her husband is classified as the head for the purpose of census tabulations.

Household composition.—Each household in the group "male head, wife present, no nonrelatives" consists of the head, his wife, and other persons, if any, all of whom are related to him. A household was classified in this category if both the husband and wife were reported as members of the household even though one or both were temporarily absent on business or vacation, visiting, in a hospital, etc., at the time of the enumeration. The category "other male head" includes households with male head, wife present, with nonrelatives living with them; male heads who are married, but with wife absent because of separation or other reason where husband and wife maintain separate residences for several months or more; and male heads who are widowed, divorced, or single. "Female head" comprises all households with female heads regardless of their marital status. Included are female heads with no spouse and female heads whose husbands are living away from their families, as for example, husbands in the Armed Forces living on military installations.

Statistics for the three types of households defined above are presented for households having two or more persons. Households consisting of only one person are shown separately and not included in the subcategories "other male head" and "female head."

A similar classification under the subject "Sex and age of head of household" was provided in 1950. The categories differ, however, in that one-person households in the 1960 report are shown separately and are not included in the categories "other male head" and "female head," as in the 1950 report.

Nonrelative.—A nonrelative of the head is any member of the household who is not related to the household head by blood, marriage, or adoption. Lodgers (roomers, partners, wards, foster children) and resident employees are included as nonrelatives.

Primary family; primary individual.—The term "primary family" refers to the head of a household and all (one or more) persons in the household related to him by blood, marriage, or adoption. If the head lives alone or if no member of the household is related to him, the head constitutes a "primary individual." A household can contain only one primary family or primary individual.

Married couples related to the head of a family are included in the primary family and are not classified as separate families. A lodger, servant, or other person unrelated to the head is considered a member of the household but not of the primary family.

In the statistics on household composition, primary families are always included in one of the three major groups of two-or-more-person households. Primary individuals living alone are always tabulated as one-person households; primary individuals with nonrelatives living with them are tabulated as "other male head" or "female head."

Type of household.—The statistics on type of household are restricted to renter-occupied units in which specified facilities are shared or lacking (table 8). Households without nonrelatives are distinguished from those with nonrelatives. Each household in the group "male head, wife present—without nonrelatives" consists of the head, his wife, and other persons, if any, all of whom are related to him. (This category is identical with "male head, wife present, no nonrelatives" in the tabulations by household composition.) "Other household groups—without nonrelatives" consists of all other household groups in which all the persons are related to the head. Included are households consisting of the head (whether male or female) without a spouse but with one or more persons related to him, and households consisting of one person living alone. Households which consist of

the head (and related persons, if any) and one or more nonrelatives comprise the category "households with nonrelatives."

Data on "type of household" were tabulated in 1950; however, they were not tabulated for the same type of units as in 1960.

Income.—Income is the sum of money received, less losses, from wages or salary, self-employment, and sources other than earnings during the calendar year 1959. In this volume, the statistics are restricted to income received by the primary family or primary individual. The figures represent the amount of income received before deductions for personal income taxes, Social Security, bond purchases, union dues, etc. Wage or salary income is defined as the total money earnings received for work performed as an employee. It includes wages, salary, pay from Armed Forces, commissions, tips, piece-rate payments, and cash bonuses earned. Self-employment income is defined as net money income (gross receipts minus operating expenses) from a business, farm, or profession. Income other than earnings includes money received from sources such as net income (or loss) from rents or receipts from roomers or boarders; royalties; interest, dividends, and periodic income from estates and trust funds; Social Security benefits; pensions; veterans' payments, military allotments for dependents, unemployment insurance, and public assistance or other governmental payments; and periodic contributions for support from persons who are not members of the household, alimony, and periodic receipts from insurance policies or annuities.

Receipts from the following sources were not included as income: Money received from the sale of owned property; the value of income "in kind," such as food produced and consumed in the home or free living quarters; withdrawals of bank deposits; money borrowed; tax refunds; gifts and lump-sum inheritances or insurance benefits.

Since the unit of tabulation for income data in this volume is an occupied unit, the statistics relate to the income of the primary family or primary individual occupying the housing unit; that is, the sum of the income of the head of the primary family and all other members of the family 14 years old and over, or the income of the primary individual. Incomes of persons living in the unit but not related to the head of the household are not included in this sum. Although the time period covered by the income statistics is the calendar year 1959, the composition of the household refers to the time of enumeration. Thus, the income of the family does not include amounts received by persons who were members of the family during all or part of the calendar year 1959 if these persons no longer resided with the family at the time of the interview. On the other hand, family income includes amounts reported by related persons who did not reside with the family during 1959 but who were members of the family at the time of enumeration. For most of the families, however, the income reported was received by persons who were members of the family throughout 1959.

The median income is the amount which divides the distribution into two equal parts—one-half the cases falling below this income and one-half the cases exceeding this income. In the computation of the median, the lower limit of the class interval was assumed to stand at the beginning of the income group and the upper limit at the beginning of the successive income group. Medians were rounded to the nearest hundred dollars. For purposes of Volume II, the median was not computed when the midpoint of the distribution fell in the interval "less than \$2,000" (indicated as "2,000—" in the tables); if a more refined figure is

desired, the median may be computed using \$0 as the lower limit and assuming a continuous distribution.

Primary families and individuals with no income, as defined in the census, were included in the lowest income group (less than \$2,000). Many of these were living on income "in kind," savings, or gifts; or they were new primary families or individuals, or were families in which the sole breadwinner had recently died or left the household. However, many of the families and individuals who reported no income probably had some money income which was not recorded in the census.

As in all censuses and surveys of income, the figures are subject to errors of response and nonreporting. The amounts reported for income are frequently based not on records but on memory, and this factor probably produces underestimates, because the tendency is to forget minor or irregular sources of income. Other errors of reporting are due to misunderstanding of the income questions or to misrepresentation.

A possible source of understatement in the income figures was the assumption in the editing process that no income other than earnings was received by a person who reported the receipt of either wage or salary income or self-employment income but failed to report on the receipt of other money income. When there was a failure to report any income information for a person, the procedure used was to assign the reported income of a person with similar demographic characteristics.

The income data collected in the census cover money income only. The fact that some families (particularly those living on farms) receive an important part of their income in the form of housing, goods, or services, rather than in money, should be taken into consideration. In comparing income data for 1959 with earlier years, it should be noted that an increase or decrease in money income does not necessarily represent a comparable change in real income, because adjustments for changes in prices have not been made in this report.

In 1950, information on income similar to that requested in 1960 was obtained from a sample of persons 14 years old and over. If the sample person was the head of a family, the income questions were repeated for the other family members as a group in order to obtain the income of the whole family. In 1960, however, separate income data were requested from each person 14 years old and over in the sample. This change in procedure resulted in improved coverage of family income in 1960 and should be taken into consideration when comparing 1950 and 1960 data (see *United States Summary, 1960 Census of Population, Volume I, Characteristics of the Population*, or Series PC(1)-1C).

In the cross-tabulations of housing and household characteristics, 1950 Volume II results were restricted to nonfarm housing. The results in 1960 Volume II reflect farm and nonfarm housing, except for value and rent data.

The income data in this volume also differ from income data for families and unrelated individuals in the 1960 Population reports. As used in the Population reports, "families" refers to both primary and secondary families and "unrelated individuals" refers to primary and secondary individuals.

For several reasons, the income data reported in the census are not directly comparable with data which may be computed from other sources. Lack of comparability is attributable to differences in the types of income that are reported and the types of families and individuals to which the income applies.

COLLECTION AND PROCESSING OF DATA

The collection and processing of data in the 1960 Census differed in several important respects from the procedures used in the 1950 Census. Much of the information in 1960 was obtained by self-enumeration supplemented by followup procedures, in contrast with direct interview in 1950; a two-stage census was introduced in the more populous sections of the country, representing about four-fifths of the population; and much greater use was made of sampling than in 1950. A further innovation was the formal review of the enumerator's work during the course of enumeration. Finally, more extensive use was made of electronic equipment in 1960 to process the data and produce the final tables.

A summary of the procedures for collecting and processing the data is given below. Additional information on the 1960 practices is given in *1960 Census of Housing, Volume I, States and Small Areas* and in *United States Censuses of Population and Housing, 1960: Principal Data Collection Forms and Procedures*. A detailed description of the collection and processing of data is provided in a report entitled *Eighteenth Decennial Census: Procedural History*.

COLLECTION OF DATA

Data collection forms.—Two basic types of forms were used for collecting data in the 1960 Census—the Advance Census Report (ACR) and the Household Questionnaire which respondents were asked to fill, and the FOSDIC schedules which the enumerators used to record the information for processing.

Enumeration procedures.—Before the enumeration began, the Post Office Department delivered an ACR to households on postal delivery routes in all parts of the United States. This form contained questions which were to be answered for every occupied unit and every person. Household members were requested to fill the ACR and have it ready for the enumerator when he called. The enumerator transcribed the information from the ACR to a FOSDIC schedule, or entered it directly on the FOSDIC schedule during direct interview.

In the densely populated areas of the United States (with approximately 82 percent of the population and 35 percent of the land area), the enumerator who called for the ACR left a Household Questionnaire with each sample household. The questionnaire, which contained additional questions, was to be completed for the sample housing unit and for each person in the household and mailed to the local census office. Subsequently, the information was transcribed from the Household Questionnaire to a sample FOSDIC schedule. If the enumerator found that the questionnaire was incompletely filled or had not been mailed, or if he detected answers containing obvious inconsistencies, he obtained the information by personal visit or by telephone. In the populous areas, accordingly, the census data were obtained in a "two stage" procedure—the first stage for the collection of data for the 100-percent items and the second stage for the sample items.

In the remaining areas, a "single stage"⁵ procedure was used. When the enumerator picked up the ACR, he obtained the infor-

⁵ States enumerated completely on a single-stage basis were: Alaska, Arkansas, Hawaii, Idaho, Mississippi, Montana, Nevada, New Mexico, North Dakota, South Dakota, and Wyoming. States enumerated partly, but not completely, on a single-stage basis were: Alabama, Arizona, California, Colorado, Florida, Georgia, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Nebraska, Oklahoma, Oregon, Texas, Utah, Washington, and Wisconsin.

mation for the sample items by direct interview and recorded it directly on the sample FOSDIC schedule.

Methods of obtaining information.—Information was obtained through self-enumeration, direct interview, and observation. The following were self-enumeration items which appeared on the ACR: Persons in the household, relationship to head, sex, color, age, marital status, kitchen or cooking equipment, rooms, water supply, toilet and bathing facilities, and tenure. Value of property and monthly contract rent appeared on the ACR in the cities and places for which city block statistics are published (and on the Household Questionnaire elsewhere).

The remaining questions for occupied units appeared as self-enumeration items on the Household Questionnaire with the following exceptions. Condition of a unit was always determined by the enumerator through his observation; access to the unit was determined largely by the enumerator's observation; information required for identifying separate housing units was obtained through observation, direct interview, and self-enumeration; number of units in structure was determined by the enumerator largely on the basis of the listing of units in the census; and, in structures with five housing units or more, information on such items as year built, heating equipment, and heating fuel was to be obtained by the enumerator from the resident owner, manager, or janitor. Items not filled on the ACR or on the Household Questionnaire were enumerated by direct interview.

For vacant units, the enumerator obtained information largely from owners, landlords, neighbors, or other persons presumed to know about the unit and recorded the information directly on the FOSDIC schedule. For certain items, as discussed above for occupied units, the enumerator recorded the information on the basis of his observation.

Field review.—One of the important innovations in the 1960 Census was a series of regularly scheduled "field reviews" of the enumerator's work by his crew leader or by a field reviewer. This operation was designed to assure at an early stage of the work that the enumerator was performing his duties properly and had corrected any errors he had made.

PROCESSING OF DATA

Electronic processing.—Although mechanical equipment was widely used in the 1950 and 1960 Censuses in the editing, coding, and tabulating, the procedures adopted in 1960 differed in several important respects from those used in 1950. The procedural changes reflect, in large part, the shift from conventional mechanical equipment to electronic equipment, which had been applied to the processing on a relatively limited scale in 1950.

In 1960, information was recorded on FOSDIC schedules in the form of shaded circles. The schedules were microfilmed, and the markings were converted to signals on magnetic tape by FOSDIC (Film Optical Sensing Device for Input to Computers). The tape, in turn, was processed by an electronic computer, which was used extensively to edit, code, and tabulate the data. A high-speed electronic printer printed the numbers, captions (column heads), and stubs on the final tables.

In 1950, the enumerator recorded the information by marking a precoded checkbox or writing in the entries. Punchcards were prepared, and conventional mechanical equipment was used for the most part to edit, code, and tabulate the data (practically all the housing items, but only some of the population items,

were edited and coded mechanically). For 1950 Housing Volume II, however, electronic equipment was used to tabulate the data, and the tables were typed manually.

The extensive use of electronic equipment in the 1960 Census insured a more uniform and more flexible edit than could have been accomplished manually or by less intricate mechanical equipment. In the editing operations, improved techniques of allocation for nonresponses and inconsistencies were feasible. Moreover, the use of FOSDIC completely eliminated the card-punching operation and thereby removed one important source of error in the published statistics; the new types of error introduced by the use of FOSDIC were probably minor by comparison.

In 1960, practically all the editing and coding operations for housing characteristics were accomplished by electronic equipment. For household characteristics, however, a few items were edited and coded manually. These were items which required the reading of written entries rather than the reading of marked circles. For example, the numerical entries for income were recorded as coded amounts on the FOSDIC schedule in a manual operation. The coding of relationship and the identification of the members of the family group also were accomplished manually.

Editing.—In a mass statistical operation, such as a national census, human and mechanical errors occasionally arise in one form or another, such as failure to obtain or record the required information, recording information in the wrong place, misreading position markings, and skipping pages. These were kept to a tolerable level by means of operational control systems. Nonresponses and inconsistencies were eliminated by using the computer to assign entries and correct inconsistencies. In general, few assignments or corrections were required, although the amount varied by subject and by enumerator. Whenever information was missing for a housing item, an allocation procedure was used to assign an acceptable entry, thereby eliminating the need for a "not reported" category in the tabulations. An acceptable entry was assigned also when the reported information was inconsistent. A similar procedure was followed when information was missing or was unacceptable for a population item (although for some population items, shown in other reports, a "not reported" category was retained).

The assignment of an acceptable entry was based on related information reported for the housing unit or person or on information reported for a similar unit or person in the immediate neighborhood. For example, if tenure for an occupied unit was omitted but a rental amount was reported, the computer automatically edited tenure to "rented." On the other hand, if the unit was reported as "rented" but the amount of rent was missing, the computer automatically assigned the rent that was reported for the preceding renter-occupied unit.

Another technique is illustrated by the procedure used in the assignment of wage or salary income, which is one of the components of total income. The computer stored reported wage or salary income, by sex, age, color, major occupation group, and number of weeks worked in 1959. Each stored income was retained in the computer only until a succeeding person having the same characteristics and having income reported was processed through the computer. The stored income was assigned to the next person whose wage or salary income was unknown and who otherwise had the same characteristics.

The extent of the allocations for nonresponse or for inconsistency is shown for States, urban places by size group, and other areas in appendix tables in Volume I of the 1960 Housing

reports and in chapters B, C, and D of Volume I of the 1960 Population reports.

Specific tolerances were established for the number of computer allocations acceptable for a given area. If the number was beyond tolerance, the data were rejected and the original schedules were re-examined to determine the source of the error. Correction and reprocessing were undertaken as necessary and feasible.

In earlier censuses, assignments of acceptable entries for nonresponses and inconsistencies also were based on related information given for the units. In the absence of related information for the unit, either an acceptable code was assigned or the item was "not reported." If a code was assigned, it was made on the basis of distributions of characteristics from previous censuses or surveys. The use of electronic equipment in 1960 improved upon the procedure by making feasible the use of information implicit in the 1960 data being tabulated.

ACCURACY OF DATA

As explained earlier, information was obtained through self-enumeration and direct-interview procedures. The forms used by household members for self-enumeration were necessarily different from those used by the enumerator in direct interview, although the intent of the two types of forms was the same. The use of self-enumeration forms allowed household members to see the questions as worded and to consult household records to ascertain the correct answers. Furthermore, the self-enumeration forms provided brief but uniform explanations for some of the items and called attention to the response categories in a uniform manner. The less detailed wording for some items on the FOSDIC schedules was supplemented by the training and instructions given to the enumerators. The enumerators received standardized and formal training in canvassing their districts, in interviewing, and in filling out the schedules. During training, they used a workbook which contained practice exercises and illustrations. Filmstrips with accompanying narratives and recorded interviews were also used. The fine distinctions made in the instructions, however, were probably not ordinarily conveyed to the respondents, unless they asked the enumerator for clarification of a particular point.

In the processing of the data, careful efforts were made at each step to reduce the effects of errors. Errors occurred through failure to obtain complete and consistent information, incorrect recording of information on the FOSDIC schedules or incorrectly transferring it from the self-enumeration forms, faulty marking of the FOSDIC schedules, and the like.

Some of the innovations in the 1960 Census reduced errors and others produced a more consistent quality of results. It is believed that the innovations have improved the quality of the results compared with those of earlier censuses but, at the same time, have introduced an element of difference in the statistics. According to present plans, one or more reports evaluating the statistics of the 1960 Census will be published later.

Statistics in this volume may differ from those in other reports from the 1960 Census of Housing where different tabulation rates were used for the same item (for example, some characteristics of vacant units are based on the 25-percent sample in this volume and the 100-percent enumeration in Volume I of the 1960 Housing reports; differences result from sampling variability and from separate processing of the 100-percent and the sample tabulation forms). Similarly, in this volume, data for a particular item may differ somewhat from table to table, or within a table, because different sampling rates were used.

SAMPLE DESIGN AND SAMPLING VARIABILITY

SAMPLE DESIGN

Although some information was collected for all housing units and all persons, all the data in this volume are based on samples. The unit of sampling was the housing unit and all its occupants. The enumerator was instructed to assign a Sample Key letter (A, B, C, or D) to each housing unit sequentially in the order in which he first visited the unit, whether or not he completed the interview. Each enumerator was given a random key letter to start his assignment, and the order of canvassing was indicated in advance, although the instructions allowed some latitude in the order of visiting and listing individual units at an address. Each housing unit which was assigned the key letter "A" was designated as a sample unit for housing data, and all persons enumerated in the unit were included in the sample for population data.

Information for the housing units and persons in the sample was recorded on sample FOSDIC schedules. For population data, there was one form of the sample FOSDIC schedule. For housing data, every fifth sample FOSDIC schedule carried questions comprising the 5-percent sample items; the other four-fifths carried questions comprising the 20-percent sample items. Items which appeared on both types of housing schedules comprised the 25-percent sample items. Thus, the population sample consisted of approximately 25 percent of the population, while the housing sample was 5, 20, or 25 percent of the housing units.

Although the sampling procedure did not automatically insure an exact 25-percent sample of persons or 25-, 20-, or 5-percent sample of housing units in each area, the sample design was unbiased if carried through according to instructions. Generally, for large areas, the deviation from the estimated sample size was found to be quite small. Biases may have arisen, however, when the enumerator failed to follow his listing and sampling instructions exactly. The 25-percent sample as finally processed comprised 24.53 percent of the total occupied housing units and 24.71 percent of the total population in the United States as a whole.

Sample rate for tabulation.—In this volume, an item may be cross-tabulated with other items having different sample rates. When an item was classified by an item with smaller sample size, the cross-tabulation necessarily was based on the smaller sample. Table A gives the sample rate at which an item was tabulated for the specific tables in which it appears. For example, gross rent in table 2 was tabulated from the 5-percent sample when classified by number of bedrooms or by air conditioning, from the 20-percent sample when classified by number of bathrooms, and from the 25-percent sample when classified by number of persons.

In all tables except table 6, the figures on the total lines for "owner occupied units," "renter occupied units," "vacant available for sale" and "vacant available for rent" are based on the 25-percent sample. In table 6, the figures are based on the 20-percent sample except for the two columns designated "trailers," which are based on the 25-percent sample. For subjects within a table that are based on the same sample rate as the total line, the figures in each distribution add to the total; for subjects tabulated at a sample rate different from the total line, the distributions may not add to the total. (For value and rent data, there are certain restrictions; see section on "Consistency in tables.")

Medians are computed from distributions based on weighted samples tabulated at the rate indicated for the subject in table A.

TABLE A.—SAMPLE RATE FOR TABULATION

[Rate shown in percent]

Table No.	Subject	Cross-tabulated by—					
		Air conditioning	Auto-mobiles	Bath-rooms	Bed-rooms	Units in structure ¹	All other items ²
1	Value.....	5	-----	20	5	-----	25
2	Gross rent.....	5	-----	20	5	-----	25
3	Income in 1959.....	5	5, 20	-----	-----	-----	25
4	Condition and plumbing.....	-----	-----	-----	-----	-----	25
5	Rooms.....	-----	-----	20	5	-----	25
6	Units in structure ¹	-----	-----	-----	-----	-----	20
6	Elevator in structure ⁴	-----	-----	-----	-----	-----	20
7	Household composition.....	-----	-----	-----	-----	20	25
8	Facilities shared or lacking.....	-----	-----	-----	-----	20	25
9	Duration of vacancy.....	-----	-----	-----	5	20	25
10	Rent asked.....	-----	-----	-----	5	20	25

¹ Trailers tabulated from 25-percent sample for tables 6, 7, and 8; trailers not included in tables 9 and 10.

² Including total lines for owner-occupied, renter-occupied, and vacant units. Total counts of owner-occupied, renter-occupied, and vacant units are major components of ratio estimate groups and are essentially in agreement with the 100-percent counts.

³ Tabulated from 20-percent sample in places of 50,000 inhabitants or more, and from 5-percent sample elsewhere.

⁴ Published only in the chapters of Volume II which contain data for urban places of 100,000 inhabitants or more.

Note.—Sample rate for subjects in tables 11 to 14 and tables 15 to 18 in the chapters in which these tables are presented are the same as in tables 1 to 4.

The median is not shown where the base is smaller than a specified size. If the cross-tabulation is based on the 25-percent sample, the median is not shown where the base is less than 200 housing units; if the cross-tabulation is based on the 20-percent sample, the minimum base is 250 housing units; if the cross-tabulation is based on the 5-percent sample, the minimum base is 1,000 housing units. For example, median gross rent in the last column of table 2 is not shown for units with 3 persons if the total number of 3-person units is less than 200; median rent is not shown for units with 1 bedroom unless the total number of 1-bedroom units is 1,000 or more.

RATIO ESTIMATION

The statistics based on samples of housing units are estimates that were developed through the use of a ratio estimation procedure. Essentially this procedure was carried out for each of seven groups of housing units in each area, separately for the 25-, 20-, and 5-percent samples.⁶ The groups are as follows:

Group	Tenure, color, vacancy status
1	Owner occupied, white
2	Owner occupied, nonwhite
3	Renter occupied, white
4	Renter occupied, nonwhite
5	Vacant, available for sale only
6	Vacant, available for rent
7	Vacant, other

⁶ Estimates of characteristics of the housing units from the sample for a given area are produced using the formula:

$$x' = \sum_{i=1}^7 \frac{x_i}{y_i} Y_i$$

where x' is the estimate of the characteristic for the area obtained through the use of the ratio estimation procedure,

x_i is the count of sample housing units with the characteristic for the area in one (i) of the 7 groups,

y_i is the count of all sample housing units for the area in the same one of the 7 groups, and

Y_i is the complete count of housing units for the area in the same one of the 7 groups.

For each of the seven groups, the ratio of the complete count to the sample count of housing units in the group was determined. Each sample housing unit in the group was assigned an integral weight so the sum of the weights would equal the complete count for the group. For example, if the ratio for a group was 4.2, one-fifth of the housing units (selected at random) within the group were assigned a weight of 5, and the remaining four-fifths, a weight of 4. The use of such a combination of integral weights rather than a single fractional weight was adopted to avoid the complications involved in rounding. For the 25-percent sample tabulations, where there were fewer than 50 housing units in the complete count in a group or where the resulting weight would be over 16, groups were, in general, combined in a specific order to satisfy these two conditions. Similar procedures with appropriate values were used for the 20- and 5-percent sample tabulations.

The ratio estimation procedure was generally applied to the smallest complete geographic area for which any data were to be published. Thus, an area may be a city, tract within a city, SMSA, urbanized area, or the rural part of a county.

The ratio estimates achieve some of the gains of stratification which would have been obtained if the sample had been stratified by the groups for which separate ratio estimates were computed. The net effect is a reduction in the sampling variability and in the bias of many statistics below that which would be obtained by weighting the results of the 25-percent sample by a uniform factor of 4 (the 20-percent sample by 5 or the 5-percent sample by 20). The reduction in sampling variability is trivial for some items and substantial for others.

SAMPLING VARIABILITY

Standard error of numbers and percentages.—The figures in this volume are subject to sampling variability, which can be estimated by using factors from table D in conjunction with table B for absolute numbers and with table C for percentages.⁷ These tables do not reflect the effect of response variance, processing variance, or bias arising in the collection, processing, and estimation steps; estimates of the magnitude of some of these factors in the total error are being prepared and will be published at a later date. The chances are about 2 out of 3 that the difference due to sampling variability between an estimate based on a sample and the figure that would have been obtained from a complete count is less than the standard error. The chances are about 19 out of 20 that the difference is less than twice the standard error and about 99 out of 100 that it is less than 2½ times the standard error. The amount by which the estimated standard error must be multiplied to obtain other odds deemed more appropriate can be found in most statistical textbooks.

Table B shows estimates proportionate to the standard errors of estimated numbers of housing units. Table C shows estimates proportionate to the standard errors of estimated percentages of housing units. Table D provides a factor by which the estimates proportionate to the standard errors shown in tables B and C should be multiplied to adjust for the combined effect of the sample design and the estimation procedure.

To estimate a standard error for a given characteristic, locate in table A the sample rate used in the tabulation; from table D, determine the factor that applies to the distribution or cross-tabulation according to the sample rate used; multiply this factor by the estimate proportionate to the standard error given for the number as shown in table B. The product of this multiplication is the approximate standard error. Similarly, to obtain an estimate of the standard error of a percentage, multiply the figure

as shown in table C by the factor from table D. For most estimates, linear interpolation in tables B and C will provide reasonably accurate results.

TABLE B.—ESTIMATES PROPORTIONATE TO STANDARD ERROR OF ESTIMATED NUMBER

[Range of 2 chances out of 3; for factors to be applied, see table D and text]

Estimated number ¹	Estimate proportionate to standard error	Estimated number ¹	Estimate proportionate to standard error
50.....	15	5,000.....	110
100.....	20	10,000.....	160
250.....	30	15,000.....	190
500.....	40	20,000.....	220
1,000.....	50	25,000.....	250
2,500.....	80	50,000.....	350

¹ For estimated numbers larger than 50,000, the relative errors are somewhat smaller than for 50,000.

TABLE C.—ESTIMATES PROPORTIONATE TO STANDARD ERROR OF ESTIMATED PERCENTAGE

[Range of 2 chances out of 3; for factors to be applied, see table D and text]

Estimated percentage	Base of percentage					
	500	1,000	2,500	10,000	25,000	50,000
2 or 98.....	1.3	0.9	0.5	0.3	0.1	0.1
5 or 95.....	2.0	1.4	0.9	0.4	0.2	0.2
10 or 90.....	2.8	2.0	1.2	0.6	0.3	0.2
25 or 75.....	3.8	2.7	1.5	0.7	0.4	0.3
50.....	4.4	3.1	1.6	0.8	0.5	0.3

TABLE D.—FACTOR FOR ESTIMATING STANDARD ERRORS

[Factors below are applicable to the standard errors of distributions in the column and line totals. To estimate factor for cross-classifications, see procedure in text. Refer to table A for sample rate applying to data tables]

Subject	Factor ¹ if sample rate is—		
	5 percent	20 percent	25 percent
Access, cooking, plumbing:			
Facilities shared or lacking.....		1.4	1.2
Occupancy characteristics:			
Persons.....		1.0	0.8
Persons per room.....			0.8
Year moved into unit.....		1.4	1.2
Duration of vacancy.....	3.0	1.4	1.2
Structural characteristics:			
Bedrooms.....	2.8		
Elevator in structure ²		1.2	
Rooms.....	2.6	1.2	1.0
Trailer.....			1.2
Units in structure ²		1.2	
Year structure built.....		1.2	1.0
Condition and plumbing facilities:			
Bathrooms.....		1.2	
Condition and plumbing.....		1.4	1.2
Equipment:			
Air conditioning.....	2.8		
Automobiles available.....	2.6	1.2	
Heating equipment.....		1.2	1.0
Financial characteristics:			
Gross rent.....	2.6	1.2	1.0
Gross rent as percentage of income.....			1.2
Rent asked.....	3.0	1.4	1.2
Sale price asked.....			1.2
Utilities in rent.....			1.2
Value.....	2.6	1.2	1.0
Value-income ratio.....			1.2
Household characteristics:			
Household composition.....		1.2	1.0
Income.....	3.0	1.4	1.2
Type of household.....			1.0

¹ Factor applies to tables 1 to 14. (Factor should be somewhat larger for subjects in tables 15 to 18 in the chapters in which these tables are presented.)

² Published only in the chapters of Volume II which contain data for urban places of 100,000 inhabitants or more.

³ For the category "1 unit" in structure in tables 6 and 7, use the factor 1.8.

⁷ These estimates of sampling variability are based on calculations from a preliminary sample of the 1960 Census results. Further estimates are being calculated and will be available at a later date.

In table D, the factors as shown apply to the standard errors of estimates in the simple distribution of the item which appears in the "total" column or in the "total" line of a table. For statistics within the cross-classifications, however, the factors shown in table D for the two subjects being cross-classified (at the sample rate indicated in table A) may differ. When this occurs, the larger of the two factors from table D should be used.

Illustration: Table 2 shows renter-occupied housing units classified by gross rent and also by number of bedrooms. Assume the table shows a total of 7,500 housing units with gross rent of \$80 to \$99, a total of 12,000 housing units with 2 bedrooms, and 4,000 housing units with 2 bedrooms in the gross rent class of \$80 to \$99.

According to table A, the total line for renter-occupied housing units in table 2 is based on the 25-percent sample. Table D shows that the factor for gross rent from the 25-percent sample is 1.0. Table B shows that the estimate proportionate to the standard error of an estimate of 7,500 housing units is about 135. The factor of 1.0 times 135, or 135, means that the chances are approximately 2 out of 3 that the results of a complete count would not differ by more than 135 from the estimated 7,500. It also follows that there is only about 1 chance in 100 that the results of a complete count would differ by as much as 338, that is, by $2\frac{1}{2}$ times the standard error.

Data on bedrooms in table 2 are based on the 5-percent sample according to table A. The factor for bedrooms (for the 5-percent sample) shown in table D is 2.8. Table B shows that the estimate proportionate to the standard error of an estimated 12,000 housing units is about 172. The factor of 2.8 times 172, or 482, is the estimated standard error of the total number of housing units having 2 bedrooms.

For the 4,000 units with 2 bedrooms in the gross rent class \$80 to \$99, table A shows that a cross-tabulation of this type is

based on the 5-percent sample. The factor for gross rent when based on the 5-percent sample is 2.6 according to table D, and the factor for bedrooms is 2.8; for the cross-tabulation, the larger factor (2.8) should be used. Table B shows that the estimate proportionate to the standard error for an estimate of 4,000 housing units is about 98. Applying the factor of 2.8 to the 98 gives an estimated standard error of approximately 274.

Standard error of differences.—The standard errors estimated from tables B and C (using factors from table D) are not directly applicable to differences between two estimates. The estimates of sampling errors are to be applied differently in the following three situations:

1. For a difference between two sample estimates (e.g., one from 1960 and the other from 1950, or both from the same census year), the standard error is approximately the square root of the sum of the squares of the standard error of each estimate considered separately. This formula will represent the standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. If, however, there is a high positive correlation between the two characteristics, the formula will overestimate the true standard error.

2. For a difference between two sample estimates, one of which represents a subclass of the other (e.g., units in sound condition and having all plumbing facilities as a subclass of all units in sound condition), the difference should be considered as the sample estimate; the standard error of this difference may be obtained directly.

3. For a difference between a sample estimate and one based on a complete count, the standard error of the difference is identical with the standard error of the estimate based on the sample.