

**Military Quarters**—Includes military personnel living in barracks and dormitories on base, transient quarters on base for temporary residents (both civilian and military), and military ships. However, patients in military hospitals receiving treatment for chronic diseases or who have no usual home elsewhere, and persons being held in military stockades were included

**Agriculture Workers Dormitories**—Includes persons in migratory farm workers' camps on farms, bunkhouses for ranch hands, and other dormitories on farms.

**Other Workers' Dormitories**—Includes persons in logging camps, construction workers' camps, firehouse dormitories, job-training camps, and nonfarm migratory workers' camps.

**Emergency Shelters for Homeless Persons (with sleeping facilities) and Visible in Street Locations**—Includes persons enumerated during the "Shelter-and-Street-Night" operation primarily on March 20-21, 1990. Enumerators were instructed not to ask if a person was "homeless." If a person was at one of the locations below on March 20/21, the person was counted as described below. (For more information on the "Shelter-and-Street-Night" operation, see Appendix D, Collection and Processing Procedures.) This category is divided into four classifications:

**Emergency Shelters for Homeless Persons (with sleeping facilities)**—Includes persons who stayed overnight on March 20, 1990, in permanent and temporary emergency housing, missions, Salvation Army shelters, hotels, and motels used *entirely* for homeless persons regardless of the nightly rate charged; rooms in hotels and motels used *partially* for the homeless; and similar places known to have persons who have no usual home elsewhere staying overnight. If not shown separately, shelters and group homes which provide *temporary* sleeping facilities for runaway, neglected, and homeless children are included in this category in data products.

**Shelters for Runaway, Neglected, and Homeless Children**—Includes shelters/group homes which provide *temporary* sleeping facilities for juveniles.

**Visible in Street Locations**—Includes street blocks and open public locations designated before March 20, 1990 by municipio and community officials as places where the homeless congregate at night. *All* persons found at predesignated street sites from 2 a.m. to 4 a.m. and leaving abandoned or boarded-up buildings from 4 a.m. to 8 a.m. on March 21, 1990, were enumerated during "street"

enumeration, except persons in uniform such as police and persons engaged in obvious money-making activities other than begging or panhandling. Enumerators were instructed not to ask if a person was "homeless."

This cannot be considered a complete count of all persons living on the streets because those

missed as were persons moving about or in places not identified by local officials. It is also possible that persons with homes could have been included in the count of "visible in street locations" if they were present when the enumerator did the enumeration of a particular block.

Predesignated street sites include street corners, parks, bridges, persons emerging from abandoned and boarded-up buildings, noncommercial campsites, all-night restaurants, emergency hospital waiting rooms, airports, and bus stations.

**Shelters for Abused Women (Shelters Against Domestic Violence or Family Crisis Centers)**—Includes community-based homes or shelters that provide domiciliary care for women who have sought shelter from family violence and who may have been physically abused. Most shelters also provide care for children of abused women. These shelters may provide social services, meals, psychiatric treatment, and counseling. In some census products, "shelters for abused women" are included in the category "other noninstitutional group quarters."

**Dormitories for Nurses and Interns in General and Military Hospitals**—Includes group quarters for nurses and other staff members. It excludes patients.

**Crews of Maritime Vessels**—Includes officers, crew members, and passengers of Maritime U.S. flag vessels. All ocean-going ships are included.

**Staff Residents of Institutions**—Includes staff residing in group quarters on institutional grounds who provide formally-authorized, supervised care or custody for the institutionalized population.

**Other Nonhousehold Living Situations**—Includes persons with no usual home elsewhere enumerated during transient, or "T-Night" enumeration at YMCA's, YWCA's, commercial and government-run campgrounds, campgrounds at racetracks, fairs, and carnivals, and similar transient sites.

**Living Quarters for Victims of Natural Disasters**—Includes living quarters for persons temporarily displaced by natural disasters.

**Limitation of the Data**—Two types of errors can occur in the classification of “types of group quarters”:

1. *Misclassification of Group Quarters*—During the 1990 Special Place Prelist operation, the enumerator determined the type of group quarters associated with each special place in their assignment. The enumerator used the Alphabetical Group Quarters Code List and Index to the Alphabetical Group Quarters Code List to assign a two-digit code number followed by either an “I,” for institutional, or an “N,” for noninstitutional to each group quarters. In 1990, unacceptable group quarter codes were edited. (For more information on editing of unacceptable data, see Appendix C, Accuracy of the Data.)
2. *No Classification (unknowns)*—Improvements were made to the 1990 Alphabetical Group Quarters Code List; that is, the inclusion of more group quarters categories and an “Index to the Alphabetical Group Quarters Code List.”

**Shelter and Street Night (S-Night)**—For the 1990 census “Shelter-and-Street-Night” operation, persons well-hidden, moving about, or in locations enumerators did not visit were likely to be missed. The number of people missed will never be known; thus, the 1990 census cannot be considered to include a definitive count of Puerto Rico’s total homeless population. It does, however, give an idea of relative differences among areas of Puerto Rico. Other components were counted as part of regular census procedures.

The count of persons in shelters and visible on the street could have been affected by many factors. How much the factors affected the count can never be answered definitively, but some elements include:

1. How well enumerators were trained and how well they followed procedures.
2. How well the list of shelter and street locations given to the Census Bureau by the local government reflected the actual places that homeless persons stay at night.
3. Municipios were encouraged to open temporary shelters for census night. Thus, people who may have been on the street otherwise were in shelters the night of March 20, so that the ratio of shelter-to-street population could be different than usual.
4. The media occasionally interfered with the ability to do the count.
5. How homeless people perceived the census and whether they wanted to be counted or feared the census and hid from it.

**Comparability**—For the 1990 census, the definition of institutionalized persons was revised so that the definition of “care” only includes persons under organized

medical or formally-authorized, supervised care or custody. As a result of this change to the institutional definition, maternity homes are classified as noninstitutional rather than institutional group quarters as in previous censuses. The following types of other group quarters are classified as institutional rather than noninstitutional group quarters: “halfway houses (operated for correctional purposes)” and “wards in general and military hospitals for patients who have no usual home elsewhere,” which includes maternity, neonatal, pediatric, military, and surgical wards of hospitals, other-purpose wards of hospitals, and wards for persons with infectious diseases. These changes should not significantly affect the comparability of data with earlier censuses because of the relatively small number of persons involved.

As in 1980, 10 or more unrelated persons living together were classified as living in noninstitutional group quarters. In 1970, the criteria was six or more unrelated persons.

Several changes also have occurred in the identification of specific types of group quarters. For the first time, the 1990 census identifies separately the following types of correctional institutions: persons in halfway houses (operated for correctional purposes), military stockades and jails, and police lockups. In 1990, tuberculosis hospitals or wards are included with hospitals for the chronically ill; in 1980, they were shown separately. For 1990, the noninstitutional group quarters category, “Group homes” is further classified as: group homes for drug/ alcohol abuse; maternity homes (for unwed mothers), group homes for the mentally ill, group homes for the mentally retarded, and group homes for the physically handicapped. Persons living in communes, foster-care homes, and job corps centers are classified with “Other group homes” only if 10 or more unrelated persons share the unit; otherwise, they are classified as housing units.

In 1990, workers’ dormitories were classified as group quarters regardless of the number of persons sharing the dorm. In 1980, 10 or more unrelated persons had to share the dorm for it to be classified as a group quarters. In 1960, data on persons in military barracks were shown only for men. In subsequent censuses, they include both men and women.

In 1990 census data products, the phrase “inmates of institutions” was changed to “institutionalized persons.” Also, persons living in noninstitutional group quarters were referred to as “other persons in group quarters,” and the phrase “staff residents” was used for staff living in institutions.

In 1990, there are additional institutional categories and noninstitutional group quarters categories compared with the 1980 census. The institutional categories added include “hospitals and wards for drug/ alcohol abuse” and “military hospitals for the chronically ill.” The noninstitutional group quarters categories added

include emergency shelters for homeless persons; shelters for runaway, neglected, and homeless children; shelters for abused women; and visible in street locations. Each of these noninstitutional group quarters categories was enumerated on March 20-21, 1990, during the "Shelter and Street Night" operation. (For more information on the "Shelter-and-Street-Night" operation, see Appendix D, Collection and Processing Procedures.)

## HOUSEHOLD TYPE AND RELATIONSHIP

### Household

A household includes all the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

In 100-percent tabulations, the count of households or householders always equals the count of occupied housing units. In sample tabulations, the numbers may differ as a result of the weighting process.

**Persons Per Household**—A measure obtained by dividing the number of persons in households by the number of households (or householders).

### Relationship to Householder

**Householder**—The data on relationship to householder were derived from answers to questionnaire item 2, which was asked of all persons in housing units. One person in each household is designated as the householder. In most cases, this is the person, or one of the persons, in whose name the home is owned, being bought, or rented and who is listed in column 1 of the census questionnaire. If there is no such person in the household, any adult household member 15 years old and over could be designated as the householder.

Households are classified by type according to the sex of the householder and the presence of relatives. Two types of householders are distinguished: a family householder and a nonfamily householder. A family householder is a householder living with one or more persons related to him or her by birth, marriage, or adoption. The householder and all persons in the household related to him or her are family members. A nonfamily householder is a householder living alone or with nonrelatives only.

**Spouse**—Includes a person married to and living with a householder. This category includes persons in formal marriages, as well as persons classified as "consensually married."

The number of spouses is equal to the number of "married-couple families" or "married-couple households" in 100-percent tabulations. The number of spouses, however, is generally less than half of the number of "married persons with spouse present" in sample tabulations, since more than one married couple can live in a household, but only spouses of householders are specifically identified as "spouse." For sample tabulations, the number of "married persons with spouse present" includes married-couple subfamilies and married-couple families.

**Child**—Includes a son or daughter by birth, a stepchild, or adopted child of the householder, regardless of the child's age or marital status. The category excludes sons-in-law, daughters-in-law, and foster children.

**Natural-Born or Adopted Son/ Daughter**—A son or daughter of the householder by birth, regardless of the age of the child. Also, this category includes sons or daughters of the householder by legal adoption, regardless of the age of the child. If the stepson/ stepdaughter of the householder has been legally adopted by the householder, the child is still classified as a stepchild.

**Stepson/ Stepdaughter**—A son or daughter of the householder through marriage but not by birth, regardless of the age of the child. If the stepson/ stepdaughter of the householder has been legally adopted by the householder, the child is still classified as a stepchild.

**Own Child**—A never-married child under 18 years who is a son or daughter by birth, a stepchild, or an adopted child of the householder. In certain tabulations, own children are further classified as living with two parents or with one parent only. Own children of the householder living with two parents are by definition found only in married-couple families.

In a subfamily, an "own child" is a never-married child under 18 years of age who is a son, daughter, stepchild, or an adopted child of a mother in a mother-child subfamily, a father in a father-child subfamily, or either spouse in a married-couple subfamily.

"Related children" in a family include own children and all other persons under 18 years of age in the household, regardless of marital status, who are related to the householder, except the spouse of the householder. Foster children are not included since they are not related to the householder.

**Other Relatives**—In tabulations, includes any household member related to the householder by birth, marriage, or adoption, but not included specifically in another relationship category. In certain detailed tabulations, the following categories may be shown:

**Grandchild**—The grandson or granddaughter of the householder.

**Brother/Sister**—The brother or sister of the householder, including stepbrothers, stepsisters, and brothers and sisters by adoption. Brothers-in-law and sisters-in-law are included in the "Other relative" category on the questionnaire.

**Parent**—The father or mother of the householder, including a stepparent or adoptive parent. Fathers-in-law and mothers-in-law are included in the "Other relative" category on the questionnaire.

**Other Relatives**—Anyone not listed in a reported category above who is related to the householder by birth, marriage, or adoption (brother-in-law, grandparent, nephew, aunt, mother-in-law, daughter-in-law, cousin, and so forth).

**Nonrelatives**—Includes any household member, including foster children not related to the householder by birth, marriage, or adoption. The following categories may be presented in more detailed tabulations:

**Roomer, Boarder, or Foster Child**—Roomer, boarder, lodger, and foster children or foster adults of the householder.

**Housemate or Roommate**—A person who is not related to the householder and who shares living quarters primarily in order to share expenses.

**Unmarried Partner/Compañero**—A person who is not related to the householder, who shares living quarters, and who has a close personal relationship with the householder.

**Other Nonrelatives**—A person who is not related by birth, marriage, or adoption to the householder and who is not described by the categories given above.

When relationship is not reported for an individual, it is imputed according to the responses for age, sex, and marital status for that person while maintaining consistency with responses for other individuals in the household. (For more information on imputation, see Appendix C, Accuracy of the Data.)

### **Unrelated Individual**

An unrelated individual is: (1) a householder living alone or with nonrelatives only, (2) a household member who is not related to the householder, or (3) a person living in group quarters who is not an inmate of an institution.

## **Family Type**

A family consists of a householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption. All persons in a household who are related to the householder are regarded as members of his or her family. A household can contain only one family for purposes of census tabulations. Not all households contain families since a household may comprise a group of unrelated persons or one person living alone.

Families are classified by type as either a "married-couple family" or "other family" according to the sex of the householder and the presence of relatives. The data on family type are based on answers to questions on sex and relationship which were asked on a 100-percent basis.

**Married-Couple Family**—A family in which the householder and his or her spouse are enumerated as members of the same household.

**Other Family:**

**Male Householder, No Wife Present**—A family with a male householder and no spouse of householder present.

**Female Householder, No Husband Present**—A family with a female householder and no spouse of householder present.

**Persons Per Family**—A measure obtained by dividing the number of persons in families by the total number of families (or family householders).

### **Subfamily**

A subfamily is a married couple (husband and wife enumerated as members of the same household) with or without never-married children under 18 years old, or one parent with one or more never-married children under 18 years old, living in a household and related to, but not including, either the householder or the householder's spouse. The number of subfamilies is not included in the count of families, since subfamily members are counted as part of the householder's family.

Subfamilies are defined during processing of sample data. In selected tabulations, subfamilies are further classified by type: married-couple subfamilies, with or without own children; mother-child subfamilies; and father-child subfamilies.

Lone parents include people maintaining either one-parent families or one-parent subfamilies. Married couples include husbands and wives in both married-couple families and married-couple subfamilies.

## Unmarried-Partner/ Compañero Household

An unmarried-partner/ compañero household is a household other than a "married-couple household" that includes a householder and an "unmarried partner/ compañero." An "unmarried partner/ compañero" can be of the same sex or of the opposite sex of the householder. An "unmarried partner/ compañero" in an "unmarried partner/ compañero household" is an adult who is unrelated to the householder, but shares living quarters and has a close personal relationship with the householder.

## Unmarried-Couple Household

An unmarried-couple household is composed of two unrelated adults of the opposite sex (one of whom is the householder) who share a housing unit with or without the presence of children under 15 years old.

## Foster Children

Foster children are nonrelatives of the householder and are included in the category, "Roomer, boarder, or foster child" on the questionnaire. Foster children are identified as persons under 18 years old and living in households that have no nonrelatives 18 years old and over (who might be parents of the nonrelatives under 18).

## Stepfamily

A stepfamily is a "married-couple family" with at least one stepchild of the householder present, where the householder is the husband.

**Comparability**—The 1990 definition of a household is the same as that used in 1980. The 1980 relationship category "Son/daughter" has been replaced by two categories, "Natural-born or adopted son/daughter" and "Stepson/stepdaughter." "Grandchild" has been added as a separate category. The 1980 nonrelative categories: "Roomer, boarder" and "Roommate" have been replaced by the categories "Roomer, boarder, or foster child," "Housemate, roommate," and "Unmarried partner/compañero." The 1980 nonrelative category "Paid employee" has been dropped.

## INCOME IN 1989

The data on income in 1989 were derived from answers to questionnaire items 33 and 34. Information on money income received in the calendar year 1989 was requested from persons 15 years old and over. "Total income" is the algebraic sum of the amounts reported separately for wage or salary income; net nonfarm self-employment income; net farm self-employment income; interest, dividend, or net rental or royalty income;

Social Security or railroad retirement income; public assistance or welfare income; retirement or disability income; and all other income. "Earnings" is defined as the algebraic sum of wage or salary income and net income from farm and nonfarm self-employment. "Earnings" represent the amount of income received regularly before deductions for personal income taxes, Social Security, bond purchases, union dues, medicare deductions, etc.

Receipts from the following sources are not included as income: money received from the sale of property (unless the recipient was engaged in the business of selling such property); the value of income "in kind" from food stamps, public housing subsidies, medical care, employer contributions for persons, etc.; withdrawal of bank deposits; money borrowed; tax refunds; exchange of money between relatives living in the same household; gifts and lump-sum inheritances, insurance payments, and other types of lump-sum receipts.

## Income Type in 1989

The eight types of income reported in the census are defined as follows:

1. **Wage or Salary Income**—Includes total money earnings received for work performed as an employee during the calendar year 1989. It includes wages, salary, Armed Forces pay, commissions, tips, piece-rate payments, and cash bonuses earned before deductions were made for taxes, bonds, pensions, union dues, etc.
2. **Nonfarm Self-Employment Income**—Includes net money income (gross receipts minus expenses) from one's own business, professional enterprise, or partnership. Gross receipts include the value of all goods sold and services rendered. Expenses includes costs of goods purchased, rent, heat, light, power, depreciation charges, wages and salaries paid, business taxes (not personal income taxes), etc.
3. **Farm Self-Employment Income**—Includes net money income (gross receipts minus operating expenses) from the operation of a farm by a person on his or her own account, as an owner, renter, or sharecropper. Gross receipts include the value of all products sold, government farm programs, money received from the rental of farm equipment to others, and incidental receipts from the sale of wood, sand, gravel, etc. Operating expenses include cost of feed, fertilizer, seed, and other farming supplies, cash wages paid to farmhands, depreciation charges, cash rent, interest on farm mortgages, farm building repairs, farm taxes (not commonwealth and Federal personal income taxes), etc. The value of fuel, food, or other farm products used for family living is not included as part of net income.

4. **Interest, Dividend, or Net Rental Income**—Includes interest on savings or bonds, dividends from stockholdings or membership in associations, net income from rental of property to others and receipts from boarders or lodgers, net royalties, and periodic payments from an estate or trust fund.
5. **Social Security Income**—Includes Social Security pensions and survivors benefits and permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance, and railroad retirement insurance checks from the U.S. Government. Medicare reimbursements are not included.
6. **Public Assistance Income**—Includes: (1) supplementary security income payments made by Federal, commonwealth, or local welfare agencies to low income persons who are aged (65 years old or over), blind, or disabled; (2) aid to families with dependent children; (3) money received under the food stamps program; and (4) general assistance. Separate payments received for hospital or other medical care (vendor payments) are excluded from this item.
7. **Retirement or Disability Income**—Includes: (1) retirement pensions and survivor benefits from a former employer, labor union, or Federal, commonwealth, municipio, or other governmental agency; (2) disability income from sources such as worker's compensation; companies or unions; Federal, commonwealth, or local government; and the U.S. military; (3) periodic receipts from annuities and insurance; and (4) regular income from IRA and KEOGH plans.
8. **All Other Income**—Includes unemployment compensation, Veterans Administration (VA) payments, alimony and child support, contributions received periodically from persons not living in the household, military family allotments, net gambling winnings, and other kinds of periodic income other than earnings.

**Income of Households**—Includes the income of the householder and all other persons 15 years old and over in the household, whether related to the householder or not. Because many households consist of only one person, average household income is usually less than average family income.

**Income of Families and Persons**—In compiling statistics on family income, the incomes of all members 15 years old and over in each family are summed and treated as a single amount. However, for persons 15 years old and over, the total amounts of their own incomes are used. Although the income statistics covered the calendar year 1989, the characteristics of persons and the composition of families refer to the time of enumeration (April 1990). 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 1989 if these persons no longer resided with the family at the time of enumeration. Yet, family income amounts reported by related persons who did not reside with the family during 1989 but who were members of the family at the time of enumeration are included. However, the composition of most families was the same during 1989 as in April 1990.

**Median Income**—The median divides the income distribution into two equal parts, one having incomes above the median and the other having incomes below the median. For households and families, the median income is based on the distribution of the total number of units including those with no income. The median for persons is based on persons with income. The median income values for all households, families, and persons are computed on the basis of more detailed income intervals than shown in most tabulations. Median household or family income figures of \$20,000 or less are calculated using linear interpolation. For persons, corresponding median values of \$20,000 or less are also computed using linear interpolation. All other median income amounts are derived through Pareto interpolation. (For more information on medians and interpolation, see the discussion under "Derived Measures.")

**Mean Income**—This is the amount obtained by dividing the total income of a particular statistical universe by the number of units in that universe. Thus, mean household income is obtained by dividing total household income by the total number of households. For the various types of income the means are based on households having those types of income. "Per capita income" is the mean income computed for every man, woman, and child in a particular group. It is derived by dividing the total income of a particular group by the total population in that group.

Care should be exercised in using and interpreting mean income values for small subgroups of the population. Because the mean is influenced strongly by extreme values in the distribution, it is especially susceptible to the effects of sampling variability, misreporting, and processing errors. The median, which is not affected by extreme values, is, therefore, a better measure than the mean when the population base is small. The mean, nevertheless, is shown in some data products for most small subgroups because, when weighted according to the number of cases, the means can be added to obtained summary measures for areas and groups other than those shown in census tabulations.

**Limitation of the Data**—Since questionnaire entries for income frequently are based on memory and not on records, many persons tended to forget minor or irregular sources of income and, therefore, underreport their

income. Underreporting tends to be more pronounced for income sources that are not derived from earnings, such as Social Security, public assistance, or from interest, dividends, and net rental income.

There are errors of reporting due to the misunderstanding of the income questions such as reporting gross rather than net dollar amounts for the two questions on net self-employment income, which resulted in an overstatement of these items. Another common error is the reporting of identical dollar amounts in two of the eight type of income items where a respondent with only one source of income assumed that the second amount should be entered to represent total income. Such instances of overreporting had an impact on the level of mean nonfarm or farm self-employment income and mean total income published for the various geographical subdivisions of Puerto Rico.

Extensive computer editing procedures were instituted in the data processing operation to reduce some of these reporting errors and to improve the accuracy of the income data. These procedures corrected various reporting deficiencies and improved the consistency of reported income items associated with work experience and information on occupation and class of worker. For example, if persons reported they were self-employed on their own farm, not incorporated, but had reported wage and salary earnings only, the latter amount was shifted to net farm self-employment income. Also, if any respondent reported total income only, the amount was generally assigned to one of the type of income items according to responses to the work experience and class-of-worker questions. Another type of problem involved nonreporting of income data. Where income information was not reported, procedures were devised to impute appropriate values with either no income or

entries. (For more information on imputation, see Appendix C, Accuracy of the Data.)

In income tabulations for households and families, the lowest income group (e.g., less than \$1,000) includes units that were classified as having no 1989 income. Many of these were living on income "in kind," savings, or gifts, were newly created families, or families in which the sole breadwinner had recently died or left the household. However, many of the households and families who reported no income probably had some money income which was not recorded in the census.

The income data presented in the tabulations covers money income only. The fact that many farm families receive an important part of their income in the form of "free" housing and goods produced and consumed on the farm rather than in money should be taken into consideration in comparing the income of farm and nonfarm residents. Nonmoney income such as business expense accounts, use of business transportation and facilities, or partial compensation by business for medical and educational expenses was also received by some nonfarm residents. Many low income families also

receive income "in kind" from public welfare programs. In comparing income data for 1989 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, unless adjustments for changes in prices are made.

**Comparability**—The income data collected in the 1980 and 1970 censuses are similar to the 1990 census data, but there are variations in the detail of the questions. In 1980, income information for 1979 was collected from persons in approximately 19 percent of all housing units and group quarters. Each person was required to report:

- Wage or salary income
- Net nonfarm self-employment income
- Net farm self-employment income
- Interest, dividend, or net rental or royalty income
- Social Security income
- Public assistance income
- Income from all other sources

Between the 1980 and 1990 censuses, there were minor differences in the processing of the data. In both censuses, all persons with missing values in one or more of the detailed type of income items and total income were designated as allocated. Each missing entry was imputed either as a "no" or as a dollar amount. If total income was reported and one or more of the type of income fields was not answered, then the entry in total income generally was assigned to one of

characteristics of the income recipient. This person was designated as unallocated.

In 1980 and 1990, all nonrespondents with income not reported (whether heads of households or other persons) were assigned the reported income of persons with similar characteristics. (For more information on imputation, see Appendix C, "Accuracy of the Data.")

There was a difference in the method of computer derivation of aggregate income from individual amounts between the two census processing operations. In the 1980 census, income amounts less than \$100,000 were coded in tens of dollars, and amounts of \$100,000 or more were coded in thousands of dollars; \$5 was added to each amount coded in tens of dollars and \$500 to each amount coded in thousands of dollars. Entries of \$999,000 or more were treated as \$999,500 and losses of \$9,999 or more were treated as minus \$9,999. In the 1990 census, income amounts less than \$999,999 were keyed in dollars. Amounts of \$999,999 or more were treated as \$999,999 and losses of \$9,999 or more were treated as minus \$9,999 in all of the computer derivations of aggregate income.

In 1970, information on income in 1969 was obtained from all members in every fifth housing unit and small group quarters (less than 15 persons) and every fifth person in all other group quarters. Each person was required to report:

- Wage or salary income
- Net nonfarm self-employment income
- Net farm self-employment income
- Social Security or Railroad Retirement
- Public assistance or welfare payments
- Income from all other sources

If a person reported a dollar amount in wage or salary, net nonfarm self-employment income, or net farm self-employment income, the person was considered as unallocated only if no further dollar amounts were imputed for any additional missing entries.

In 1960, data on income were obtained from all members in every fourth housing unit and from every fourth person 14 years old and over living in group quarters. Each person was required to report wage or salary income, net self-employment income, and income other than earnings received in 1959. An assumption was made in the editing process that no other type of income was received by a person who reported the receipt of either wage and salary income or self-employment but who had failed to report the receipt of other money income.

For several reasons, the income data shown in census tabulations are not directly comparable with those that may be obtained from statistical summaries of income tax returns. Income, as defined for Federal tax purposes, differs somewhat from the Census Bureau concept. Moreover, the coverage of income tax statistics is different because of the exemptions of persons having small amounts of income and the inclusion of net capital gains in tax returns. Furthermore, members of some families file separate returns and others file joint returns; consequently, the income reporting unit is not consistently either a family or a person.

The earnings data shown in census tabulations are not directly comparable with earnings records of the Social Security Administration. The earnings record data for 1989 excluded the earnings of most civilian government employees, some employees of nonprofit organizations, workers covered by the Railroad Retirement Act, and persons not covered by the program because of insufficient earnings. Furthermore, earnings received from any one employer in excess of \$48,000 in 1989 are not covered by earnings records. Finally, because census data are obtained from household questionnaires, they may differ from Social Security Administration earnings record data, which are based upon employers' reports and the Federal income tax returns of self-employed persons.

## INDUSTRY, OCCUPATION, AND CLASS OF WORKER

The data on industry, occupation, and class of worker were derived from answers to questionnaire items 29, 30, and 31 respectively. These questions were asked of a sample of persons. Information on industry relates to the kind of business conducted by a person's employing organization; occupation describes the kind of work the person does on the job.

For employed persons, the data refer to the person's job during the reference week. For those who worked at two or more jobs, the data refer to the job at which the person worked the greatest number of hours. For unemployed persons, the data refer to their last job. The industry and occupation statistics are derived from the detailed classification systems developed for the 1990 census as described below. The *Classified Index of Industries and Occupations* provided additional information on the industry and occupation classification systems.

Respondents provided the data for the tabulations by writing on the questionnaires descriptions of their industry and occupation. These descriptions were coded by clerical staff in the Census Bureau's Jacksonville, FL processing office. The clerical staff converted the written questionnaire descriptions to codes by comparing these descriptions to entries in the *Alphabetical Index of Industries and Occupations*. For the industry code, these coders also referred to an Employer Name List (formerly called Company Name List). This list, prepared from the Standard Statistical Establishment List developed by the Census Bureau for the economic censuses and surveys, contained the names of business establishments and their Standard Industrial Classification (SIC) codes converted to population census equivalents. This list facilitated coding and maintained industrial classification comparability.

### Industry

The industry classification system developed for the 1990 census consists of 236 categories for employed persons, classified into 13 major industry groups. Since 1940, the industrial classification has been based on the Standard Industrial Classification Manual (SIC). The 1990 census classification was developed from the 1987 SIC published by the Office of Management and Budget, Executive Office of the President.

The SIC was designed primarily to classify establishments by the type of industrial activity in which they were engaged. However, census data, which were collected from households, differ in detail and nature from those obtained from establishment surveys. Therefore, the census classification systems, while defined in SIC terms, cannot reflect the full detail in all categories. There are several levels of industrial classification found in census products. For example, the 1990 CP-2, *Social*

and *Economic Characteristics* report includes 41 unique industrial categories, while the 1990 Summary Tape File 4 (STF 4) presents 72 categories.

## Occupation

The occupational classification system developed for the 1990 census consists of 501 specific occupational categories for employed persons arranged into 6 summary and 13 major occupational groups. This classification was developed to be consistent with the Standard Occupational Classification (SOC) Manual: 1980, published by the Office of Federal Statistical Policy and Standards, U.S. Department of Commerce. Tabulations with occupation as the primary characteristic present several levels of occupational detail. The most detailed tabulations are shown in special 1990 tape files on occupation. This product contains all 501 occupational categories.

Some occupation groups are related closely to certain industries. Operators of transportation equipment, farm operators and workers, and private household workers account for major portions of their respective industries of transportation, agriculture, and private households. However, the industry categories include persons in other occupations. For example, persons employed in agriculture include truck drivers and bookkeepers; persons employed in the transportation industry include mechanics, freight handlers, and payroll clerks; and persons employed in the private household industry include occupations such as chauffeur, gardener, and secretary.

## Class of Worker

The data on class of worker were derived from answers to questionnaire item 31. The information on class of worker refers to the same job as a respondent's industry and occupation and categorizes persons according to the type of ownership of the employing organization. The class of worker categories are defined as follows:

**Private Wage and Salary Workers**—Includes persons who worked for wages, salary, commission, tips, pay-in-kind, or piece rates for a private for profit employer or a private not-for-profit, tax-exempt or charitable organization. Self-employed persons whose business was incorporated are included with private wage and salary workers because they are paid employees of their own companies. Some tabulations present data separately for these subcategories: "For profit," "Not for profit," and "Own business incorporated."

Employees of foreign governments, the United Nations, or other formal international organizations were classified as "Private-not-for-profit."

**Government Workers**—Includes persons who were employees of any municipal, commonwealth, or Federal governmental unit, regardless of the activity of the particular agency. For some tabulations, the data were presented separately for the three levels of government.

**Self-Employed Workers**—Includes persons who worked for profit or fees in their own unincorporated business, profession, or trade, or who operated a farm.

**Unpaid Family Workers**—Includes persons who worked 15 hours or more without pay in a business or on a farm operated by a relative.

**Salaried/ Self-Employed**—In tabulations that categorize persons as either salaried or self-employed, the salaried category includes private and government wage and salary workers; self-employed includes self-employed persons and unpaid family workers.

The industry category, "Public administration," is limited to regular government functions such as legislative, judicial, administrative, and regulatory activities of governments. Other government organizations such as schools, hospitals, liquor stores, and bus lines are classified by industry according to the activity in which they are engaged. On the other hand, the class of worker government categories include all government workers.

Occasionally respondents supplied industry, occupation, or class of worker descriptions which were not sufficiently specific for precise classification or did not report on these items at all. Some of these cases were corrected through the field editing process and during the coding and tabulation operations. In the coding operation, certain types of incomplete entries were corrected using the *Alphabetical Index of Industries and Occupations*. For example, it was possible in certain situations to assign an industry code based on the occupation reported.

Following the coding operations, there was a computer edit and an allocation process. The edit first determined whether a respondent was in the universe which required an industry and occupation code. The codes for the three items (industry, occupation, and class of worker) were checked to ensure they were valid and were edited for their relation to each other. Invalid and inconsistent codes were either blanked or changed to a consistent code.

If one or more of the three codes were blank after the edit, a code was assigned from a "similar" person based on other items such as age, sex, education, farm or nonfarm residence, and weeks worked. If all the labor force and income data also were blank, all these economic items were assigned from one other person who provided all the necessary data.

**Comparability**—Comparability of industry and occupation data was affected by a number of factors, primarily the systems used to classify the questionnaire responses. For both the industry and occupation classification systems, the basic structures were generally the same from 1940 to 1970, but changes in the individual categories limited comparability of the data from one census to another. These changes were needed to recognize the "birth" of new industries and occupations, the "death" of others, and the growth and decline in existing industries and occupations, as well as, the desire of analysts and other users for more detail in the presentation of the data. Probably the greatest cause of incomparability is the movement of a segment of a category to a different category in the next census. Changes in the nature of jobs and respondent terminology, and refinement of category composition made these movements necessary.

In the 1990 census, the industry classification had minor revisions to reflect recent changes to the SIC. The 1990 occupational classification system is essentially the same as that for the 1980 census. However, the conversion of the census classification to the SOC in 1980 meant that the 1990 classification system was less comparable to the classifications used prior to the 1980 census.

Other factors that affected data comparability included the universe to which the data referred (in 1970, the age cutoff for labor force was changed from 14 years to 16 years); how the industry and occupation questions were worded on the questionnaire (for example, important changes were made in 1970); improvements in the coding procedures (the Employer Name List technique was introduced in 1960); and how the "not reported" cases are handled. Prior to 1970, they were placed in the residual categories, "Industry not reported" and "Occupation not reported." In 1970, an allocation process was introduced that assigned these cases to major groups. In 1990, as in 1980, the "Not reported" cases were assigned to individual categories. Therefore, the 1980 and 1990 data for individual categories included some numbers of persons who were tabulated in a "Not reported" category in previous censuses.

The following publications contain information on the various factors affecting comparability and are particularly useful for understanding differences in the occupation and industry information from earlier censuses: U.S. Bureau of the Census, *Changes Between the 1950 and 1960 Occupation and Industry Classifications With Detailed Adjustments of 1950 Data to the 1960 Classifications*, Technical Paper No. 18, 1968; U.S. Bureau of the Census, *1970 Occupation and Industry Classification Systems in Terms of their 1960 Occupation and Industry Elements*, Technical Paper No. 26, 1972; and U.S. Bureau of the Census, *The Relationship Between the 1970 and 1980 Industry and Occupation Classification*

*Systems*, Technical Paper No. 59, 1988. For citations for earlier census years, see the 1980 Census of Population report, PC80-1-D, *Detailed Population Characteristics*.

The 1990 census introduced an additional class of worker category for "private not-for-profit" employers. This category is a subset of the 1980 category "employee of private employer" so there is no comparable data before 1990. Also in 1990, employees of foreign governments, the United Nations, etc., are classified as "private not-for-profit," rather than Federal Government as in 1970 and 1980. While in theory, there was a change in comparability, in practice, the small number of U.S. residents working for foreign governments made this change negligible.

Comparability between the statistics on industry and occupation from the 1990 census and statistics from other sources is affected by many of the factors described in the section on "Employment Status." These factors are primarily geographic differences between residence and place of work, different dates of reference, and differences in counts because of dual job holding. Industry data from population censuses cover all industries and all kinds of workers, whereas, data from establishments often excluded private household workers, government workers, and the self-employed. Also, the replies from household respondents may have differed in detail and nature from those obtained from establishments.

Occupation data from the census and data from government licensing agencies, professional associations, trade unions, etc., may not be as comparable as expected. Organizational listings often include persons not in the labor force or persons devoting all or most of their time to another occupation; or the same person may be included in two or more different listings. In addition, relatively few organizations, except for those requiring licensing, attained complete coverage of membership in a particular occupational field.

## JOURNEY TO WORK

### Place of Work

The data on place of work were derived from answers to questionnaire item 23, which was asked of persons who indicated in question 22 that they worked at some time during the reference week. (For more information, see discussion under "Reference Week.")

Data were tabulated for workers 16 years and over; that is, members of the U.S. Armed Forces and civilians who were at work during the reference week. Data on place of work refer to the geographic location at which workers carried out their occupational activities during the reference week. The place of work (city, town, or village) was asked as well as the municipio, Puerto Rico,

State, or foreign country. If the person's employer operated in more than one location, the location or branch where the respondent worked was requested.

Persons who worked at more than one location during the reference week were asked to report the one at which they worked the greatest number of hours. Persons who regularly worked in several locations each day during the reference week were requested to give the location at which they began work each day. For cases in which daily work did not begin at a central place each day, the person was asked to provide as much information as possible to describe the area in which he or she worked most during the reference week.

In some tabulations, place-of-work locations may be defined as "in area of residence" and "outside area of residence." The area of residence may vary from table to table or even within a table, and refers to the particular area or areas shown. For example, in a table that provides data for municipios, "in area of residence" refers to persons who worked in the same municipio in which they lived, while "outside area of residence" refers to persons whose workplace was located in a municipio different from the one in which they lived. Similarly, in a table that provides data for several types of areas, such as Puerto Rico and its individual metropolitan areas (MA's), municipios, and places, the place-of-work data will be variable and is determined by the geographic level (Puerto Rico, MA, county, or place) shown in each section of the tabulation.

In tabulations that present data for an MSA/PMSA, place-of-work locations are specified to show the main destinations of workers living in the MSA/PMSA. (For more information on metropolitan areas (MA's), see Appendix A, Area Classifications.) All place-of-work locations are identified with respect to the boundaries of the MSA/PMSA as "inside MSA/PMSA" or "outside MSA/PMSA." Locations within the MSA/PMSA are further divided into each central city, and each municipio or municipio balance. Selected large incorporated places also may be specified as places of work. Locations outside the MSA/PMSA are specified if they are important commuting destinations for residents of the MSA/PMSA, and may include adjoining MSA/PMSA's and their central cities, their component municipios, large incorporated places, or municipios, cities, or other geographic areas outside any MA.

In tabulations for some MSA/PMSA's, place-of-work locations may be identified as "areas" (e.g., Area 1, Area 5, Area 12, etc.). Such areas consist of groups of places, census designated places, or municipios that have been identified as unique place-of-work destinations. In tabulations that present data for census tracts outside MA's, place-of-work locations are defined as "in municipio of residence" and "outside municipio of residence."

In selected areas, census designated places (CDP's) may appear in the tabulations as places of work. The

accuracy of place-of-work data for CDP's may be affected by the extent to which their census names were familiar to respondents, and by coding problems caused by similarities between the CDP name and the names of other geographic jurisdictions in the same vicinity.

Place-of-work data may show a few workers who made unlikely daily work trips (e.g., workers who lived in Puerto Rico and worked in New York). This result is attributable to persons who worked during the reference week at a location that was different from their usual place of work, such as persons away from home on business.

**Comparability**—The wording of the question on place of work was substantially the same in the 1990 census as it was in 1980 although street address and ZIP Code were not asked in the 1990 census, due to changing data needs. Data on place of work from the 1990 census are based on the full census sample, while data from the 1980 census were based on only about one-half of the full sample.

For the 1980 census, nonresponse or incomplete responses to the place-of-work question were not allocated, resulting in the use of "not reported" categories in the 1980 publications. However, for the 1990 census, when place of work was not reported or the response was incomplete, a work location was allocated to the person based on their means of transportation to work, travel time to work, industry, and location of residence and workplace of others. The 1990 publications, therefore, do not contain a "not reported" category for the place-of-work data.

Comparisons between 1980 and 1990 census data on the gross number of workers in particular commuting flows, or the total number of persons working in an area, should be made with extreme caution. Any apparent increase in the magnitude of the gross numbers may be due solely to the fact that for 1990 the "not reported" cases have been distributed among specific place-of-work destinations, instead of tallied in a separate category as in 1980.

**Limitation of the Data**—The data on place of work relate to a reference week; that is, the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed by enumerators. This week is not the same for all respondents because the enumeration was not completed in 1 week. However, for the majority of persons, the reference week for the 1990 census is the last week in March 1990. The lack of a uniform reference week means that the place-of-work data reported in the census will not exactly match the distribution of workplace locations observed or measured during an actual workweek.

The place-of-work data are estimates of persons 16 years old and over who were both employed and at work during the reference week (including persons in the U.S. Armed Forces). Persons who did not work

during the reference week but had jobs or businesses from which they were temporarily absent due to illness, bad weather, industrial dispute, vacation, or other personal reasons are not included in the place-of-work data. Therefore, the data on place of work understate the total number of jobs or total employment in a geographic area during the reference week. It also should be noted that persons who had irregular, casual, or unstructured jobs during the reference week may have erroneously reported themselves as not working.

The location where the individual worked most often during the reference week was recorded on the census questionnaire. If a worker held two jobs, only data about the primary job (the one worked the greatest number of hours during the preceding week) was requested. Persons who regularly worked in several locations during the reference week were requested to give the location at which they began work each day. For cases in which daily work was not begun at a central place each day, the person was asked to provide as much information as possible to describe the area in which he or she worked most during the reference week.

### **Means of Transportation to Work**

The data on means of transportation to work were derived from answers to questionnaire item 24a, which was asked of persons who indicated in question 22 that they worked at some time during the reference week. (For more information, see discussion under "Reference Week.") Means of transportation to work refers to the principal mode of travel or type of conveyance that the person usually used to get from home to work during the reference week.

Persons who used different means of transportation on different days of the week were asked to specify the one they used most often, that is, the greatest number of days. Persons who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip. The category, "Car, truck, or van," includes workers using a car (including company cars but excluding taxicabs), a truck of one-ton capacity or less, or a van. The category, "Public transportation," includes workers who used a bus, público, ferryboat, or taxicab even if each mode is not shown separately in the tabulation. The category, "Other means," includes workers who used a mode of travel which is not identified separately within the data distribution. The category, "Other means," may vary from table to table, depending on the amount of detail shown in a particular distribution.

The means of transportation data for some areas may show workers using modes of public transportation that are not available in those areas (e.g., ferryboat riders in an area where there actually is no ferryboat service). This result is largely due to persons who worked during the reference week at a location that was

different from their usual place of work (such as persons away from home on business in an area where ferryboat service was available) and persons who used more than one means of transportation each day but whose principal means was unavailable where they lived (for example, residents of nonmetropolitan areas who drove to the fringe of an MA and took the bus most of the distance to work).

### **Private Vehicle Occupancy**

The data on private vehicle occupancy were derived from answers to questionnaire item 24b. This question was asked of persons who indicated in question 22 that they worked at some time during the reference week and who reported in question 24a that their means of transportation to work was "Car, truck, or van." (For more information, see discussion under "Reference Week.")

Private vehicle occupancy refers to the number of persons who usually rode to work in the vehicle during the reference week. The category, "Drove alone," includes persons who usually drove alone to work as well as persons who were driven to work by someone who then drove back home or to a nonwork destination. The category, "Carpooled," includes workers who reported that two or more persons usually rode to work in the vehicle during the reference week.

**Persons Per Car, Truck, or Van**—This is obtained by dividing the number of persons who reported using a car, truck, or van to get to work by the number of such vehicles that they used. The number of vehicles used is derived by counting each person who drove alone as one vehicle, each person who reported being in a two-person carpool as one-half vehicle, each person who reported being in a three-person carpool as one-third vehicle, and so on, and then summing all the vehicles.

### **Time Leaving Home to Go to Work**

The data on time leaving home to go to work were derived from answers to questionnaire item 25a. This question was asked of persons who indicated in question 22 that they worked at some time during the reference week and who reported in question 24a that they worked outside their home. The departure time refers to the time of day that the person usually left home to go to work during the reference week. (For more information, see discussion under "Reference Week.")

### **Travel Time to Work**

The data on travel time to work were derived from answers to questionnaire item 25b. This question was asked of persons who indicated in question 22 that they

worked at some time during the reference week and who reported in question 24a that they worked outside their home. Travel time to work refers to the total number of minutes that it usually took the person to get from home to work during the reference week. The elapsed time includes time spent waiting for public transportation, picking up passengers in carpools, and time spent in other activities related to getting to work. (For more information, see discussion under "Reference Week.")

## MARITAL STATUS

The data on marital status were derived from answers to questionnaire item 5, which was asked of all persons. The marital status classification refers to the status at the time of enumeration. Data on marital status are tabulated only for persons 15 years old and over.

All persons were asked whether they were "now married," "consensually married," "widowed," "divorced," "separated," or "never married." Couples who live together (unmarried persons, consensually married persons) were allowed to report the marital status they considered the most appropriate.

**Never Married**—Includes all persons who have never been married, including persons whose only marriage(s)

**Ever Married**—Includes persons married at the time of enumeration (including those separated), widowed, or divorced.

**Now Married, Except Separated**—Includes persons whose current marriage has not ended through widowhood, divorce, or separation (regardless of previous marital history). In certain tabulations, currently married persons are further classified as "spouse present" or "spouse absent."

**Consensually Married**—Includes persons living in a marital union without a civil or religious matrimonial contract and are classified as "now married;" they are reported separately as "Consensually married." The category may also include couples who live together if they consider this category the most appropriate.

**Separated**—Includes persons legally separated or otherwise absent from their spouse because of marital discord. Included are persons who have been deserted or who have parted because they no longer want to live together but who have not obtained a divorce.

**Widowed**—Includes widows and widowers who have not remarried.

**Divorced**—Includes persons who are legally divorced and who have not remarried.

In selected sample tabulations, data for married and separated persons are reorganized and combined with information on the presence of the spouse in the same household.

**Now Married**—All persons whose current marriage has not ended by widowhood or divorce. This category includes persons defined above as "separated."

**Spouse Present**—Married persons whose wife or husband was enumerated as a member of the same household, including those whose spouse may have been temporarily absent for such reasons as travel or hospitalization.

**Spouse Absent**—Married persons whose wife or husband was not enumerated as a member of the same household. This category also includes all married persons living in group quarters.

**Separated**—Defined above.

**Spouse Absent, Other**—Married persons whose wife or husband was not enumerated as a member of the same household, excluding separated. Included is any person whose spouse was employed and living

U.S. Armed Forces.

Differences between the number of currently married males and the number of currently married females occur because of reporting differences and because some husbands and wives have their usual residence in different areas. In sample tabulations, these differences can also occur because different weights are applied to the individual's data. Any differences between the number of "now married, spouse present" males and females are due solely to sample weighting. By definition, the numbers would be the same.

When marital status was not reported, it was imputed according to the relationship to the householder and sex and age of the person. (For more information on imputation, see Appendix C, Accuracy of the Data.)

**Comparability**—The 1990 marital status definitions are the same as those used in 1980 with the exception of the term "never married" which replaces the term "single" in tabulations. A general marital status question has been asked in Puerto Rico in every census since 1910.

## MOBILITY LIMITATION STATUS

The data on mobility limitation status were derived from answers to questionnaire item 20a, which was asked of a sample of persons 15 years old and over.

Persons were identified as having a mobility limitation if they had a health condition that had lasted for 6 or more months and which made it difficult to go outside the home alone. Examples of outside activities on the questionnaire included shopping and visiting the doctor's office.

The term "health condition" referred to both physical and mental conditions. A temporary health problem, such as a broken bone that was expected to heal normally, was not considered a health condition.

**Comparability**—This was the first time that a question on mobility limitation was included in the census.

## PARENTS' PLACE OF BIRTH

The data on father's place of birth and mother's place of birth were derived from answers to questionnaire items 11a and 11b, which were asked on a sample basis. Persons whose parents were born outside Puerto Rico or the United States were asked to report each parents' country of birth according to the international boundaries as recognized by the United States government on April 1, 1990. Persons not reporting parents' place of birth were assigned the responses reported by a sibling or allocated the response of another person with similar characteristics. If parents' place of birth was allocated as outside Puerto Rico or the United States, they were not assigned a specific country of birth but were classified as "Born elsewhere, country not specified."

In most tabulations, selected countries of birth including the United States, are shown for the parents of persons born in Puerto Rico. For persons living in Puerto Rico in 1990 but born in the United States, the tabulations show the number of persons whose parents were born in Puerto Rico, the United States, or elsewhere.

**Comparability**—Data on parents' place of birth were not allocated for nonresponse in 1980.

## PLACE OF BIRTH

The data on place of birth were derived from answers to questionnaire item 6, which was asked on a sample basis. The place of birth question asked respondents to report the municipio in Puerto Rico, the U.S. State, or the foreign country or territory where they were born. Persons born outside Puerto Rico were asked to report their place of birth according to current international boundaries. Since numerous changes in boundaries of foreign countries have occurred in the last century, some persons may have reported their place of birth in terms of boundaries that existed at the time of their birth or time of their departure, or in accordance with their own national preference.

Persons not reporting place of birth were assigned the birthplace of another family member or were allocated the response of another person with similar characteristics. Persons allocated as born outside Puerto Rico or the United States were not also allocated a specific country of birth, but were classified as "Born abroad, country not specified."

Persons born outside Puerto Rico are shown by selected area, country, or region of birth; the places of birth shown in selected data products were selected based on the number of respondents who chose to report that area or country of birth.

**Comparability**—Data on place of birth have been collected in each census of Puerto Rico since 1910. Similar data were shown in tabulations for the 1980 census. Nonresponse was allocated in a similar manner in 1980; however, prior to 1980, nonresponse to the place of birth question was not allocated.

The questionnaire instruction to report mother's place of residence rather than the location of the hospital, if born in a hospital, was dropped in 1990. Evaluation studies of the 1970 and 1980 U.S. data demonstrated that this instruction was generally either ignored or misunderstood. This change may have some effect on data for municipios that are adjacent to metropolitan areas or are a part of metropolitan areas that cross municipio boundaries.

## POVERTY STATUS IN 1989

The data on poverty status were derived from answers to the same questions as the income data, questionnaire items 33 and 34. (For more information, see the discussion under "Income in 1989.") Poverty statistics presented in census publications were based on a definition originated by the Social Security Administration in 1964 and subsequently modified by Federal interagency committees in 1969 and 1980 and prescribed by the Office of Management and Budget in Directive 14 as the standard to be used by Federal agencies for statistical purposes.

At the core of this definition was the 1961 economy food plan, the least costly of four nutritionally adequate food plans designed by the Department of Agriculture. It was determined from the Agriculture Department's 1955 survey of food consumption that families of three or more persons spend approximately one-third of their income on food; hence, the poverty level for these families was set at three times the cost of the economy food plan. For smaller families and persons living alone, the cost of the economy food plan was multiplied by factors that were slightly higher to compensate for the relatively larger fixed expenses for these smaller households.

The income cutoffs used by the Census Bureau to determine the poverty status of families and unrelated individuals included a set of 48 thresholds arranged in a

two-dimensional matrix consisting of family size (from one person to nine or more persons) cross-classified by presence and number of family members under 18 years old (from no children present to eight or more children present). Unrelated individuals and two-person families were further differentiated by age of the householder (under 65 years old and 65 years old and over).

The total income of each family or unrelated individual in the sample was tested against the appropriate poverty threshold to determine the poverty status of that family or unrelated individual. If the total income was less than the corresponding cutoff, the family or unrelated individual was classified as "below the poverty level." The number of persons below the poverty level was the sum of the number of persons in families with incomes below the poverty level and the number of unrelated individuals with incomes below the poverty level.

The poverty thresholds are revised annually to allow for changes in the cost of living as reflected in the Consumer Price Index. The average poverty threshold for a family of four persons was \$12,674 in 1989. (For more information, see table A below.) Poverty thresholds were applied on a national basis and were not adjusted for regional, State or local variations in the cost of living. Therefore, the thresholds used for Puerto Rico are the same as those used for the United States. For a detailed discussion of the poverty definition, see U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 171, *Poverty in the United States: 1988 and 1989*.

**Persons for Whom Poverty Status is Determined—** Poverty status was determined for all persons except institutionalized persons, persons in military group quarters and in college dormitories, and unrelated individuals under 15 years old. These groups also were excluded from the denominator when calculating poverty rates.

**Specified Poverty Levels—** Since the poverty levels currently in use by the Federal Government do not meet all the needs of data users, some of the data are presented for alternate levels. These specified poverty levels are obtained by multiplying the income cutoffs at the poverty level by the appropriate factor. For example, the average income cutoff at 125 percent of poverty level was \$15,843 (\$12,674 x 1.25) in 1989 for a family of four persons.

**Weighted Average Thresholds at the Poverty Level—** The average thresholds shown in the first column of table A are weighted by the presence and number of children. For example, the weighted average threshold for a given family size is obtained by multiplying the threshold for each presence and number of children category within the given family size by the number of families in that category. These products are then aggregated across the entire range of presence and number of children categories, and the aggregate is divided by the total number of families in the group to yield the weighted average threshold at the poverty level for that family size.

Since the basic thresholds used to determine the poverty status of families and unrelated individuals are applied to all families and unrelated individuals, the weighted average poverty thresholds are derived using all families and unrelated individuals rather than just those classified as being below the poverty level. To obtain the weighted poverty thresholds for families and unrelated individuals below alternate poverty levels, the weighted thresholds shown in table A may be multiplied directly by the appropriate factor. The weighted average thresholds presented in the table are based on the March 1990 Current Population Survey for the United States. However, these thresholds would not differ significantly from those based on the 1990 census.

Table A. Poverty Thresholds in 1989 by Size of Family and Number of Related Children Under 18 Years

Size of Family Unit	Weighted average thresholds	Related children under 18 years								
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual).....	\$6,310									
Under 65 years.....	6,451	\$6,451								
65 years and over.....	5,947	5,947								
Two persons.....	8,076									
Householder under 65 years.....	8,343	8,303	\$8,547							
Householder 65 years and over.....	7,501	7,495	8,515							
Three persons.....	9,885	9,699	9,981	\$9,990						
Four persons.....	12,674	12,790	12,999	12,575	\$12,619					
Five persons.....	14,990	15,424	15,648	15,169	14,798	\$14,572				
Six persons.....	16,921	17,740	17,811	17,444	17,092	16,569	\$16,259			
Seven persons.....	19,162	20,412	20,540	20,101	19,794	19,224	18,558	\$17,828		
Eight persons.....	21,328	22,830	23,031	22,617	22,253	21,738	21,084	20,403	\$20,230	
Nine or more persons.....	25,480	27,463	27,596	27,229	26,921	26,415	25,719	25,089	24,933	\$23,973

**Income Deficit**—Represents the difference between the total income of families and unrelated individuals below the poverty level and their respective poverty thresholds. In computing the income deficit, families reporting a net income loss are assigned zero dollars and for such cases the deficit is equal to the poverty threshold.

This measure provided an estimate of the amount which would be required to raise the incomes of all poor families and unrelated individuals to their respective poverty thresholds. The income deficit is thus a measure of the degree of impoverishment of a family or unrelated individual. However, caution must be used in comparing the average deficits of families with different characteristics. Apparent differences in average income deficits may, to some extent, be a function of differences in family size.

**Mean Income Deficit**—Represents the amount obtained by dividing the total income deficit of a group below the poverty level by the number of families (or unrelated individuals) in that group.

**Comparability**—The poverty definition used in the 1990 and 1980 censuses differed slightly from the one used in the 1970 census. Three technical modifications were made to the definition used in the 1970 census as described below:

1. The separate thresholds for families with a female householder with no husband present and all other families were eliminated. For the 1980 and 1990 censuses, the weighted average of the poverty thresholds for these two types of families was applied to all types of families, regardless of the sex of the householder.
2. Farm families and farm unrelated individuals no longer had a set of poverty thresholds that were lower than the thresholds applied to nonfarm families and unrelated individuals. The farm thresholds were 85 percent of the corresponding levels for nonfarm families in the 1970 census. The same thresholds were applied to all families and unrelated individuals regardless of residence in 1980 and 1990.
3. The thresholds by size of family were extended from seven or more persons in 1970 to nine or more persons in 1980 and 1990.

These changes resulted in a minimal increase in the number of poor at the national level. For a complete discussion of these modifications and their impact, see the Current Population Reports, Series P-60, No. 133.

The population covered in the poverty statistics derived from the 1980 and 1990 censuses was essentially the same as in the 1970 census. The only difference was that in 1980 and 1990, unrelated individuals under 15

years old were excluded from the poverty universe, while in 1970, only those under 14 years old were excluded. The poverty data from the 1960 census excluded all persons in group quarters and included all unrelated individuals regardless of age. It was unlikely that these differences in population coverage would have had significant impact when comparing the poverty data for persons since the 1960 censuses.

**Current Population Survey of the U.S.**—Because of differences in the questionnaires and data collection procedures, estimates of the number of persons below the poverty level by various characteristics from the 1990 census may differ from those reported in the March 1990 Current Population Survey.

## REFERENCE WEEK

The data on labor force status and journey to work were related to the reference week: that is, the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed by enumerators. This week is not the same for all respondents since the enumeration was not completed in one week. The occurrence of holidays during the enumeration period could affect the data on actual hours worked during the reference week, but probably had no effect on overall measurement of employment status (see the discussion below on "Comparability").

**Comparability**—The reference weeks for the 1990 and 1980 censuses differ in that Passover and Good Friday occurred in the first week of April 1980, but in the second week of April 1990. Many workers presumably took time off for those observances. The differing occurrence of these holidays could affect the comparability of the 1990 and 1980 data on actual hours worked for some areas if the respective weeks were the reference weeks for a significant number of persons. The holidays probably did not affect the overall measurement of employment status since this information was based on work activity during the entire reference week.

## RESIDENCE IN 1985

The data on residence in 1985 were derived from answers to questionnaire item 12b, which asked for location of residence on April 1, 1985, for those persons reporting in question 12a that on that date they lived in a different house than their current residence. Persons living in Puerto Rico in 1985 were asked to report the name of the municipio and the name of the city, town or village where they lived. Persons living in the United States in 1985 were asked to report the names of the State, county, and city, town, or village where they lived. All other persons were asked to report the name of the foreign country or territory where they were living on that date.

Residence in 1985 is used in conjunction with location of current residence to determine the extent of residential mobility of the population and the resulting redistribution of the population across the various municipios and metropolitan areas in Puerto Rico. The movement between the various States and local areas in the United States and the municipios and other smaller areas in Puerto Rico can also be determined.

When no information on residence in 1985 was reported for a person, information for other family members, if available, was used to assign a location of residence in 1985. All cases of nonresponse or incomplete response, not assigned a previous residence based on information from other family members, were allocated the previous residence of another person with similar characteristics who provided complete information.

The tabulation category, "Same house," includes all persons 5 years old and over who did not move during the 5 years as well as those who had moved but by 1990 had returned to their 1985 residence. The category, "Different house in Puerto Rico," includes persons who lived in Puerto Rico in 1985 but in a different house or apartment from the one they occupied on April 1, 1990. These movers are then further subdivided according to the type of move.

In most tabulations, movers are divided into two groups according to their 1985 residence: "Same municipio" and "Different municipio." Persons living in the United States in 1985 are usually shown separately and individual regions or States may be shown. The category, "Elsewhere," includes those persons who were residing in a foreign country or an outlying area of the U.S. in 1985, including members of the U.S. Armed Forces and their dependents.

In tabulations for metropolitan areas, movers are categorized according to the metropolitan status of their current and previous residences, resulting in such groups as movers within an MSA/PMSA, movers between MSA/PMSA's, movers from nonmetropolitan areas to MSA/PMSA's, and movers from central cities to the remainder of an MSA/PMSA. In some tabulations, these categories are further subdivided by movers within or between central cities and suburbs of the same or a different MSA/PMSA.

The number of persons who were living in a different house in 1985 is somewhat less than the total number of moves during the 5-year period. Some persons in the same house at the two dates had moved during the 5-year period but by the time of the census had returned to their 1985 residence. Other persons who were living in a different house had made one or more intermediate moves. For similar reasons, the number of persons living in a different municipio or different MSA/PMSA may be understated.

**Comparability**—Similar questions were asked on all previous censuses beginning in 1940, except the questions in 1950 referred to residence 1 year earlier rather than 5 years earlier. Although the questions in the 1940 census covered a 5-year period, comparability with that census is reduced somewhat because of different definitions and categories of tabulation. Comparability with the 1960, 1970, and 1980 censuses is also somewhat reduced because nonresponse, not assigned based on information from other family members, was not allocated in those earlier censuses.

## RESIDENCE IN THE UNITED STATES BETWEEN 1980 AND 1990

The data on residence in the United States between 1980 and 1990 were derived from answers to questionnaire items 13a, 13b, 13c, and 13d. These questions were asked of a sample of persons 5 years old and over. Those who reported having lived in the United States for 6 or more consecutive months during the last 10 years were asked to report the year they came or returned to Puerto Rico the last time, how long they stayed, and their activity while in the United States.

Tabulations generally show year of return to Puerto Rico for persons born in Puerto Rico, year of arrival or return for persons born outside Puerto Rico, and length of stay; these data are shown for persons 5 years old and over. In addition, main activity while in the United States (in the Armed Forces, working at a job or business, attending school or college, or something else) is shown separately for male and female persons 16 years old and over.

**Comparability**—Similar data were collected in the 1970 and 1980 censuses. However, the reference period for the residence in the United States for the 1970 census was limited to the last 5 years. In addition, the length of stay was indicated as "6 or more months" in 1970 and "6 or more consecutive months" in the 1980 and 1990 censuses. As a result, the 1970 data may include persons who reported several visits during the last 5 years, each consisting of less than 6 months, as an overall stay of 6 or more months. Data on activity were tabulated for persons 14 years old and over in 1970 and for persons 16 years old and over in 1980 and 1990. Data on residence in the United States was not allocated in 1970 or in 1980.

## SCHOOL ENROLLMENT AND LABOR FORCE STATUS

Tabulation of data on enrollment, educational attainment, and labor force status for the population 16 to 19 years old allows for calculation of the proportion of the age group who are not enrolled in school and not high school graduates or "dropouts" and an unemployment

rate for the "dropout" population. Definitions of the three topics and descriptions of the census items from which they were derived are presented in "Educational Attainment," "Employment Status," and "School Enrollment and Type of School." The published tabulations include both the civilian and U.S. Armed Forces populations, but labor force status is provided for the civilian population only. Therefore, the component labor force statuses may not add to the total lines *enrolled in school, high school graduate, and not high school graduate*. The difference is Armed Forces.

**Comparability**—The tabulation of school enrollment by labor force status is similar to that published in 1980 census reports. The 1980 census tabulation included a single data line for U.S. Armed Forces; however, enrollment, attainment, and labor force status data were shown for the civilian population only.

## SCHOOL ENROLLMENT AND TYPE OF SCHOOL

Data on school enrollment were derived from answers to questionnaire item 9, which was asked of a sample of persons. Persons were classified as enrolled in school if they reported attending a "regular" public or private school or college at any time between February 1, 1990, and the time of enumeration. The question included instructions to "include only pre-kindergarten, kindergarten, elementary school, and schooling which would lead to a high school diploma or a college degree" as regular school. Enumerator instructions further specified that enrollment in a vocational trade or business school, or tutoring were not to be included unless the course would be accepted for credit at a regular elementary school, high school, or college. Persons who did not answer the enrollment question were assigned the enrollment status and type of school of a person with the same age and sex, whose residence was in the same or a nearby area.

**Public and Private School**—Includes persons who attended school in the reference period and indicated they were enrolled by marking one of the questionnaire categories for either "public school, public college" or "private school, private college." The enumerator instructions defined a public school as "any school or college controlled and supported by a local, municipio, commonwealth, or Federal government." Schools supported and controlled primarily by religious organizations or other private groups are defined as private. Persons who indicated both "public" and "private" are edited to the first entry, "public."

**Level of School in Which Enrolled**—Persons who were enrolled in school were classified as enrolled in "preprimary school," "elementary," "high school," or

"college" according to their response to question 10 (years of school completed or highest degree received). Persons who were enrolled and reported completing pre-kindergarten or less were classified as enrolled in "preprimary school," which includes kindergarten. Similarly, enrolled persons who had completed at least kindergarten, but not 8th grade, were classified as enrolled in elementary school (1st to 8th grade). Enrolled persons who reported completing high school or some college or having received a post-secondary degree were classified as enrolled in "college." Enrolled persons who reported completing the twelfth grade but receiving "NO DIPLOMA" were classified as enrolled in high school. (For more information on level of school, see the discussion under "Educational Attainment.")

**Comparability**—School enrollment questions have been included in the census since 1910; grade attended was first asked in 1950; type of school was first asked in 1960. Before 1940, the enrollment question in various censuses referred to attendance in the preceding six months or the preceding year. In 1940, the reference was to attendance in the month preceding the census, and in the 1950 and 1970 to 1990 censuses, the question referred to attendance in the two months preceding the census date. In 1960, the reference period was between January 1 and the date of enumeration.

The age range for which enrollment data have been obtained and published has varied over the censuses. Information on enrollment was recorded for persons of all ages in 1930, 1940 and 1970 through 1990; for persons 5 to 29, in 1950; and for persons age 5 to 34, in 1960. Most of the published enrollment figures referred to persons age 5 to 20 in the 1930 census, 5 to 24 in 1940, 5 to 29 in 1950, 5 to 34 in 1960, 3 to 34 in 1970, and 3 years old and over in 1980 and 1990. This growth in the age group whose enrollment was reported reflects increased interest in the number of children in preprimary schools and in the number of older persons attending colleges and universities.

Grade of enrollment was first available in the 1950 census, where it was obtained from responses to the question on highest grade of school attended. Enrollment by grade or year from kindergarten through college could be identified. In 1970, nursery school was added to the levels of school separately identified. In 1980, nursery school was replaced by pre-kindergarten.

From 1950 to 1980, grade of enrollment was obtained from the highest grade attended in the two-part question used to measure educational attainment. (For more information, see the discussion under "Educational Attainment.") The form of the question from which level of enrollment was derived in the 1990 census was a single question on highest grade or degree completed.

Type of school was first introduced in the 1960 census, where a separate question asked the enrolled persons whether they were in a "public" or "private"

school. Since the 1970 census, the type of school was incorporated into the response categories for the enrollment question and the terms were changed to "public," "parochial," and "other private." In the 1980 census, "private, church related" and "private, not church related" replaced "parochial" and "other private." In the 1990 census, only two categories were used—"Public" and "Private."

In the 1950 and subsequent censuses, college students were enumerated where they lived while attending college, whereas in earlier censuses, they generally were enumerated at their parental homes.

Data on school enrollment were also collected and published by other Federal, commonwealth, and local government agencies. Where these data were obtained from administrative records of school systems and institutions of higher learning, they were only roughly comparable with data from population censuses because of differences in definitions and concepts, subject matter covered, time references, and enumeration methods. At the local level, the difference between the location of the institution and the residence of the student may affect the comparability of census and administrative data. Differences between the boundaries of school districts and census geographic units also may affect these comparisons.

## SELF-CARE LIMITATION STATUS

The data on self-care limitation status were derived from answers to questionnaire item 20b, which was asked of a sample of persons 15 years old and over. Persons were identified as having a self-care limitation if they had a health condition that had lasted for 6 or more months and which made it difficult to take care of their own personal needs, such as dressing, bathing, or getting around inside the home.

The term "health condition" referred to both physical and mental conditions. A temporary health problem, such as a broken bone that was expected to heal normally was not considered a health condition.

**Comparability**—This was the first time that a question on self-care limitation was included in the census.

## SEX

The data on sex were derived from answers to questionnaire item 3, which was asked of all persons. For most cases in which sex was not reported, it was determined by the appropriate entry from the person's given name and household relationship. Otherwise, sex was imputed according to the relationship to the householder and the age and marital status of the person. (For more information on imputation, see Appendix C, Accuracy of the Data.)

**Sex Ratio**—A measure derived by dividing the total number of males by the total number of females and multiplying by 100.

**Comparability**—A question on the sex of individuals has been asked of the total population in every census of Puerto Rico.

## VETERAN STATUS

Data on veteran status, period of military service, and years of military service were derived from answers to questionnaire item 18, which was asked of a sample of persons.

**Veteran Status**—The data on veteran status were derived from responses to question 18a. For census data products, a "civilian veteran" is a person 16 years old or over who had served (even for a short time) but is not now serving on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served as a Merchant Marine seaman during World War II. Persons who served in the National Guard or military Reserves are classified as veterans only if they were ever called or ordered to active duty not counting the 4-6 months for initial training or yearly summer camps. All other civilians 16 years old and over are classified as nonveterans.

**Period of Military Service**—Persons who indicated in question 18a that they had served on active duty (civilian veterans) or were now on active duty were asked to indicate in question 18b the period or periods in which they served. Persons serving in at least one wartime period are classified in their most recent wartime period. For example, persons who served both during the Korean conflict and the post-Korean peacetime era between February 1955 and July 1964 are classified in one of the two "Korean conflict" categories. If the same person had also served during the Vietnam era, he or she would instead be included in the "Vietnam era and Korean conflict" category. The responses were edited to eliminate inconsistencies between reported period(s) of service and the age of the person and to cancel out reported combinations of periods containing unreasonable gaps (for example, a person could not serve during World War I and the Korean conflict without serving during World War II). Note that the period of service categories shown in this report are mutually exclusive.

**Years of Military Service**—Persons who indicated in question 18a that they had served on active duty (civilian veterans) or were now on active duty were asked to report the total number of years of active-duty service in question 18c. The data were edited for consistency with responses to question 18b (Period of Military Service) and with the age of the person.

**Limitation of the Data**—There may be a tendency for the following kinds of persons to report erroneously that they served on active duty in the U.S. Armed Forces: (a) persons who served in the National Guard or military Reserves but were never called to active duty; (b) civilian employees or volunteers for the USO, Red Cross, or the Department of Defense (or its predecessor Departments, War and Navy); and (c) employees of the Merchant Marine or Public Health Service. There may also be a tendency for persons to erroneously round up months to the nearest year in question 18c (for example, persons with 1 year 8 months of active duty military service may mistakenly report "2 years").

**Comparability**—Since census data on veterans were based on self-reported responses, they may differ from data from other sources such as administrative records of the Department of Defense. Census data may also differ from Veterans' Administration data on the benefits-eligible population, since factors determining eligibility for veterans' benefits differ from the rules for classifying veterans in the census.

The wording of the question on veteran status (18a) for 1990 was expanded from the veteran/ not veteran question in 1980 to include questions on current active duty status and service in the military Reserves and the National Guard. The expansion was intended to clarify the appropriate response for persons in the U.S. Armed Forces and for persons who served in the National Guard or military Reserve units only. For the first time in a census, service during World War II as a Merchant Marine Seaman was considered active-duty military service and persons with such service were counted as veterans. An additional period of military service, "September 1980 or later" was added in 1990. As in 1970 and 1980, persons reporting more than one period of service are shown in the most recent wartime period of service category. Question 18c (Years of Military Service) was new for 1990.

## VOCATIONAL TRAINING

The data on vocational training were derived from answers to questionnaire items 21a and 21b. These questions were asked of a sample of persons 15 years old and over. Vocational training is a school program designed to prepare a person for work in a specific occupational field. Persons were counted as having vocational training if they had completed requirements for a vocational training program at a trade school, business school, hospital, or other school for occupational training.

Instructions given to enumerators distinguished vocational training from academic training and on-the-job training. Vocational training could be in such fields as carpentry, electronics, nursing or accounting if a bachelor's degree would not be granted for the training.

Vocational training at a person's place of work includes programs designed to teach new skills. Instruction could be provided by a company teacher or a professional vocational educator at the company or at another location. Vocational training in high school was included if it was in an organized program of study and was intended to provide a marketable skill upon graduation. Job Corp and correspondence courses were included also.

Individual courses for personal enrichment were not classified as vocational training (for example, a single typing course compared to a business program with many courses). On-the-job training was excluded since its purpose is to provide instruction for specific job duties. Other types of training excluded from vocational training were college courses applicable towards a bachelor's degree, single courses not part of an organized program, and Armed Forces basic training.

Persons who had completed a vocational training program were asked to indicate one of the following types of school at which the training was received: business school, trade school, or junior college; high school vocational program; training program at place of work; or other school.

**Comparability**—The vocational training question was first asked in the 1970 census. The question was changed in 1980 to list specific types of vocational schools. In 1990 and 1980, persons who reported they had completed the requirements for a vocational training program were asked an additional question about the specific type of school where the training was received. In 1970, a different question was asked of respondents who reported they had completed a vocational training program. They were asked to designate their main field of vocational training.

## WORK DISABILITY STATUS

The data on work disability were derived from answers to questionnaire item 19, which was asked of a sample of persons 15 years old and over. Persons were identified as having a work disability if they had a health condition that had lasted for 6 or more months and which limited the kind or amount of work they could do at a job or business. A person was limited in the kind of work he or she could do if the person had a health condition which restricted his or her choice of jobs. A person was limited in the amount of work if he or she was not able to work full-time. Persons with a work disability were further classified as "Prevented from working" or "Not prevented from working."

The term "health condition" referred to both physical and mental conditions. A temporary health problem, such as a broken bone that was expected to heal normally, was not considered a health condition.

**Comparability**—The wording of the question on work disability was the same in 1990 as in 1980. Information on work disability was first collected in 1970. In that census, the work disability question did not contain a clause restricting the definition of disability to limitations caused by a health condition that had lasted 6 or more months; however, it did contain a separate question about the duration of the disability.

## **WORK STATUS IN 1989**

The data on work status in 1989 were derived from answers to questionnaire item 32, which was asked of a sample of persons. Persons 16 years old and over who worked 1 or more weeks according to the criteria described below are classified as "Worked in 1989." All other persons 16 years old and over are classified as "Did not work in 1989." Some tabulations showing work status in 1989 include 15 year olds; these persons, by definition, are classified as "Did not work in 1989."

### **Weeks Worked in 1989**

The data on weeks worked in 1989 were derived from responses to questionnaire item 32b. Question 32b (Weeks Worked in 1989) was asked of persons 16 years old and over who indicated in question 32a that they worked in 1989.

The data pertain to the number of weeks during 1989 in which a person did any work for pay or profit (including paid vacation and paid sick leave) or worked without pay on a family farm or in a family business. Weeks of active service in the U.S. Armed Forces are also included.

### **Usual Hours Worked Per Week Worked in 1989**

The data on usual hours worked per week worked in 1989 were derived from answers to questionnaire item 32c. This question was asked of persons 16 years old and over who indicated that they worked in 1989.

The data pertain to the number of hours a person usually worked during the weeks worked in 1989. The respondent was to report the number of hours worked per week in the majority of the weeks he or she worked in 1989. If the hours worked per week varied considerably during 1989, the respondent was to report an approximate average of the hours worked per week. The statistics on usual hours worked per week in 1989 are not necessarily related to the data on actual hours worked during the census reference week (question 22b).

Persons 16 years old and over who reported that they usually worked 35 or more hours each week during the weeks they worked are classified as "Usually worked full time;" persons who reported that they usually worked 1 to 34 hours are classified as "Usually worked part time."

**Year-Round Full-Time Workers**—All persons 16 years old and over who usually worked 35 hours or more per week for 50 to 52 weeks in 1989.

**Number of Workers in Family in 1989**—The term "worker" as used for these data is defined based on the criteria for Work Status in 1989.

**Limitation of the Data**—It is probable that the number of persons who worked in 1989 and the number of weeks worked are understated since there was some tendency for respondents to forget intermittent or short periods of employment or to exclude weeks worked without pay. There may also be a tendency for persons not to include weeks of paid vacation among their weeks worked; one result may be that the census figures may understate the number of persons who worked "50 to 52 weeks."

**Comparability**—The data on weeks worked collected in the 1990 census were comparable with data from the 1980, 1970, and 1960 censuses, but may not be entirely comparable with data from the 1940 and 1950 censuses. Since the 1960 census, two separate questions have been used to obtain this information. The first identified persons with any work experience during the year and, thus, indicated those persons for whom the questions on number of weeks worked applied. In 1940 and 1950, however, the questionnaires contained only a single question on number of weeks worked.

In 1970, persons responded to the question on weeks worked by indicating one of six weeks-worked intervals. In 1980 and 1990, persons were asked to enter the specific number of weeks they worked.

## **YEAR OF ENTRY**

The data on year of entry were derived from answers to questionnaire item 8, which was asked of a sample of persons. The question, "When did this person come to Puerto Rico to stay?" was asked of persons who indicated in the question on citizenship that they were not born in Puerto Rico. (For more information, see the discussion under "Citizenship.")

The 1990 census questions, tabulations, and census data products about citizenship and year of entry include no reference to immigration. All persons who were born and resided outside Puerto Rico before becoming residents of Puerto Rico have a date of entry. Some of these persons are U.S. citizens by birth (e.g., persons born in Puerto Rico or born abroad of American parents). To avoid any possible confusion concerning the date of entry of persons who are U.S. citizens by birth, the term, "year of entry" is used in this report instead of the term "year of immigration."

**Limitation of the Data**—The census questions on nativity, citizenship, and year of entry were not designed to measure the degree of permanence of residence in

Puerto Rico. The phrase, "to stay" was used to obtain the year in which the person became a resident of Puerto Rico. Although the respondent was directed to indicate the year he or she entered the country "to stay," it was difficult to ensure that respondents interpreted the phrase correctly.

**Comparability**—A question on year of entry, (alternately called "year of immigration") was asked in each decennial census since 1910. In 1980, the question on year of entry included six arrival time intervals. The number of arrival intervals was expanded to ten in 1990. In 1980, the question on year of entry was asked only of the foreign-born population. In 1990, all persons who responded to the long-form questionnaire and were not born in Puerto Rico were to complete the question on year of entry.

## HOUSING CHARACTERISTICS

### LIVING QUARTERS

Living quarters are classified as either housing units or group quarters. (For more information, see the discussion of "Group Quarters" under Population Characteristics.) Usually, living quarters are in structures intended for residential use (for example, a one-family home, apartment house, hotel or motel, boarding house, or mobile home). Living quarters also may be in structures intended for nonresidential use (for example, the rooms in a warehouse where a guard lives), as well as in places such as tents, vans, shelters for the homeless, dormitories, and barracks.

**Housing Units**—A housing unit is a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from outside the building or through a common hall.

The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. For vacant units, the criteria of separateness and direct access are applied to the intended occupants whenever possible. If that information cannot be obtained, the criteria are applied to the previous occupants.

Both occupied and vacant housing units are included in the housing unit inventory, except that recreational vehicles, boats, vans, tents, and the like are included only if they are occupied as someone's usual place of residence. Vacant mobile homes are included provided they are intended for occupancy on the site where they stand. Vacant mobile homes on dealers' sales lots, or in storage yards are excluded from the housing inventory.

If the living quarters contain 9 or more persons unrelated to the householder or person in charge (a total of 10 unrelated persons), they are classified as group quarters. If the living quarters contain eight or fewer persons unrelated to the householder or person in charge, they are classified as housing units.

**Occupied Housing Units**—A housing unit is classified as occupied if it is the usual place of residence of the person or group of persons living in it at the time of enumeration, or if the occupants are only temporarily absent; that is, away on vacation. If all the persons staying in the unit at the time of the census have their usual place of residence elsewhere, the unit is classified as vacant. A household includes all the persons who occupy a housing unit as their usual place of residence. By definition, the count of occupied housing units for 100-percent tabulations is the same as the count of households or householders.

**Vacant Housing Units**—A housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied at the time of enumeration entirely by persons who have a usual residence elsewhere are also classified as vacant. (For more information, see discussion under "Usual Home Elsewhere.")

New units not yet occupied are classified as vacant housing units if construction has reached a point where all exterior windows and doors are installed and final usable floors are in place. Vacant units are excluded if they are open to the elements; that is, the roof, walls, windows, and/or doors no longer protect the interior from the elements, or if there is positive evidence (such as a sign on the house or in the block) that the unit is condemned or is to be demolished. Also excluded are quarters being used entirely for nonresidential purposes, such as a store or an office, or quarters used for the storage of business supplies or inventory, machinery, or agricultural products.

**Hotels, Motels, Rooming Houses, Etc.**—Occupied rooms or suites of rooms in hotels, motels, and similar places are classified as housing units only when occupied by permanent residents; that is, persons who consider the hotel as their usual place of residence or have no usual place of residence elsewhere. Vacant rooms or suites of rooms are classified as housing units only in those hotels, motels, and similar places in which 75 percent or more of the accommodations are occupied by permanent residents.

If any of the occupants in a rooming or boarding house live and eat separately from others in the building and have direct access, their quarters are classified as separate housing units.

**Staff Living Quarters**—The living quarters occupied by staff personnel within any group quarters are separate

housing units if they satisfy the housing unit criteria of separateness and direct access; otherwise, they are considered group quarters.

**Comparability**—The first Census of Housing in 1940 established the “dwelling unit” concept. Although the term became “housing unit” and the definition has been modified slightly in succeeding censuses, the 1990 definition is essentially comparable to previous censuses. There was no change in the housing unit definition between 1980 and 1990.

## AGRICULTURAL SALES

Data on the sales of agricultural crops were obtained from questionnaire item H10b, which was asked on a sample basis at occupied one-family houses and mobile homes. Data for this item exclude units located in structures containing 2 or more units, and all vacant units. This item refers to the total amount (before taxes and expenses) received in 1989 from the sale of crops, vegetables, fruits, nuts, livestock and livestock products, and nursery and forest products, produced on “this property.” Respondents new to a unit were asked to estimate total agricultural sales in 1989 even if some portion of the sales had been made by other occupants of the unit.

This item is used mainly to classify housing units as farm or nonfarm residences, not to provide detailed information on the sale of agricultural products. Detailed information on the sale of agricultural products is provided by the Census Bureau’s Census of Agriculture. (For more information, see the discussion under “Farm Residence.”)

## AIR CONDITIONING

The data on air conditioning were obtained from questionnaire item H21, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. Air conditioning is defined as the cooling of air by a refrigeration unit. It does not include evaporative coolers, fans, or blowers which are not connected to a refrigeration unit; however, it does include heat pumps. A central system is an installation which air-conditions a number of rooms. In an apartment building, such a system may cool all apartments in the building, each apartment may have its own central system, or there may be several systems, each providing central air conditioning for a group of apartments. A system with individual room controls is a central system. A room unit is an individual air conditioner which is installed in a window or an outside wall and is generally intended to cool one room, although it may sometimes be used to cool more than one room.

**Comparability**—Data on air conditioning were collected for the first time in the 1980 census. In 1980, these data were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## BATHTUB OR SHOWER

The data on bathtub or shower were obtained from questionnaire item H4b, which was asked at both occupied and vacant housing units. A bathtub or shower must be connected permanently to piped water and located inside the house, apartment, or mobile home.

**Comparability**—Since 1970 a separate question on bathtub or shower has been asked in Puerto Rico. In 1970 and 1980, the question referred to bathtub or shower in the building where the housing unit was located, and data were shown only for year-round housing units. In 1990, the question asks for bathtub or shower inside the unit, and the data are shown for all housing units.

## BATHROOMS

The data on bathrooms were obtained from questionnaire item H17, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. A complete bathroom is a room with a flush toilet, a bathtub or shower, and a wash basin with piped hot and cold or only cold water. A half-bathroom has at least a flush toilet or a bathtub or shower, but does not have all the facilities for a complete bathroom. The equipment must be inside the unit being enumerated, but does not need to be in the same room. The category “None” consists of units with no bathroom facilities.

**Comparability**—Similar data were collected in the 1980 census. In 1980, data on bathrooms were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## BEDROOMS

The data on bedrooms were obtained from questionnaire item H16, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. The number of bedrooms is the count of rooms designed to be used as bedrooms; that is, the number of rooms that would be listed as bedrooms if the house or apartment were on the market for sale or for rent. Included are all rooms intended to be used as bedrooms even if they currently are being used for some other purpose. A housing unit consisting of only one room, such as a one-room efficiency apartment, is classified, by definition, as having no bedroom.

**Comparability**—Data on bedrooms have been collected in every census since 1960. In 1970 and 1980, data for bedrooms were shown only for year-round units. In 1990, these data are shown for all housing units. In past censuses, a room was defined as a bedroom if it was used mainly for sleeping even if also

used for other purposes. Rooms that were designed to be used as bedrooms but used mainly for other purposes were not considered to be bedrooms. A distribution of housing units by number of bedrooms calculated from data collected in a U.S. 1986 test showed virtually no differences in the two versions except in the two bedroom category, where the previous "use" definition showed a slightly lower proportion of units.

## **BOARDED-UP STATUS**

Boarded-up status was obtained from questionnaire item C2 and was determined for all vacant units. Boarded-up units have windows and doors covered by wood, metal, or masonry to protect the interior and to prevent entry into the building. A single-unit structure, a unit in a multi-unit structure, or an entire multi-unit structure may be boarded-up in this way. For certain census data products, boarded-up units are shown only for units in the "Other vacant" category. A unit classified as "Usual home elsewhere" can never be boarded up. (For more information, see the discussion under "Usual Home Elsewhere.")

**Comparability**—This item was first asked in the 1980 census and was shown only for year-round vacant housing units. In 1990, data are shown for all vacant housing units.

## **COMMERCIAL ESTABLISHMENT ON PROPERTY**

The data for commercial establishment on property were obtained from questionnaire item H7b, which was asked at all occupied and vacant one-family houses and mobile homes. This question is used to exclude owner-occupied one-family houses with a commercial establishment or medical office on the property from certain statistics on financial characteristics.

A commercial establishment must be easily recognizable from the outside. It will usually have a separate outside entrance and have the appearance of a business, such as a grocery store, restaurant, or barber-shop. It may be either attached to the house or mobile home or be located elsewhere on the property. Those housing units in which a room is used for business or professional purposes and have no recognizable alterations to the outside are *not* considered as having a business. Medical offices are considered businesses for tabulation purposes.

**Comparability**—Data on commercial establishment on property have been collected since 1940.

## **CONDITION OF HOUSING UNIT**

The data on condition of housing unit were obtained from questionnaire item H30, which was asked at both occupied and vacant housing units. This item was

collected on a sample basis. It serves as an indicator of the quality of housing. The answers to this question indicate how many living quarters may not provide adequate shelter and, in their present condition, endanger the health, safety, or well-being of their occupants.

The enumerators judged the condition by observation, on the basis of instructions regarding the extent, degree and type of visible defects. The criteria dealt mainly with weather tightness, extent of disrepair, hazards to physical safety of the occupants, and inadequate or make-shift construction. Defects which would be revealed only by a more thorough inspection than is possible during a census or would be recognized only by a person with fairly thorough knowledge of construction, were not included in the standards by which condition was rated.

The enumerators were instructed to judge each unit on the basis of its own physical characteristics, regardless of the neighborhood, the attractiveness or dreariness of the unit, the degree of crowding, the housekeeping standards of the occupants, or other considerations unrelated to the physical condition:

All living quarters were classified as either of adequate or inadequate original construction. A living quarters was considered to be of adequate original construction if it was initially built with traditional materials (wood, poured concrete, etc.), and it had no serious structural deficiencies or it did not endanger the safety of the occupants. Living quarters classified as of adequate original construction were further classified as either sound, deteriorating, or dilapidated.

"Sound" housing was defined as having no defects or only slight defects of a type normally corrected in the course of regular maintenance. These defects do not affect the weather tightness of the living quarters nor do they endanger the safety or health of the occupants. Examples are: slight damage to doors or shutters; moderately rusted roof; slight wear on floors, doorsill, door frames, window sills, or window frames; small cracks in walls; and lack of paint.

"Deteriorating" housing had intermediate defects which needed repairs beyond the scope of ordinary maintenance. Intermediate defects indicated the need for repairs so that the living quarters continues to provide safe and adequate shelter. Examples include: rotted, broken, or missing material over a small area of the walls or roof; rotted or unsafe steps or balconies; deeply worn floors, door frames, or stairs; a badly rusted or leaking roof; and loose or broken shutters or doors.

A "dilapidated" unit no longer provided safe and adequate shelter. It had one or more critical defects, such as broken or missing material over a large area of the foundation, exterior walls, roof, floors, etc; a badly sagging roof, wall, or floors; extensive termite damage; or had a large number of intermediate defects.

"Inadequate original construction" applied to units built largely of makeshift or scrap materials (scrap lumber or sheet metal, packing boxes, etc.) or that had

no foundation with walls resting directly on the ground, or had a dirt floor. The term also applied to shacks, huts, sheds, tents, and similar buildings unsuitable for residential use, but used as a place of residence.

**Limitation of the Data**—Data on condition of housing units should be used with extreme caution. Extensive evaluation after the 1960 United States Census showed the condition ratings to be inaccurate and unreliable. Data from the 1990 Puerto Rico Content Reinterview Study will provide information on this item.

**Comparability**—Data on condition of housing unit have been collected since 1940. From 1940 to 1970, data on condition of housing units were presented together with plumbing facilities. In 1980, these data were shown separately and only for year-round housing units. In 1990, these data are shown for all housing units.

## CONDOMINIUM FEE

The data on condominium fee were obtained from questionnaire item H29, which was asked at owner-occupied condominiums. This item was asked on a sample basis. A condominium fee normally is charged monthly to the owners of the individual condominium units by the condominium owners association to cover operating, maintenance, administrative, and improvement costs of the common property (grounds, halls, lobby, parking areas, laundry rooms, swimming pool, etc.) The costs for utilities and/ or fuels may be included in the condominium fee if the units do not have separate meters.

Data on condominium fees may include real estate tax and/ or insurance payments for the common property, but do not include real estate taxes or fire, hazard, and flood insurance for the individual unit already reported in questions H25 and H26.

Amounts reported were the regular monthly payment, even if paid by someone outside the household or remain unpaid. Costs were estimated as closely as possible when exact costs were not known.

The data from this item were added to payments for mortgages (both first and junior mortgages and home equity loans); real estate taxes; fire, hazard, and flood insurance payments; and utilities and fuels to derive "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989" for condominium owners.

**Comparability**—This is a new item in 1990.

## CONDOMINIUM STATUS

The data on condominium housing units were obtained from questionnaire item H5, which was asked at both occupied and vacant housing units. Condominium is a

type of ownership that enables a person to own an apartment or house in a development of similarly owned units and to hold a common or joint ownership in some or all of the common areas and facilities such as land, roof, hallways, entrances, elevators, swimming pool, etc. Condominiums may be single-family houses as well as units in apartment buildings. A condominium unit need not be occupied by the owner to be counted as such. A unit classified as "mobile home or trailer" or "other" (see discussion under "Units in Structure") cannot be a condominium unit.

**Limitation of the Data**—Testing done in the United States prior to the 1980 and 1990 census indicated that the number of condominiums may be slightly overstated. The same situation may also be true for Puerto Rico.

**Comparability**—In 1970, condominiums were grouped together with cooperative housing units, and the data were reported only for owner-occupied cooperatives and condominiums. Beginning in 1980, the census identified all condominium units, and the data were shown for renter-occupied and vacant-year-round condominiums as well as owner occupied. In 1970, 1980, and 1990, the question on condominiums was asked on a 100-percent basis in Puerto Rico. In 1990, the question was asked on a sample basis in the United States.

## CONTRACT RENT

The data on contract rent (also referred to as "rent asked" for vacant units) were obtained from questionnaire item H9, which was asked at all occupied housing units that were rented for cash rent and all vacant housing units that were for rent at the time of enumeration.

Housing units that are renter occupied without payment of cash rent are shown separately as "No cash rent" in census data products. The unit may be owned by friends or relatives who live elsewhere and who allow occupancy without charge. Rent-free houses or apartments may be provided to compensate caretakers, ministers, tenant farmers, sharecroppers, or others.

Contract rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included. For vacant units, it is the monthly rent asked for the rental unit at the time of enumeration.

If the contract rent includes rent for a business unit or for living quarters occupied by another household, the respondent was instructed to report that part of the rent estimated to be for his or her unit only. Respondents were asked to report rent only for the housing unit enumerated and to exclude any rent paid for additional units or for business premises.

If a renter pays rent to the owner of a condominium or cooperative, and the condominium fee or cooperative carrying charge is also paid by the renter to the owner, the respondent was instructed to include the fee or carrying charge.

If a renter receives payments from lodgers or roomers who are listed as members of the household, the respondent was instructed to report the rent without deduction for any payments received from the lodgers or roomers. The respondent was instructed to report the rent agreed to or contracted for even if paid by someone else such as friends or relatives living elsewhere, or a church or welfare agency.

In some tabulations, contract rent is presented for all renter-occupied housing units, as well as specified renter-occupied and specified vacant-for-rent units. Specified renter-occupied and specified vacant-for-rent units exclude one-family houses on 3 or more cuerdas. (For more information on rent, see the discussion under "Gross Rent" in census products containing sample data.)

**Median and Quartile Contract Rent**—The median divides the rent distribution into two equal parts. Quartiles divide the rent distribution into four equal parts. In computing median and quartile contract rent, units reported as "No cash rent" are excluded. Median and quartile rent calculations are rounded to the nearest whole dollar. (For more information on medians and quartiles, see the discussion under "Derived Measures.")

**Aggregate Contract Rent**—To calculate aggregate contract rent, the amount assigned for the category "less than \$60" is \$50. The amount assigned to the category "\$1,000 or more" is \$1,250. Mean contract rent is rounded to the nearest whole dollar. (For more information on aggregates and means, see the discussion under "Derived Measures.")

**Limitation of the Data**—In the 1970 and 1980 censuses, contract rent for vacant units had high allocation rates, about 35 percent.

**Comparability**—Data on this item have been collected since 1930. For 1990, quartiles were added because the range of rents and values in Puerto Rico has increased in recent years. Upper and lower quartiles can be used to note large rent and value differences among various geographic areas.

## COOKING FUEL

The data on cooking fuel were obtained from questionnaire item H19, which was asked at all occupied housing units. This item was asked on a sample basis. The category, "Gas," includes gas piped through underground pipes from a central system that serves the

neighborhood, commonly known as utility gas; also included is bottled, tank, or LP gas stored in tanks or bottles which are refilled or exchanged when empty. The category, "Other," includes fuel oil, kerosene, gasoline, alcohol, charcoal, wood, as well as coal dust, briquettes, etc.

**Comparability**—Similar data were collected in 1980.

## DURATION OF VACANCY

The data for duration of vacancy (also referred to as "months vacant") were obtained from questionnaire item D, which was completed by census enumerators. The statistics on duration of vacancy refer to the length of time (in months and years) between the date the last occupants moved from the unit and the time of enumeration. The data, therefore, do not provide a direct measure of the total length of time units remain vacant.

For newly constructed units which have never been occupied, the duration of vacancy is counted from the date construction was completed. For recently converted or merged units, the time is reported from the date conversion or merger was completed. Units occupied by an entire household with a usual home elsewhere are assigned to the "Less than 1 month" interval.

**Comparability**—Similar data have been collected since 1960.

## FARM RESIDENCE

The data on farm residence were obtained from questionnaire items H10a and H10b. An occupied one-family house or mobile home is classified as a farm residence if it is either: (1) on a property of at least 3 cuerdas from which \$500 or more of agricultural products were sold in 1989 or (2) on a property of 10 or more cuerdas from which at least \$100 of agricultural products were sold in 1989. Group quarters and housing units that are in multi-unit buildings or vacant units are not included as farm residences.

A one-family unit occupied by a tenant household paying cash rent for land and buildings is enumerated as a farm residence only if sales of agricultural products from its yard (as opposed to the general property on which it is located) and the size of its property meet the above criteria. A one-family unit occupied by a tenant household that does not pay cash rent is enumerated as a farm residence if the remainder of the farm (including its yard) qualifies as a farm.

Farm residence is provided as an independent data item only for housing units located in rural areas. It may be derived for housing units in urban areas from the data items on number of cuerdas and sales of agricultural products on the public-use microdata sample (PUMS) files. (For more information on PUMS, see Appendix F, Data Products and User Assistance.)

The farm population consists of persons in households living in farm residences. Some persons who are counted on a property classified as a farm (including in some cases farm workers) are excluded from the farm population. Such persons include those who reside in multi-unit buildings or group quarters.

**Comparability**—The defining criteria for farm residence in 1990 differ from those used in the 1980 census. For 1980, a housing unit was classified as a farm if it was located on a property of: (1) 3 or more cuerdas from which any agricultural products were sold in 1979, or (2) less than 3 cuerdas from which at least \$100 worth of agricultural products were sold in 1979. The 1990 definition of a farm residence differs from the definition of a farm in the Census of Agriculture.

### GROSS RENT

Gross rent is the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water) and fuels (oil, charcoal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment. The estimated costs of oil, charcoal, and other fuels are reported on a yearly basis but are converted to monthly figures for the tabulations. Renter units occupied without payment of cash rent are shown

flood insurance on the property (land and buildings); that is, policies that protect the property and its contents against loss due to damage by fire, lightning, winds, hail, flood, explosion, and so on.

Liability policies are included only if they are paid with the fire, hazard, and flood insurance premiums and the amounts for fire, hazard, and flood cannot be separated. Premiums are included even if paid by someone outside the household or remain unpaid. When premiums are paid on other than a yearly basis, the premiums are converted to a yearly basis.

The payment for fire, hazard, and flood insurance is added to payments for real estate taxes, utilities, fuels, and mortgages (both first and junior mortgages and home equity loans) to derive "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989."

A separate question (H27d) determines whether insurance premiums are included in the mortgage payment to the lender(s). This makes it possible to avoid counting these premiums twice in the computations.

**Comparability**—Data on payment for fire and hazard insurance were collected for the first time in 1980. Flood insurance was not specifically mentioned in the wording of the question in 1980. The question was asked only at owner-occupied one-family houses. Excluded were mobile homes, condominiums, houses with a commercial establishment or medical office on the property, houses on 3 or more cuerdas, and housing units in multi-unit build-

**Comparability**—Data on gross rent have been col-

lected for mobile homes, condominiums, and one-family houses with a commercial estab-

### GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1989

Gross rent as a percentage of household income in 1989 is a computed ratio of monthly gross rent to monthly household income (total household income in 1989 divided by 12). The ratio was computed separately for each unit and was rounded to the nearest whole percentage. Units for which no cash rent is paid and units occupied by households that reported no income or a net loss in 1989 comprise the category "Not computed."

### INSURANCE FOR FIRE, HAZARD, AND FLOOD

The data on fire, hazard, and flood insurance were obtained from questionnaire item H26, which was asked at a sample of owner-occupied one-family houses, condominiums, and mobile homes. The statistics for this item refer to the annual premium for fire, hazard, and

### KITCHEN FACILITIES

Data on kitchen facilities were obtained from questionnaire item H20, which was asked at both occupied and vacant housing units. A unit has complete kitchen facilities when it has all of the following: (1) an installed sink with piped water, (2) a range, cook top and convection or microwave oven, or cookstove, and (3) a refrigerator. All kitchen facilities must be located in the structure. They need not be in the same room. Portable cooking equipment is not considered a range or cookstove. An ice box is not considered to be a refrigerator.

**Comparability**—Data on complete kitchen facilities were collected for the first time in 1970. Earlier censuses collected data on individual components, such as kitchen sink and type of refrigeration equipment. In 1970 and 1980, data for kitchen facilities were shown only for year-round units. In 1990, data are shown for all housing units.

## MORTGAGE PAYMENT

The data on mortgage payment were obtained from questionnaire item H27b, which was asked at owner occupied one-family houses, condominiums, and mobile homes. This item was asked on a sample basis. Question H27b provides the regular monthly amount required to be paid the lender for the first mortgage (deed of trust, contract to purchase, or similar debt) on the property. Amounts are included even if the payments are delinquent or paid by someone else. The amounts reported are included in the computation of "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989" for units with a mortgage.

The amounts reported include everything paid to the lender including principal and interest payments, real estate taxes, fire, hazard, and flood insurance payments, and mortgage insurance premiums. Separate questions determine whether real estate taxes and fire, hazard, and flood insurance payments are included in the mortgage payment to the lender. This makes it possible to avoid counting these components twice in the computation of "Selected Monthly Owner Costs."

**Comparability**—Information on mortgage payment was collected for the first time in 1980. It was collected only at owner-occupied one-family houses. Excluded were mobile homes, condominiums, houses with a commercial establishment or medical office on the property, one-family houses on 3 or more cuerdas, and housing units in multi-unit buildings. In 1990, the questions on monthly mortgage payments were asked of all owner-occupied one-family houses, including one-family houses on 3 or more cuerdas. They were also asked at mobile homes, condominiums, and one-family houses with a commercial establishment or medical office on the property.

The 1980 census obtained total regular monthly mortgage payments, including payments on second or junior mortgages, from a single question. Two questions were used in 1990; one for regular monthly payments on first mortgages, and one for regular monthly payments on second or junior mortgages or home equity loans. (For more information, see the discussion under "Second or Junior Mortgage Payment.")

## MORTGAGE STATUS

A mortgage is considered a first mortgage if it has prior claim over any other mortgage or if it is the only mortgage on the property. All other mortgages, (second, third, etc.) are considered junior mortgages. A home equity loan is generally a junior mortgage. If no first mortgage is reported, but a junior mortgage or home equity loan is reported, then the loan is considered a first mortgage.

In most census data products, the tabulations for "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989" usually are shown separately for units "with a mortgage" and for units "not mortgaged." The category "not mortgaged" is comprised of housing units owned free and clear of debt.

**Comparability**—A question on mortgage status was included in the 1940 census, but not in the 1950, 1960, and 1970 censuses. The item was reinstated in 1980 along with a separate question dealing with the existence of second or junior mortgages. In 1980, the mortgage status questions were asked at owner-occupied one-family houses on less than 3 cuerdas. Excluded were mobile homes, condominiums, houses with a commercial establishment or medical office, houses on 3 or more cuerdas, and housing units in multi-unit buildings. In 1990, the questions were asked of all one-family owner-occupied housing units, including houses on 3 or more cuerdas. They were also asked at mobile homes, condominiums, and houses with a commercial establishment or medical office.

## NUMBER OF CUERDAS

Data on number of cuerdas were obtained from questionnaire items H7a and H10a. Question H7a was asked at all occupied and vacant one-family houses and mobile homes. Question H10a was asked on a sample basis at occupied and vacant one-family houses and mobile homes.

Question H7a asks whether the house or mobile home is located on a place of 3 or more cuerdas. The intent of this item is to exclude owner-occupied and renter-occupied one-family houses on 3 or more cuerdas from the specified owner- and renter-occupied universes for value and rent tabulations.

Question H10a provides data on whether the unit is located on less than 3 cuerdas, 3 to 9 cuerdas, or 10 or

at owner-occupied one-family houses, condominiums, and mobile homes. "Mortgage" refers to all forms of

repayment or debt. It includes such debt instruments as deeds of trust, trust deeds, contracts to purchase, land contracts, junior mortgages and home equity loans.

primary form of debt. For more information, see the discussion under "Farm Residence."

one tract or plot. These tracts or plots are usually adjoining; however, they may be separated by a road, creek, another piece of land, etc.

**Comparability**—Question H7a is similar to that asked in 1970 and 1980. This item was asked for the first time of mobile home occupants in 1990. In previous censuses, information on city or suburban lot and number of cuerdas was obtained.

## PERSONS IN UNIT

This item is based on the 100-percent count of persons in occupied housing units. All persons occupying the housing unit are counted, including the householder, occupants related to the householder, and lodgers, roomers, boarders, and so forth.

The data on "persons in unit" show the number of housing units occupied by the specified number of persons. The phrase "persons in unit" is used for housing tabulations, "persons in households" for population items. Figures for "persons in unit" match those for "persons in household" for 100-percent data products. In sample products, they may differ because of the weighting process.

**Median Persons In Unit**—In computing median persons in unit, a whole number is used as the midpoint of an interval; thus, a unit with 4 persons is treated as an interval ranging from 3.5 to 4.5 persons. Median persons is rounded to the nearest hundredth. (For more information on medians, see the discussion under "Derived Measures.")

**Persons in Occupied Housing Units**—This is the total population minus those persons living in group quarters. "Persons per occupied housing unit" is computed by dividing the population living in housing units by the number of occupied housing units.

## PERSONS PER ROOM

"Persons per room" is obtained by dividing the number of persons in each occupied housing unit by the number of rooms in the unit. Persons per room is rounded to the nearest hundredth. The figures shown refer, therefore, to the number of occupied housing units having the specified ratio of persons per room.

**Mean Persons Per Room**—This is computed by dividing persons in housing units by the aggregate number of rooms. This is intended to provide a measure of utilization. A higher mean may indicate a greater degree of utilization or crowding; a low mean may indicate underutilization. (For more information on means, see the discussion under "Derived Measures.")

## PLUMBING FACILITIES

The data on plumbing facilities were obtained from questionnaire items H4a through 4d, which were asked at both occupied and vacant housing units. In Puerto

Rico, complete plumbing facilities include hot and cold (or only cold) piped water, a flush toilet, and a bathtub or shower. All three facilities must be located inside the house, apartment, or mobile home, but not necessarily in the same room. Housing units are classified as lacking complete plumbing facilities when any of the three plumbing facilities are not present.

**Comparability**—The 1990 data on complete plumbing facilities are not strictly comparable with the 1980 data. In 1980, complete plumbing facilities were defined as hot and cold (or only cold) piped water, a bathtub or shower, and a flush toilet inside the building, for the exclusive use of the residents of the unit being enumerated. In 1990, the Census Bureau dropped the requirement of exclusive use from the definition of complete plumbing facilities. Also in 1990, the facilities must be located inside the unit. In 1970 and 1980, the data on plumbing facilities were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## POVERTY STATUS OF HOUSEHOLDS IN 1989

The data on poverty status of households were derived from answers to the income questions. The income items were asked on a sample basis. Households are classified below the poverty level when the total 1989 income of the family or of the nonfamily householder is below the appropriate poverty threshold. The income of persons living in the household who are unrelated to the householder is not considered when determining the poverty status of a household, nor does their presence affect the household size in determining the appropriate poverty threshold. The poverty thresholds vary depending upon three criteria: size of family, number of children, and age of the family householder or unrelated individual for one and two-persons households. (For more information, see the discussion of "Poverty Status in 1989" and "Income in 1989" under Population Characteristics.)

## REAL ESTATE TAXES

The data on real estate taxes were obtained from questionnaire item H25, which was asked at owner-occupied one-family houses, condominiums, and mobile homes. The statistics from this question refer to the total amount of all real estate taxes on the entire property (land and buildings) payable in 1989.

Real estate taxes include taxes even if delinquent, unpaid, or paid by someone who is not a member of the household. However, taxes due from prior years are not included. If taxes are paid on other than a yearly basis, the payments are converted to a yearly basis.

The payment for real estate taxes is added to payments for fire, hazard, and flood insurance; utilities and fuels; and mortgages (both first and junior mortgages

and home equity loans) to derive "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989." A separate question (H27c) determines whether real estate taxes are included in the mortgage payment to the lender(s). This makes it possible to avoid counting taxes twice in the computations.

**Comparability**—Data for real estate taxes were collected for the first time in 1980. The question was asked only at owner-occupied one-family houses. Excluded were mobile homes or trailers, condominiums, houses with a commercial establishment or medical office on the property, houses on 3 or more cuerdas, and housing units in multi-unit buildings. In 1990, the question was asked of all one-family owner-occupied houses, including houses on 3 or more cuerdas. It also was asked at mobile homes, condominiums, and one-family houses with a commercial establishment or medical office on the property.

## ROOMS

The data on rooms were obtained from questionnaire item H3, which was asked at both occupied and vacant housing units. The statistics on rooms are in terms of the number of housing units with a specified number of rooms. The intent of this question is to count the number of whole rooms used for living purposes.

For each unit, rooms include living rooms, dining rooms, kitchens, bedrooms, finished recreation rooms, enclosed porches suitable for year-round use, and lodger's rooms. Excluded are strip or pullman kitchens, bathrooms, open porches, balconies, halls, half-rooms, utility rooms, unfinished attics or basements, or other unfinished space used for storage. A partially divided room is a separate room only if there is a partition from floor to ceiling, but not if the partition consists solely of shelves or cabinets.

**Median Rooms**—This measure divides the room distribution into two equal parts, one-half of the cases falling below the median number of rooms and one-half above the median. In computing median rooms, the whole number is used as the midpoint of the interval; thus, the category "3 rooms" is treated as an interval ranging from 2.5 to 3.5 rooms. Median rooms is rounded to the nearest tenth. (For more information on medians, see the discussion under "Derived Measures.")

**Aggregate Rooms**—To calculate aggregate rooms, an arbitrary value of "10" is assigned to rooms for units falling within the terminal category, "9 or more." (For more information on aggregates and means, see the discussion under "Derived Measures.")

**Comparability**—Data on rooms have been collected since 1940. In 1970 and 1980, these data were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## SECOND OR JUNIOR MORTGAGE PAYMENT

The data on second or junior mortgage payments were obtained from questionnaire items H28a and H28b, which were asked at owner-occupied one-family houses, condominiums, and mobile homes. Question H28a asks whether a second or junior mortgage or a home equity loan exists on the property. Question H28b provides the regular monthly amount required to be paid to the lender on all second or junior mortgages and home equity loans. Amounts are included even if the payments are delinquent or paid by someone else. The amounts reported are included in the computation of "Selected Monthly Owner Costs" and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989" for units with a mortgage.

All mortgages other than first mortgages are classified as "junior" mortgages. A second mortgage is a junior mortgage that gives the lender a claim against the property that is second to the claim of the holder of the first mortgage. Any other junior mortgage(s) would be subordinate to the second mortgage. A home equity loan is a line of credit available to the borrower that is secured by real estate. It may be placed on a property that already has a first or second mortgage, or it may be placed on a property that is owned free and clear.

If the respondents answered that no first mortgage existed, but a second mortgage did (as in the above case with a home equity loan), a computer edit assigned the unit a first mortgage and made the first mortgage monthly payment the amount reported in the second mortgage. The second mortgage data were then made "No" in question H28a and blank in question H28b.

**Comparability**—The 1980 census obtained total regular monthly mortgage payments, including payments on second or junior mortgages, from one single question. Two questions were used in 1990: one for regular monthly payments on first mortgages, and one for regular monthly payments on second or junior mortgages and home equity loans.

## SELECTED MONTHLY OWNER COSTS

The data on selected monthly owner costs were obtained from questionnaire items H24 through H29 for a sample of owner-occupied one-family houses, condominiums, and mobile homes. Selected monthly owner costs is the sum of payments for mortgages, deeds of trust, contracts to purchase, or similar debts on the property (including payments for the first mortgage, second or junior mortgages, and home equity loans); real estate taxes; fire, hazard, and flood insurance on the property; utilities (electricity, gas, and water); and fuels (oil, charcoal, kerosene, wood, etc.). It also includes, where appropriate, the monthly condominium fee for condominiums.

In certain tabulations, selected monthly owner costs are presented separately for specified owner-occupied housing units (owner-occupied one-family houses on fewer than 3 cuerdas without a commercial establishment or medical office on the property), and owner-

ately for units "with a mortgage" and for units "not mortgaged."

**Median Selected Monthly Owner Costs**—This measure is rounded to the nearest whole dollar.

**Comparability**—The components of selected monthly owner costs were collected for the first time in 1980. The 1990 tabulations of selected monthly owner costs for specified owner-occupied housing units are virtually identical to 1980, the primary difference was the amounts of the first and second mortgages were collected in separate questions in 1990, while the amounts were collected in a single question in 1980. The component parts of the item were tabulated for condominiums for the first time in 1990.

#### **SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 1989**

The information on selected monthly owner costs as a percentage of household income in 1989 is the computed ratio of selected monthly owner costs to monthly household income in 1989. The ratio was computed separately for each unit and rounded to the nearest whole percentage. The data are tabulated separately for specified owner-occupied units, and condominiums.

Separate distributions are often shown for units "with a mortgage" and for units "not mortgaged." Units occupied by households reporting no income or a net loss in 1989 are included in the "not computed" category. (For more information, see the discussion under "Selected Monthly Owner Costs.")

**Comparability**—The components of selected monthly owner costs were collected for the first time in 1980. The tabulations of "Selected Monthly Owner Costs as a Percentage of Household Income in 1989" for specified owner-occupied housing units are comparable to 1980.

#### **SEWAGE DISPOSAL**

The data on sewage disposal were obtained from questionnaire item H15, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. Housing units are either connected to a public sewer, to a septic tank or cesspool, or they dispose of sewage by other means. In Puerto Rico, a

public sewer is part of the Aqueduct and Sewer Authority System which operates under the commonwealth government. A housing unit is considered to be connected to a septic tank or cesspool when the unit is provided with an underground pit or tank for sewage

ing units which dispose of sewage in some other way.

**Comparability**—Data on sewage disposal have been collected since 1940. In 1970 and 1980, data were shown only for year-round housing units. In 1990, data are shown for all housing units.

#### **SOURCE OF WATER**

The data on source of water were obtained from questionnaire item H14, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. Housing units may receive their water supply from a number of sources. A common source supplying water to five or more units is classified as a "Public system". In a majority of cases in Puerto Rico, the water is supplied by the Aqueduct and Sewer Authority System, but it also may be obtained from a well which supplies water to five or more housing units. If the water is supplied from a well serving four or fewer housing units, the units are classified as having water supplied by an individual well. A source of water may be "A cistern, tanks, or drums" in which rain water is collected. The category "A spring or some other source..." includes water obtained from springs, creeks, rivers, lakes, etc.

**Comparability**—Data on source of water have been collected since 1940. In 1970 and 1980, data were shown only for year-round housing units. In 1990, data are shown for all housing units.

#### **TELEPHONE IN HOUSING UNIT**

The data on telephones were obtained from questionnaire item H22, which was asked at occupied housing units. This item was asked on a sample basis. A telephone must be inside the house or apartment for the unit to be classified as having a telephone. Units where the respondent uses a telephone located inside the building but not in the respondent's living quarters are classified as having no telephone.

**Comparability**—Data on telephones in 1980 are comparable to 1990. The 1960 and 1970 censuses collected data on telephone availability. A unit was classified as having a telephone available if there was a telephone number on which occupants of the unit could be reached. The telephone could have been in another unit, in a common hall, or outside the building.

## TENURE

The data for tenure were obtained from questionnaire item H6, which was asked at all occupied housing units. All occupied housing units are classified as either owner occupied or renter occupied.

**Owner Occupied**—A housing unit is owner occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. The owner or co-owner must live in the unit and usually is the person listed in column 1 of the questionnaire. The unit is "Owned by you or someone in this household with a mortgage or loan" if it is being purchased with a mortgage or some other debt arrangement such as a deed of trust, trust deed, contract to purchase, land contract, or purchase agreement. The unit is also considered owned with a mortgage if it is built on leased land and there is a mortgage on the unit.

A housing unit is "Owned by you or someone in this household free and clear (without a mortgage)" if there is no mortgage or other similar debt on the house, apartment, or mobile home including units built on leased land if the unit is owned outright without a mortgage. Although owner-occupied housing units are divided between mortgaged and owned free and clear on the questionnaire, census data products containing 100-percent data show only total owner-occupied counts. More extensive mortgage information was collected on the long-form questionnaire and are shown in census products containing sample data.

**Renter Occupied**—All occupied housing units which are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter occupied. "No cash rent" units are separately identified in the rent tabulations. Such units are generally provided free by friends or relatives or in exchange for services such as a resident manager, caretaker, minister, or tenant farmer. Housing units on military bases also are classified in the "No cash rent" category.

"Rented for cash rent" includes units in continuing care, sometimes called life care arrangements. These arrangements usually involve a contract between one or more individuals and a health services provider guaranteeing the individual shelter, usually a house or apartment, and services, such as meals or transportation to shopping or recreation.

**Comparability**—Data on tenure have been collected since 1910. In 1970, the question on tenure also included a category for condominium and cooperative ownership. In 1980, condominium units and cooperatives were dropped from the tenure item, and since 1980, only condominium units are identified in a separate question.

For 1990, the response categories were expanded to allow the respondent to report whether the unit was owned with a mortgage or free and clear (without a mortgage). The distinction between units owned with a mortgage and units owned free and clear was added in 1990 to improve the count of owner-occupied units. Research after the 1980 census indicated some respondents did not consider their units owned if they had a mortgage.

## TOILET FACILITIES

The data on toilet facilities were obtained from questionnaire items H4c and H4d, which were asked at both occupied and vacant housing units. A flush toilet is connected to piped water and is emptied into a main sewer, a septic tank or a cesspool.

**Comparability**—Since 1940, a separate question on presence of toilet facilities has been asked in Puerto Rico. In 1970 and 1980, the question referred to toilet facilities in the building where the unit was located. In 1990, the question asked for toilet facilities inside the unit. For the three censuses, if the unit did not have a flush toilet, the respondents were asked to identify the type of toilet facilities they had. In 1970, only a sample of the units were asked to provide that identification. In 1970 and 1980, data on toilet facilities were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## TYPE OF CONSTRUCTION

The data on type of construction were obtained from questionnaire item H13, which was asked at all housing units. This item was asked on a sample basis. Housing units were classified according to the construction of the major part of the structure. Concrete walls referred to walls of poured concrete, concrete blocks, or stone. Units in structure with concrete walls were classified by type of roof over the main part of the structure: (1) "With concrete slab roof" or (2) "With wood frame roof." A concrete slab roof may be covered with waterproof roofing materials. A wood frame roof may be covered by sheet metal, wood with asphalt shingles, or other materials.

In units with wood frame walls, the basic supporting material of the outer walls is wood, which may be covered with wood boards, plywood, or other materials. Units with wood frame walls were classified by type of foundation:

(1) "With concrete foundation" or (2) "With wood stilt foundation." A concrete foundation most commonly is poured concrete or concrete blocks; it may be stone or concrete posts or columns. A wood stilt foundation ordinarily consists of wooden posts. "Mixed concrete and wood walls" referred to outer walls with concrete

and wood. "Other type of construction" is anything not described above. It includes makeshift construction and buildings of mixed types of constructions.

**Comparability**—Similar data have been collected since 1940. The 1940 and 1950 censuses used the term "exterior materials." Beginning in 1960, the term was changed to "type of construction." In 1970 and 1980, these data were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## TYPE OF WATER HEATER

The data on type of water heater were obtained from questionnaire item H18, which was asked at occupied housing units. This item was asked on a sample basis. An electric tank-type water heater stores hot water which can be used in the kitchen sink, bathtub or shower, or in the laundry room. A shower water heater is an electrical device that provides hot water only in the shower. A solar water heater is a system that utilizes the energy available in sunlight to gain and store heat and can provide hot water at the kitchen sink, bathtub or shower, or at the laundry room.

**Comparability**—Data on energy used by tank-type water heaters were collected in the 1980 census. The 1980 data are not comparable to the 1990 data.

## UNITS IN STRUCTURE

The data on units in structure (also referred to as "type of structure") were obtained from questionnaire item H2, which was asked at all housing units. A structure is a separate building that either has open spaces on all sides or is separated from other structures by dividing walls that extend from ground to roof. In determining the number of units in a structure, all housing units, both occupied and vacant, are counted. Stores or office space are excluded.

The statistics are presented for the number of housing units in structures of specified type and size, not for the number of residential buildings.

**1-Unit, Detached**—This is a 1-unit structure detached from any other structure; that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house which contains a business is considered detached as long as the building has open space on all four sides. Mobile homes or trailers to which one or more permanent rooms have been added or built are also included.

**1-Unit, Attached**—This is a 1-unit structure which has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (some-

attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.

**2 or More Units**—These are units in structures containing 2 or more housing units, further categorized as units in structures with 2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more units.

**Mobile Home or Trailer**—Both occupied and vacant mobile homes to which no permanent rooms have been added are counted in this category. Mobile homes or trailers used only for business purposes or for extra sleeping space and mobile homes or trailers for sale on a dealer's lot or in storage are not counted in the housing inventory.

**Other**—This category is for any living quarters occupied as a housing unit that does not fit the previous categories. Examples that fit this category are houseboats, campers, and vans.

**Comparability**—Data on units in structure have been collected since 1940 and on mobile homes and trailers since 1950. In 1970 and 1980, these data were shown only for year-round housing units. In 1990, these data are shown for all housing units. The 1980 category, "Boat, tent, van, etc." was replaced in 1990 by the category, "Other." In some areas, the proportion of units classified as "Other" is far larger than the number of units that were classified as "Boat, tent, van, etc." in 1980.

## USUAL HOME ELSEWHERE

The data for usual home elsewhere were obtained from questionnaire item E, which was completed by census employees. A housing unit temporarily occupied at the time of enumeration entirely by persons with a usual residence elsewhere is classified as vacant. The occupants are classified as having a "Usual home elsewhere" and are counted at the address of their usual place of residence. Typical examples are people in a vacation home, persons renting living quarters temporarily for work, and migrant workers.

**Limitation of the Data**—Evidence from previous censuses suggests that in some areas enumerators marked units as "vacant—usual home elsewhere" when they should have marked "vacant—regular."

**Comparability**—Data for usual home elsewhere were tabulated for the first time in 1980.

## UTILITIES

The data on utility costs were obtained from questionnaire items H24a through H24d, which were asked of occupied housing units. These items were asked on

Questions H24a through H24c asked for the monthly cost of utilities (electricity, gas, water). Question H24d asked for the yearly costs for other fuels (oil, charcoal, wood, kerosene, etc.). In the tabulations, this yearly amount is divided by 12 to derive the average monthly cost and are then included in the computation of "Gross Rent," "Gross Rent as a Percentage of Household Income in 1989," "Selected Monthly Owner Costs," and "Selected Monthly Owner Costs as a Percentage of Household Income in 1989."

Costs are recorded if paid by or billed to occupants, a welfare agency, relatives, or friends. Costs that are paid by landlords, included in the rent payment, or included in condominium or cooperative fees are excluded.

**Limitation of the Data**—Research has shown that respondents tended to overstate their expenses for electricity and gas when compared to utility company records. There is some evidence that this overstatement is reduced when yearly costs are asked rather than monthly costs. Caution should be exercised in using these data for direct analysis because costs are not reported for certain kinds of units such as renter-occupied units with all utilities included in the rent and owner-occupied condominium units with utilities included in the condominium fee.

**Comparability**—The data on utility costs have been collected since 1980 for owner-occupied housing units, and since 1940 for renter-occupied housing units.

## VACANCY STATUS

The data on vacancy status were obtained from questionnaire item C1, which was completed by census enumerators. Vacancy status and other characteristics of vacant units were determined by enumerators obtaining information from landlords, owners, neighbors, rental agents, and others. Vacant units are subdivided according to their housing market classification as follows:

**For Rent**—These are vacant units offered "for rent" and vacant units offered either "for rent or for sale."

**For Sale Only**—These are vacant units being offered "for sale only," including units in cooperatives and condominium projects if the individual units are offered "for sale only."

**Rented or Sold, Not Occupied**—If any money rent has been paid or agreed upon but the new renter has not moved in as of the date of enumeration, or if the unit has recently been sold but the new owner has not yet moved in, the vacant unit is classified as "rented or sold, not occupied."

**For Seasonal, Recreational, or Occasional Use**—These are vacant units used or intended for use only in certain seasons or for weekend or other occasional

use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Interval ownership units, sometimes called shared ownership or time-sharing condominiums, also are included here.

**For Migrant Workers**—These include vacant units intended for occupancy by migratory workers employed in farm work during the crop season. (Work in a cannery, a freezer plant, or a food processing plant is not farm work.)

**Other Vacant**—If a vacant unit does not fall into any of the classifications specified above, it is classified as "other vacant." For example, this category includes units held for occupancy by a caretaker or janitor, and units held for personal reasons of the owner.

**Homeowner Vacancy Rate**—This is the percentage relationship between the number of vacant units for sale and the total homeowner inventory. It is computed by dividing the number of vacant units for sale only by the sum of the owner-occupied units and the number of vacant units that are for sale only.

**Rental Vacancy Rate**—This is the percentage relationship of the number of vacant units for rent to the total rental inventory. It is computed by dividing the number of vacant units for rent by the sum of the renter-occupied units and the number of vacant units for rent.

**Comparability**—Data on vacancy status have been collected since 1940. For 1990, the category, "seasonal/ recreational/ occasional use" combined vacant units classified in 1980 as "seasonal" and "held for occasional use." Also, in 1970 and 1980, housing characteristics were generally presented only for year-round units. In 1990, housing characteristics are shown for all housing units.

## VALUE

The data on value (also referred to as "price asked" for vacant units) were obtained from questionnaire item H8, which was asked at housing units that were owned, being bought, or vacant for sale at the time of enumeration. Value is the respondent's estimate of how much the property (house and lot, mobile home and lot, or condominium unit) would sell for if it were for sale. If the house or mobile home is owned or being bought, but the land on which it sits is not, the respondent was asked to estimate the combined value of the house or mobile home and the land. For vacant units, value is the price asked for the property.

Value is tabulated separately for all owner-occupied and vacant-for-sale-only housing units, owner-occupied and vacant-for-sale mobile homes or trailers, and specified owner-occupied and specified vacant-for-sale-only

housing units. Specified owner-occupied and specified vacant-for-sale-only housing units include only one-family houses on less than 3 cuerdas without a commercial establishment or medical office on the property. The data for "specified" units exclude mobile homes, houses with a commercial establishment or medical office, houses on 3 or more cuerdas, and housing units in multi-unit buildings. A cuerda is approximately 0.97 acres.

**Median and Quartile Value**—The median divides the value distribution into two equal parts. Quartiles divide the value distribution into four equal parts. These measures are rounded to the nearest hundred dollars. (For more information on medians and quartiles, see the discussion under "Derived Measures.")

**Aggregate Value**—To calculate aggregate value, the amount assigned for the category "Less than \$10,000" is \$9,000. The amount assigned to the category "\$500,000 or more" is \$600,000. Mean value is rounded to the nearest hundred dollars. (For more information on aggregates and means, see the discussion under "Derived Measures.")

**Comparability**—In 1980, value was asked only at owner-occupied or vacant-for-sale one-family houses on less than 3 cuerdas with no commercial establishment or medical office on the property and at all owner-occupied or vacant-for-sale condominium housing units. Mobile homes were excluded. Value data were presented for specified owner-occupied housing units, specified vacant-for-sale-only housing units, and owner-occupied condominium housing units.

In 1990, the question was asked at all owner-occupied or vacant-for-sale-only housing units with no exclusions. For 1990, quartiles have been added because the range of values and rents in Puerto Rico has increased in recent years. Upper and lower quartiles can be used to note large value and rent differences among various geographic areas.

## VEHICLES AVAILABLE

The data on vehicles available were obtained from questionnaire item H23, which was asked at occupied housing units. This item was asked on a sample basis. These data show the number of households with a specified number of passenger cars, vans, and pickup or panel trucks of one-ton capacity or less kept at home and available for the use of household members. Vehicles rented or leased for one month or more, company vehicles, and police and government vehicles are included if kept at home and used for nonbusiness purposes. Dismantled or immobile vehicles are excluded. Vehicles kept at home but used only for business purposes also are excluded.

**Vehicles Per Household**—This is computed by dividing aggregate vehicles available by the number of occupied housing units.

**Limitation of the Data**—The 1980 census evaluations showed that the number of automobiles was slightly overreported; the number of vans and trucks slightly underreported. The statistics do not measure the number of vehicles privately owned or the number of households owning vehicles.

**Comparability**—Data on automobiles available were collected from 1960 to 1980. In 1980, a separate question also was asked on the number of trucks and vans. The data on automobiles and trucks and vans were presented separately and also as a combined vehicles available tabulation. The 1990 data are comparable to the 1980 vehicles available tabulations.

## WATER SUPPLY

The data on water supply (also referred to as "piped water") were obtained from questionnaire item H4a, which was asked at both occupied and vacant housing units. Piped water means a supply of water is available at the sink, wash basin, bathtub, or shower.

**Comparability**—Since 1940, a separate question on piped water has been asked in Puerto Rico. In 1970 and 1980, the question referred to piped water in the building where the unit was located. In 1990, the question asked for piped water inside the unit. In 1970 and 1980, data on piped water were shown only for year-round housing units. In 1990, these data are shown for all housing units.

## YEAR HOUSEHOLDER MOVED INTO UNIT

The data on year householder moved into unit were obtained from questionnaire item H11, which was asked at occupied housing units. This item was asked on a sample basis. These data refer to the year of the latest move by the householder. If a householder moved back into a housing unit he or she previously occupied, the year of the latest move was reported. If the householder moved from one apartment to another within the same building, the year the householder moved into the present apartment was reported. The intent is to establish the year the present occupancy by the householder began. The year that the householder moved in is not necessarily the same year other members of the household moved, although in the great majority of cases an entire household moves at the same time.

**Comparability**—In 1960 and 1970, this question was asked of every person and included in population reports. This item in housing tabulations refers to the year the householder moved in. In 1980 and 1990, the question was asked only of the householder.

## YEAR STRUCTURE BUILT

The data on year structure built were obtained from questionnaire item H12, which was asked at both occupied and vacant housing units. This item was asked on a sample basis. Data on year structure built refer to when the building was first constructed, not when it was remodeled, added to, or converted. For housing units under construction that met the housing unit definition—that is, all exterior windows, doors, and final usable floors were in place—the category “1989 or March 1990” was used. For a houseboat or a mobile home or trailer, the manufacturer’s model year was assumed to be the year built. The figures shown in census data products relate to the number of units built during the specified periods that were still in existence at the time of enumeration.

**Median Year Structure Built**—The median divides the distribution into two equal parts. The median is rounded to the nearest calendar year. Median age of housing can be obtained by subtracting median year structure built from 1990. For example, if the median year structure built is 1957, the median age of housing in that area is 33 years (1990 minus 1957).

**Limitation of the Data**—Data on year structure built are more susceptible to errors of response and nonreporting than data on many other items because respondents must rely on their memory or on estimates by persons who have lived in the neighborhood a long time. Available evidence indicates there is underreporting in the older-year-structure- built categories, especially “Built in 1939 or earlier.” The introduction of the “Don’t know” category (see the discussion on “Comparability”) may have resulted in relatively higher allocation rates. Data users should refer to the discussion in Appendix C, Accuracy of the Data, and to the allocation tables.

**Comparability**—Data on year structure built were collected for the first time in the 1940 census. Since then, the response categories have been modified to accommodate the 10-year period between each census. In 1990, the category, “Don’t Know,” was added in an effort to minimize the response error mentioned in the paragraph above on limitation of the data.

## DERIVED MEASURES

Census data products include various derived measures, such as medians, means, and percentages, as well as certain rates and ratios. Derived measures that round to less than 0.1 are not shown but indicated as zero. In printed reports, zero is indicated by a dash (–).

### Interpolation

Interpolation frequently is used in calculating medians or quartiles based on interval data and in approximating standard errors from tables. Linear interpolation

is used to estimate values of a function between two known values. “Pareto interpolation” is an alternative to linear interpolation. It is used by the Census Bureau in calculating median income within intervals wider than \$2,500. In Pareto interpolation, the median is derived by interpolating between the logarithms of the upper and lower income limits of the median category.

### Mean

This measure represents an arithmetic average of a set of values. It is derived by dividing the sum of a group of numerical items (or aggregate) by the total number of items. Aggregates are used in computing mean values. For example, mean family income is obtained by dividing the aggregate of all income reported by persons in families by the total number of families. (Additional information on means and aggregates is included in the separate explanations of many population and housing subjects.)

### Median

This measure represents the middle value in a distribution. The median divides the total frequency into two equal parts: one-half of the cases fall below the median and one-half of the cases exceed the median. The median is computed on the basis of the distribution as tabulated, which is sometimes more detailed than the distribution shown in specific census publications and other data products.

In reports, if the median falls within the upper interval of the tabulation distribution, the median is shown as the initial value of the interval followed by a plus sign (+); if within the lower interval, the median is shown as the upper value of the category followed by a minus sign (–). For summary tape files, if the median falls within the upper or lower interval, it is set to a specified value. (Additional information on medians is included in the separate explanations of many population and housing subjects.)

### Percentages, Rates, and Ratios

These measures are frequently presented in census products to compare two numbers or two sets of measurements. These comparisons are made in two ways:

(1) subtraction, which provides an absolute measure of the difference between two items, and (2) the quotient of two numbers, which provides a relative measure of difference.

### Quartile

This measure divides a distribution into four equal parts. The first quartile (or lower quartile) is the value that defines the upper limit of the lowest one-quarter of

the cases. The second quartile is the median. The third quartile (or upper quartile) defines the lower limit of the upper one-quarter of the cases in the distribution. The difference between the upper and lower quartiles is

called the interquartile range. This interquartile range is less affected by wide variations than is the mean. Quartiles are presented for certain financial characteristics such as housing value and rent.

# APPENDIX C.

## Accuracy of the Data

### CONTENTS

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### INTRODUCTION

The data contained in this data product are based on the 1990 census sample. The data are estimates of the actual figures that would have been obtained from a complete count. Estimates derived from a sample are expected to be different from the 100-percent figures because they are subject to sampling and nonsampling errors. Sampling error in data arises from the selection of persons and housing units to be included in the sample. Nonsampling error affects both sample and 100-percent data, and is introduced as a result of errors that may occur during the collection and processing phases of the census. Provided below is a detailed discussion of both types of errors and a description of the estimation procedures.

### SAMPLE DESIGN

Every person and housing unit in the United States was asked certain basic demographic and housing questions (for example, race, age, marital status, housing value, or rent). A sample of these persons and housing units was asked more detailed questions about such items as income, occupation, and housing costs in addition to the basic demographic and housing information. The primary sampling unit for the 1990 census was the housing unit, including all occupants. For persons living in group quarters, the sampling unit was the person. Persons in group quarters were sampled at a 1-in-6 rate.

The sample designation method depended on the data collection procedures. Approximately 95 percent of the population was enumerated by the mailback procedure. In these areas, the Bureau of the Census either purchased a commercial mailing list, which was updated by the United States Postal Service and Census Bureau field staff, or prepared a mailing list by canvassing and listing each address in the area prior to Census Day. These lists were computerized and the appropriate units

were electronically designated as sample units. The questionnaires were either mailed or hand-delivered to the addresses with instructions to complete and mail back the form.

Housing units in governmental units with a precensus (1988) estimated population of fewer than 2,500 persons were sampled at 1-in-2. Governmental units were defined for sampling purposes as all incorporated places, all counties, all county equivalents such as parishes in Louisiana, and all minor civil divisions in Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin. Housing units in census tracts and block numbering areas (BNA's) with a precensus housing unit count below 2,000 housing units were sampled at 1-in-6 for those portions not in small governmental units (governmental units with a population less than 2,500). Housing units within census tracts and BNA's with 2,000 or more housing units were sampled at 1-in-8 for those portions not in small governmental units.

In list/ enumerate areas (about 5 percent of the population), each enumerator was given a blank address register with designated sample lines. Beginning about Census Day, the enumerator systematically canvassed an assigned area and listed all housing units in the address register in the order they were encountered. Completed questionnaires, including sample information for any housing unit listed on a designated sample line, were collected. For all governmental units with fewer than 2,500 persons in list/ enumerate areas, a 1-in-2 sampling rate was used. All other list/ enumerate areas were sampled at 1-in-6.

Housing units in American Indian reservations, tribal jurisdiction statistical areas, and Alaska Native villages were sampled according to the same criteria as other governmental units, except the sampling rates were based on the size of the American Indian and Alaska Native population in those areas as measured in the 1980 census. Trust lands were sampled at the same rate as their associated American Indian reservations. Census designated places in Hawaii were sampled at the same rate as governmental units because the Census Bureau does not recognize incorporated places in Hawaii.

The purpose of using variable sampling rates was to provide relatively more reliable estimates for small areas and decrease respondent burden in more densely populated areas while maintaining data reliability. When all sampling rates were taken into account across the

Nation, approximately one out of every six housing units in the Nation was included in the 1990 census sample.

## CONFIDENTIALITY OF THE DATA

To maintain the confidentiality required by law (Title 13, United States Code), the Bureau of the Census applies a confidentiality edit to the 1990 census data to assure that published data do not disclose information about specific individuals, households, or housing units. As a result, a small amount of uncertainty is introduced into the estimates of census characteristics. The sample itself provides adequate protection for most areas for which sample data are published since the resulting data are estimates of the actual counts; however, small areas require more protection. The edit is controlled so that the basic structure of the data is preserved.

The confidentiality edit is implemented by selecting a small subset of individual households from the internal sample data files and blanking a subset of the data items on these household records. Responses to those data items were then imputed using the same imputation procedures that were used for nonresponse. A larger subset of households is selected for the confidentiality edit for small areas to provide greater protection for these areas. The editing process is implemented in such a way that the quality and usefulness of the data were preserved.

## ERRORS IN THE DATA

Since statistics in this data product are based on a sample, they may differ somewhat from 100-percent figures that would have been obtained if all housing units, persons within those housing units, and persons living in group quarters had been enumerated using the same questionnaires, instructions, enumerators, etc. The sample estimate also would differ from other samples of housing units, persons within those housing units, and persons living in group quarters. The deviation of a sample estimate from the average of all possible samples is called the sampling error. The standard error of a sample estimate is a measure of the variation among the estimates from all the possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The sample estimate and its estimated standard error permit the construction of interval estimates with prescribed confidence that the interval includes the average result of all possible samples. Described below is the method of calculating standard errors and confidence intervals for the data in this product.

In addition to the variability which arises from the sampling procedures, both sample data and 100-percent data are subject to nonsampling error. Nonsampling

error may be introduced during any of the various complex operations used to collect and process census data. For example, operations such as editing, reviewing, or handling questionnaires may introduce error into the data. A detailed discussion of the sources of nonsampling error is given in the section on "Control of Nonsampling Error" in this appendix.

Nonsampling error may affect the data in two ways. Errors that are introduced randomly will increase the variability of the data and should therefore be reflected in the standard error. Errors that tend to be consistent in one direction will make both sample and 100-percent data biased in that direction. For example, if respondents consistently tend to under-report their income, then the resulting counts of households or families by income category will tend to be understated for the higher income categories and overstated for the lower income categories. Such biases are not reflected in the standard error.

## Calculation of Standard Errors

**Totals and Percentages**—Tables A through C in this appendix contain the information necessary to calculate the standard errors of sample estimates in this data product. To calculate the standard error, it is necessary to know the basic standard error for the characteristic (given in table A or B) that would result under a simple random sample design (of persons, households, or housing units) and estimation technique; the design factor for the particular characteristic estimated (given in table C); and the number of persons or housing units in the tabulation area and the percent of these in the sample. For machine-readable products, the percent-in-sample is included in a data matrix on the file for each tabulation area. In printed reports, the percent-in-sample is provided in data tables at the end of the statistical tables that compose the report. The design factors reflect the effects of the actual sample design and complex ratio estimation procedure used for the 1990 census.

The steps given below should be used to calculate the standard error of an estimate of a total or a percentage contained in this product. A percentage is defined here as a ratio of a numerator to a denominator where the numerator is a subset of the denominator. For example, the proportion of Black teachers is the ratio of Black teachers to all teachers.

1. Obtain the standard error from table A or B (or use the formula given below the table) for the estimated total or percentage, respectively.
2. Find the geographic area to which the estimate applies in the appropriate percent-in-sample table or appropriate matrix, and obtain the person or housing unit "percent-in-sample" figure for this

area. Use the person "percent-in-sample" figure for person and family characteristics. Use the housing unit "percent-in-sample" figure for housing unit characteristics.

3. Use table C to obtain the design factor for the characteristic (for example, employment status, school enrollment) and the range that contains the percent-in-sample with which you are working. Multiply the basic standard error by this factor.

The unadjusted standard errors of zero estimates or of very small estimated totals or percentages will approach zero. This is also the case for very large percentages or estimated totals that are close to the size of the tabulation areas to which they correspond. Nevertheless, these estimated totals and percentages still are subject to sampling and nonsampling variability, and an estimated standard error of zero (or a very small standard error) is not appropriate. For estimated percentages that are less than 2 or greater than 98, use the basic standard errors in table B that appear in the "2 or 98" row. For an estimated total that is less than 50 or within 50 of the total size of the tabulation area, use a basic standard error of 16.

An illustration of the use of the tables is given in the section entitled "Use of Tables to Compute Standard Errors."

**Sums and Differences**—The standard errors estimated from these tables are not directly applicable to sums of and differences between two sample estimates. To estimate the standard error of a sum or difference, the tables are to be used somewhat differently in the following three situations:

1. For the sum of or difference between a sample estimate and a 100-percent value, use the standard error of the sample estimate. The complete count value is not subject to sampling error.
2. For the sum of or difference between two sample estimates, the appropriate standard error is approximately the square root of the sum of the two individual standard errors squared; that is, for standard errors:

$SE_{\hat{X}}$  and  $SE_{\hat{Y}}$  of estimates  $\hat{X}$  and  $\hat{Y}$ :

$$SE_{(\hat{X} \pm \hat{Y})} = SE_{(\hat{X} - \hat{Y})} = \sqrt{(SE_{\hat{X}})^2 + (SE_{\hat{Y}})^2}$$

This method, however, will underestimate (overestimate) the standard error if the two items in a sum are highly positively (negatively) correlated or if the two items in a difference are highly negatively (positively) correlated. This method may also be used for the difference between (or sum of) sample estimates from two censuses or from a census sample and another survey. The

standard error for estimates not based on the 1990 census sample must be obtained from an appropriate source outside of this appendix.

3. For the differences between two estimates, one of which is a subclass of the other, use the tables directly where the calculated difference is the estimate of interest. For example, to determine the estimate of non-Black teachers, one may subtract the estimate of Black teachers from the estimate of total teachers. To determine the standard error of the estimate of non-Black teachers apply the above formula directly.

**Ratios**—Frequently, the statistic of interest is the ratio of two variables, where the numerator is not a subset of the denominator. For example, the ratio of teachers to students in public elementary schools. The standard error of the ratio between two sample estimates is estimated as follows:

1. If the ratio is a proportion, then follow the procedure outlined for "Totals and Percentages."
2. If the ratio is not a proportion, then approximate the standard error using the formula below.

$$SE_{(\hat{X}/\hat{Y})} = \frac{\hat{X}}{\hat{Y}} \sqrt{\frac{(SE_{\hat{X}})^2}{\hat{X}^2} + \frac{(SE_{\hat{Y}})^2}{\hat{Y}^2}}$$

**Medians**—For the standard error of the median of a characteristic, it is necessary to examine the distribution from which the median is derived, as the size of the base and the distribution itself affect the standard error. An approximate method is given here. As the first step, compute one-half of the number on which the median is based (refer to this result as  $N/2$ ). Treat  $N/2$  as if it were an ordinary estimate and obtain its standard error as instructed above. Compute the desired confidence interval about  $N/2$ . Starting with the lowest value of the characteristic, cumulate the frequencies in each category of the characteristic until the sum equals or first exceeds the lower limit of the confidence interval about  $N/2$ . By linear interpolation, obtain a value of the characteristic corresponding to this sum. This is the lower limit of the confidence interval of the median. In a similar manner, continue cumulating frequencies until the sum equals or exceeds the count in excess of the upper limit of the interval about  $N/2$ . Interpolate as before to obtain the upper limit of the confidence interval for the estimated median.

When interpolation is required in the upper open-ended interval of a distribution to obtain a confidence bound, use 1.5 times the lower limit of the open-ended confidence interval as the upper limit of the open-ended interval.

### Confidence Intervals

A sample estimate and its estimated standard error may be used to construct confidence intervals about the estimate. These intervals are ranges that will contain

the average value of the estimated characteristic that results over all possible samples, with a known probability. For example, if all possible samples that could result under the 1990 census sample design were independently selected and surveyed under the same conditions, and if the estimate and its estimated standard error were calculated for each of these samples, then:

1. Approximately 68 percent of the intervals from one estimated standard error below the estimate to one estimated standard error above the estimate would contain the average result from all possible samples;
2. Approximately 90 percent of the intervals from 1.645 times the estimated standard error below the estimate to 1.645 times the estimated standard error above the estimate would contain the average result from all possible samples.
3. Approximately 95 percent of the intervals from two estimated standard errors below the estimate to two estimated standard errors above the estimate would contain the average result from all possible samples.

The intervals are referred to as 68 percent, 90 percent, and 95 percent confidence intervals, respectively.

The average value of the estimated characteristic that could be derived from all possible samples is or is not contained in any particular computed interval. Thus, we cannot make the statement that the average value has a certain probability of falling between the limits of the calculated confidence interval. Rather, one can say with a specified probability of confidence that the calculated confidence interval includes the average estimate from all possible samples (approximately the 100-percent value).

Confidence intervals also may be constructed for the ratio, sum of, or difference between two sample figures. This is done by first computing the ratio, sum, or difference, then obtaining the standard error of the ratio, sum, or difference (using the formulas given earlier), and finally forming a confidence interval for this estimated ratio, sum, or difference as above. One can then say with specified confidence that this interval includes the ratio, sum, or difference that would have been obtained by averaging the results from all possible samples.

The estimated standard errors given in this appendix do not include all portions of the variability due to nonsampling error that may be present in the data. The standard errors reflect the effect of simple response variance, but not the effect of correlated errors introduced by enumerators, coders, or other field or processing personnel. Thus, the standard errors calculated represent a lower bound of the total error. As a result,

confidence intervals formed using these estimated standard errors may not meet the stated levels of confidence (i.e., 68, 90, or 95 percent). Thus, some care must be exercised in the interpretation of the data in this data product based on the estimated standard errors.

A standard sampling theory text should be helpful if the user needs more information about confidence intervals and nonsampling errors.

## Use of Tables to Compute Standard Errors

The following is a hypothetical example of how to compute a standard error of a total and a percentage. Suppose a particular data table shows that for City A 9,948 persons out of all 15,888 persons age 16 years and over were in the civilian labor force. The percent-in-sample table lists City A with a percent-in-sample of 16.0 percent (Persons column). The column in table C which includes 16.0 percent-in-sample shows the design factor to be 1.1 for "Employment status."

The basic standard error for the estimated total 9,948 may be obtained from table A or from the formula given below table A. In order to avoid interpolation, the use of the formula will be demonstrated here. Suppose that the total population of City A was 21,220. The formula for the basic standard error, SE, is

$$\begin{aligned} SE(9,948) &= \sqrt{5(9,948)(1 - 9,948/21,220)} \\ &= 163 \text{ persons.} \end{aligned}$$

The standard error of the estimated 9,948 persons 16 years and over who were in the civilian labor force is found by multiplying the basic standard error 163 by the design factor, 1.1 from table C. This yields an estimated standard error of 179 for the total number of persons 16 years and over in City A who were in the civilian labor force.

The estimated percent of persons 16 years and over who were in the civilian labor force in City A is 62.6. From table B, the unadjusted standard error is found to be approximately 0.85 percentage points. The standard error for the estimated 62.6 percent of persons 16 years and over who were in the civilian labor force is  $0.85 \times 1.1 = 0.94$  percentage points.

A note of caution concerning numerical values is necessary. Standard errors of percentages derived in this manner are approximate. Calculations can be expressed to several decimal places, but to do so would indicate more precision in the data than is justifiable. Final results should contain no more than two decimal places when the estimated standard error is one percentage point (i.e., 1.00) or more.

In the previous example, the standard error of the 9,948 persons 16 years and over in City A who were in the civilian labor force was found to be 179. Thus, a 90

percent confidence interval for this estimated total is found to be:

$$[9,948 - 1.645(179)] \text{ to } [9,948 + 1.645(179)]$$

or

$$9,654 \text{ to } 10,242$$

One can say, with about 90 percent confidence, that this interval includes the value that would have been obtained by averaging the results from all possible samples.

The following is an illustration of the calculation of standard errors and confidence intervals when a difference between two sample estimates is obtained. For example, suppose the number of persons in City B age 16 years and over who were in the civilian labor force was 9,314 and the total number of persons 16 years and over was 16,666. Further suppose the population of City B was 25,225. Thus, the estimated percentage of persons 16 years and over who were in the civilian labor force is 55.9 percent. The unadjusted standard error determined using the formula provided at the bottom of table B is 0.86 percentage points. We find that City B had a percent-in-sample of 15.7. The range which includes 15.7 percent-in-sample in table C shows the design factor to be 1.1 for "Employment Status." Thus, the approximate standard error of the percentage (55.9 percent) is  $0.86 \times 1.1 = 0.95$  percentage points.

Now suppose that one wished to obtain the standard error of the difference between City A and City B of the percentages of persons who were 16 years and over and who were in the civilian labor force. The difference in the percentages of interest for the two cities is:

$$62.6 - 55.9 = 6.7 \text{ percent.}$$

Using the results of the previous example:

$$SE(6.7) = \sqrt{(SE(62.6))^2 + (SE(55.9))^2} = \sqrt{(0.94)^2 + (0.95)^2}$$

= 1.34 percentage points

The 90 percent confidence interval for the difference is formed as before:

$$[6.70 - 1.645(1.34)] \text{ to } [6.70 + 1.645(1.34)]$$

or

$$4.50 \text{ to } 8.90$$

One can say with 90 percent confidence that the interval includes the difference that would have been obtained by averaging the results from all possible samples.

For reasonably large samples, ratio estimates are normally distributed, particularly for the census population. Therefore, if we can calculate the standard error of a ratio estimate then we can form a confidence interval around the ratio. Suppose that one wished to obtain the standard error of the ratio of the estimate of persons who were 16 years and over and who were in the civilian labor force in City A to the estimate of persons who

were 16 years and over and who were in the civilian labor force in City B. The ratio of the two estimates of interest is:

$$9948/9314 = 1.07$$

$$SE(1.07) = \left(\frac{9948}{9314}\right) \sqrt{\frac{179^2}{(9948)^2} + \frac{188^2}{(9314)^2}}$$

= .029

Using the results above, the 90 percent confidence interval for this ratio would be:

$$[1.07 - 1.645(.029)] \text{ to } [1.07 + 1.645(.029)]$$

or

$$1.02 \text{ to } 1.12$$

## ESTIMATION PROCEDURE

The estimates which appear in this publication were obtained from an iterative ratio estimation procedure (iterative proportional fitting) resulting in the assignment of a weight to each sample person or housing unit record. For any given tabulation area, a characteristic total was estimated by summing the weights assigned to the persons or housing units possessing the characteristic in the tabulation area. Estimates of family or household characteristics were based on the weight assigned to the family member designated as householder. Each sample person or housing unit record was assigned exactly one weight to be used to produce estimates of all characteristics. For example, if the weight given to a sample person or housing unit had the value 6, all characteristics of that person or housing unit would be tabulated with the weight of 6. The estimation procedure, however, did assign weights varying from person to person or housing unit to housing unit. The estimation procedure used to assign the weights was performed in geographically defined "weighting areas." Weighting areas generally were formed of contiguous geographic units which agreed closely with census tabulation areas within counties. Weighting areas were required to have a minimum sample of 400 persons. Weighting areas never crossed State or county boundaries. In small counties with a sample count below 400 persons, the minimum required sample condition was relaxed to permit the entire county to become a weighting area.

Within a weighting area, the ratio estimation procedure for persons was performed in four stages. For persons, the first stage applied 17 household-type groups. The second stage used two groups: sampling rate of 1-in-2; sampling rate less than 1-in-2. The third stage used the dichotomy householders/nonhouseholders. The fourth stage applied 180 aggregate age-sex-race-Hispanic origin categories. The stages were as follows:

**PERSONS**

**STAGE I: TYPE OF HOUSEHOLD**

<b>Group</b>	<b>Persons in Housing Units With a Family With Own Children Under 18</b>
1	2 persons in housing unit
2	3 persons in housing unit
3	4 persons in housing unit
4	5 to 7 persons in housing unit
5	8 or more persons in housing unit
	<b>Persons in Housing Units With a Family Without Own Children Under 18</b>
6-10	2 through 8 or more persons in housing unit
	<b>Persons in All Other Housing Units</b>
11	1 person in housing unit
12-16	2 through 8 or more persons in housing unit
	<b>Persons in Group Quarters</b>
17	Persons in Group Quarters

**STAGE II: SAMPLING RATES**

1	Sampling rate of 1-in-2
2	Sampling rate less than 1-in-2

**STAGE III: HOUSEHOLDER/ NONHOUSEHOLDER**

1	Householder
2	Nonhouseholder

**STAGE IV: AGE/ SEX/ RACE/ HISPANIC ORIGIN**

<b>Group</b>	<b>White</b>
	<b>Persons of Hispanic Origin</b>
	<b>Male</b>
1	0 to 4 years
2	5 to 14 years
3	15 to 19 years
4	20 to 24 years
5	25 to 34 years
6	35 to 54 years
7	55 to 64 years
8	65 to 74 years
9	75 years and over
	<b>Female</b>
10-18	Same age categories as groups 1 through 9.
	<b>Persons Not of Hispanic Origin</b>
19-36	Same sex and age categories as groups 1 through 18.
	<b>Black</b>
37-72	Same age/ sex/ Hispanic origin categories as groups 1 through 36.

**STAGE II: SAMPLING RATES**

73-108	Asian or Pacific Islander Same age/ sex/ Hispanic origin categories as groups 1 through 36.
109-144	American Indian, Eskimo, or Aleut Same age/ sex/ Hispanic origin categories as groups 1 through 36.
145-180	Other Race (includes those races not listed above) Same age/ sex/ Hispanic origin categories as groups 1 through 36.

Within a weighting area, the first step in the estimation procedure was to assign an initial weight to each sample person record. This weight was approximately equal to the inverse of the probability of selecting a person for the census sample.

The next step in the estimation procedure, prior to iterative proportional fitting, was to combine categories in each of the four estimation stages, when needed to increase the reliability of the ratio estimation procedure. For each stage, any group that did not meet certain criteria for the unweighted sample count or for the ratio of the 100-percent to the initially weighted sample count, was combined, or collapsed, with another group in the same stage according to a specified collapsing pattern. At the fourth stage, an additional criterion concerning the number of complete count persons in each race/ Hispanic origin category was applied.

As the final step, the initial weights underwent four stages of ratio adjustment applying the grouping procedures described above. At the first stage, the ratio of the complete census count to the sum of the initial weights for each sample person was computed for each stage I group. The initial weight assigned to each person in a group was then multiplied by the stage I group ratio to produce an adjusted weight.

In stage II, the stage I adjusted weights were again adjusted by the ratio of the complete census count to the sum of the stage I weights for sample persons in each stage II group. Next, at stage III, the stage II weights were adjusted by the ratio of the complete census count to the sum of the stage II weights for sample persons in each stage III group. Finally, at stage IV, the stage III weights were adjusted by the ratio of the complete census count to the sum of the stage III weights for sample persons in each stage IV group. The four stages of ratio adjustment were performed two times (two iterations) in the order given above. The weights obtained from the second iteration for stage IV were assigned to the sample person records. However, to avoid complications in rounding for tabulated data, only whole number weights were assigned. For example, if the final weight of the persons in a particular group was 7.25 then 1/4 of the sample persons in this group were randomly assigned a weight of 8, while the remaining 3/4 received a weight of 7.

The ratio estimation procedure for housing units was essentially the same as that for persons, except that vacant units were treated differently. The occupied housing unit ratio estimation procedure was done in four stages, and the vacant housing unit ratio estimation procedure was done in a single stage. The first stage for occupied housing units applied 16 household type categories, while the second stage used the two sampling categories described above for persons. The third stage applied three units-in-structure categories; i.e. single units, multi-unit less than 10 and multi-unit 10 or more. The fourth stage could potentially use 200 tenure-race-Hispanic origin-value/ rent groups. The stages for ratio estimation for housing units were as follows:

**OCCUPIED HOUSING UNITS**

**STAGE I: TYPE OF HOUSEHOLD**

<b>Group</b>	<b>Housing Units With a Family With Own Children Under 18</b>
1	2 persons in housing unit
2	3 persons in housing unit
3	4 persons in housing unit
4	5 to 7 persons in housing unit
5	8 or more persons in housing unit
	<b>Housing Units With a Family Without Own Children Under 18</b>
6-10	2 through 8 or more persons in housing unit
	<b>All Other Housing Units</b>
11	1 person in housing unit
12-16	2 through 8 or more persons in housing unit

**STAGE II: SAMPLING RATE CATEGORY**

1	Sampling rate of 1-in-2
2	Sampling rate less than 1-in-2

**STAGE III: UNITS IN STRUCTURE**

1	Single unit structure
2	Multi-unit structure consisting of fewer than 10 individual units
3	Multi-unit structure consisting of 10 or more individual units

**STAGE IV: TENURE/ RACE AND HISPANIC ORIGIN OF HOUSEHOLDER/ VALUE OR RENT**

<b>Group</b>	<b>Owner</b>
	White Householder
	Householder of Hispanic Origin
	Value
1	Less than \$20,000
2	\$20,000 to \$39,999
3	\$40,000 to \$59,999
4	\$60,000 to \$79,999

**STAGE IV: TENURE/ RACE AND HISPANIC ORIGIN OF HOUSEHOLDER/ VALUE OR RENT—  
Con.**

5	\$80,000 to \$99,999
6	\$100,000 to \$149,999
7	\$150,000 to \$249,999
8	\$250,000 to \$299,999
9	\$300,000 or more
10	Other <sup>1</sup>
	<b>Householder Not of Hispanic Origin</b>
11-20	Same value categories as groups 1 through 10
	<b>Black Householder</b>
21-40	Same Hispanic origin/ value categories as groups 1 through 20
	<b>Asian or Pacific Islander Householder</b>
41-60	Same Hispanic origin/ value categories as groups 1 through 20
	<b>American Indian, Eskimo, or Aleut Householder</b>
61-80	Same Hispanic origin/ value categories as groups 1 through 20
	<b>Householder of Other Race</b>
81-100	Same Hispanic origin/ value categories as groups 1 through 20
	<b>Renter</b>
	<b>White Householder</b>
	<b>Householder of Hispanic origin</b>
	<b>Rent</b>
101	Less than \$100
102	\$100 to \$199
103	\$200 to \$299
104	\$300 to \$399
105	\$400 to \$499
106	\$500 to \$599
107	\$600 to \$749
108	\$750 to \$999
109	\$1,000 or more
110	No cash rent
	<b>Householder Not of Hispanic Origin</b>
111-120	Same rent categories as groups 101 through 110
	<b>Black Householder</b>
121-140	Same Hispanic origin/ rent categories as groups 101 through 120

<sup>1</sup>Value of units in this category results from other factors besides housing value alone, for example, inclusion of more than 10 acres of land, or presence of a business establishment on the premises.

**STAGE IV: TENURE/ RACE AND HISPANIC ORIGIN OF HOUSEHOLDER/ VALUE OR RENT—  
Con.**

	Asian or Pacific Islander Householder
141-160	Same Hispanic origin/ rent categories as groups 101 through 120
	American Indian, Eskimo, or Aleut Householder
161-180	Same Hispanic origin/ rent categories as groups 101 through 120
	Householder of Other Race
181-200	Same Hispanic origin/ rent categories as groups 101 through 120
	<b>Vacant Housing Units</b>
1	Vacant for rent
2	Vacant for sale
3	Other vacant

The estimates produced by this procedure realize some of the gains in sampling efficiency that would have resulted if the population had been stratified into the ratio estimation groups before sampling, and if the sampling rate had been applied independently to each group. The net effect is a reduction in both the standard error and the possible bias of most estimated characteristics to levels below what would have resulted from simply using the initial, unadjusted weight. A by-product of this estimation procedure is that the estimates from the sample will, for the most part, be consistent with the complete count figures for the population and housing unit groups used in the estimation procedure.

**Control of Nonsampling Error**

As mentioned earlier, both sample and 100-percent data are subject to nonsampling error. This component of error could introduce serious bias into the data, and the total error could increase dramatically over that which would result purely from sampling. While it is impossible to completely eliminate nonsampling error from an operation as large and complex as the decennial census, the Bureau of the Census attempted to control the sources of such error during the collection and processing operations. Described below are the primary sources of nonsampling error and the programs instituted for control of this error. The success of these programs, however, was contingent upon how well the instructions actually were carried out during the census. As part of the 1990 census evaluation program, both the effects of these programs and the amount of error remaining after their application will be evaluated.

**Undercoverage**—It is possible for some households or persons to be missed entirely by the census. The undercoverage of persons and housing units can introduce biases into the data.

Several coverage improvement programs were implemented during the development of the census address list and census enumeration and processing to minimize undercoverage of the population and housing units. These programs were developed based on experience from the 1980 census and results from the 1990 census testing cycle. In developing and updating the census address list, the Census Bureau used a variety of specialized procedures in different parts of the country.

- In the large urban areas, the Census Bureau purchased and geocoded address lists. Concurrent with geocoding, the United States Postal Service (USPS) reviewed and updated this list. After the postal check, census enumerators conducted a dependent canvass and update operation. In the fall of 1989, local officials were given the opportunity to examine block counts of address listings (local review) and identify possible errors. Prior to mailout, the USPS conducted a final review.
- In small cities, suburban areas, and selected rural parts of the country, the Census Bureau created the address list through a listing operation. The USPS reviewed and updated this list, and the Census Bureau reconciled USPS corrections and updated through a field operation. In the fall of 1989, local officials participated in reviewing block counts of address listings. Prior to mailout, the USPS conducted a final review.
- The Census Bureau (rather than the USPS) conducted a listing operation in the fall of 1989 and delivered census questionnaires in selected rural and seasonal housing areas in March of 1990. In some inner-city public housing developments, whose addresses had been obtained via the purchased address list noted above, census questionnaires were also delivered by Census Bureau enumerators.

Coverage improvement programs continued during and after mailout. A recheck of units initially classified as vacant or nonexistent improved further the coverage of persons and housing units. All local officials were given the opportunity to participate in a post-census local review, and census enumerators conducted an additional recanvass. In addition, efforts were made to improve the coverage of unique population groups, such as the homeless and parolees/probationers. Computer and clerical edits and telephone and personal visit followup also contributed to improved coverage.

More extensive discussion of the programs implemented to improve coverage will be published by the Census Bureau when the evaluation of the coverage improvement program is completed.

**Respondent and Enumerator Error**—The person answering the questionnaire or responding to the questions posed by an enumerator could serve as a source of error, although the questions were phrased as clearly as possible based on precensus tests, and detailed instructions for completing the questionnaire were provided to each household. In addition, respondents' answers were edited for completeness and consistency, and problems were followed up as necessary.

The enumerator may misinterpret or otherwise incorrectly record information given by a respondent; may fail to collect some of the information for a person or household; or may collect data for households that were not designated as part of the sample. To control these problems, the work of enumerators was monitored carefully. Field staff were prepared for their tasks by using standardized training packages that included hands-on experience in using census materials. A sample of the households interviewed by enumerators for nonresponse were reinterviewed to control for the possibility of data for fabricated persons being submitted by enumerators. Also, the estimation procedure was designed to control for biases that would result from the collection of data from households not designated for the sample.

**Processing Error**—The many phases involved in processing the census data represent potential sources for the introduction of nonsampling error. The processing of the census questionnaires includes the field editing, followup, and transmittal of completed questionnaires; the manual coding of write-in responses; and the electronic data processing. The various field, coding and computer operations undergo a number of quality control checks to insure their accurate application.

**Nonresponse**—Nonresponse to particular questions on the census questionnaire allows for the introduction of bias into the data, since the characteristics of the nonrespondents have not been observed and may differ from those reported by respondents. As a result, any imputation procedure using respondent data may not completely reflect this difference either at the elemental level (individual person or housing unit) or on the average. Some protection against the introduction of large biases is afforded by minimizing nonresponse. In the census, nonresponse was reduced substantially during the field operations by the various edit and followup operations aimed at obtaining a response for every question. Characteristics for the nonresponses remaining after this operation were imputed by the computer by using reported data for a person or housing unit with similar characteristics.

## EDITING OF UNACCEPTABLE DATA

The objective of the processing operation is to produce a set of data that describes the population as accurately and clearly as possible. To meet this objective, questionnaires were edited during field data collection operations for consistency, completeness, and acceptability. Questionnaires also were reviewed by census clerks for omissions, certain specific inconsistencies, and population coverage. For example, write-in entries such as "Don't know" or "NA" were considered unacceptable. For some district offices, the initial edit was automated; however, for the majority of the district offices, it was performed by clerks. As a result of this operation, a telephone or personal visit followup was made to obtain missing information. Potential coverage errors were included in the followup, as well as a sample of questionnaires with omissions and/or inconsistencies.

Subsequent to field operations, remaining incomplete or inconsistent information on the questionnaires was assigned using imputation procedures during the final automated edit of the collected data. Imputations, or computer assignments of acceptable codes in place of unacceptable entries or blanks, are needed most often when an entry for a given item is lacking or when the information reported for a person or housing unit on that item is inconsistent with other information for that same person or housing unit. As in previous censuses, the general procedure for changing unacceptable entries was to assign an entry for a person or housing unit that was consistent with entries for persons or housing units with similar characteristics. The assignment of acceptable codes in place of blanks or unacceptable entries enhances the usefulness of the data.

Another way in which corrections were made during the computer editing process was through substitution; that is, the assignment of a full set of characteristics for a person or housing unit. When there was an indication that a housing unit was occupied but the questionnaire contained no information for the people within the household or the occupants were not listed on the questionnaire, a previously accepted household was selected as a substitute, and the full set of characteristics for the substitute was duplicated. The assignment of the full set of housing characteristics occurred when there was no housing information available. If the housing unit was determined to be occupied, the housing characteristics were assigned from a previously processed occupied unit. If the housing unit was vacant, the housing characteristics were assigned from a previously processed vacant unit.

**Table A. Unadjusted Standard Error for Estimated Totals**

[Based on a 1-in-6 simple random sample]

Estimated Total <sup>1</sup>	Size of publication area <sup>2</sup>													
	500	1,000	2,500	5,000	10,000	25,000	50,000	100,000	250,000	500,000	1,000,000	5,000,000	10,000,000	25,000,000
50	16	18	18	18	18	18	18	18	18	18	18	18	18	18
250	25	30	35	35	35	35	35	35	35	35	35	35	35	35
500	-	35	45	45	50	50	50	50	50	50	50	50	50	50
1,000	-	-	55	65	65	70	70	70	70	70	70	70	70	70
2,500	-	-	-	80	95	110	110	110	110	110	110	110	110	110
5,000	-	-	-	-	110	140	150	150	160	160	160	160	160	160
10,000	-	-	-	-	-	170	200	210	220	220	220	220	220	220
15,000	-	-	-	-	-	170	230	250	270	270	270	270	270	270
25,000	-	-	-	-	-	-	250	310	340	350	350	350	350	350
75,000	-	-	-	-	-	-	-	310	610	570	590	610	610	610
100,000	-	-	-	-	-	-	-	-	550	630	670	700	700	710
250,000	-	-	-	-	-	-	-	-	-	790	970	1 090	1 100	1 100
500,000	-	-	-	-	-	-	-	-	-	-	1 120	1 500	1 540	1 570
1,000,000	-	-	-	-	-	-	-	-	-	-	-	2 000	2 120	2 190
5,000,000	-	-	-	-	-	-	-	-	-	-	-	-	3 540	4 470
10,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-	5 480

<sup>1</sup>For estimated totals larger than 10,000,000, the standard error is somewhat larger than the table values. The formula given below should be used to calculate the standard error.

$$SE(\hat{Y}) = \sqrt{5 \hat{Y} \left( \frac{\hat{Y}}{N} \right)}$$

N = Size of area

$\hat{Y}$  = Estimate of characteristic total

<sup>2</sup>The total count of persons in the area if the estimated total is a person characteristic, or the total count of housing units in the area if the estimated total is a housing unit characteristic.

**Table B. Unadjusted Standard Error in Percentage Points for Estimated Percentage**

[Based on a 1-in-6 simple random sample]

Estimated Percentage	Base of percentage <sup>1</sup>													
	500	750	1,000	1,500	2,500	5,000	7,500	10,000	25,000	50,000	100,000	250,000	500,000	
2 or 98	1.4	1.1	1.0	0.8	0.6	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	
5 or 95	2.2	1.8	1.5	1.3	1.0	0.7	0.6	0.5	0.3	0.2	0.2	0.1	0.1	
10 or 90	3.0	2.4	2.1	1.7	1.3	0.9	0.8	0.7	0.4	0.3	0.2	0.1	0.1	
15 or 85	3.8	2.9	2.5	2.1	1.6	1.1	0.9	0.8	0.5	0.4	0.3	0.2	0.1	
20 or 80	4.0	3.3	2.8	2.3	1.8	1.3	1.0	0.9	0.6	0.4	0.3	0.2	0.1	
25 or 75	4.3	3.5	3.1	2.5	1.9	1.4	1.1	1.0	0.6	0.4	0.3	0.2	0.1	
30 or 70	4.6	3.7	3.2	2.6	2.0	1.4	1.2	1.0	0.6	0.5	0.3	0.2	0.1	
35 or 65	4.8	3.9	3.4	2.8	2.1	1.5	1.2	1.1	0.7	0.5	0.3	0.2	0.2	
50	5.0	4.1	3.5	2.9	2.2	1.6	1.3	1.1	0.7	0.5	0.4	0.2	0.2	

<sup>1</sup>For a percentage and/ or base of percentage not shown in the table, the formula given below may be used to calculate the standard error. This table should only be used for proportions, that is, where the numerator is a subset of the denominator.

$$SE(\hat{p}) = \sqrt{\frac{5}{B} \hat{p} (100 - \hat{p})}$$

B = Base of estimated percentage

$\hat{p}$  = Estimated percentage

**Table C. Standard Error Design Factors—Aguadilla**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age	1.2	1.1
Sex	1.7	1.5
Marital status	1.2	1.0
Household type and relationship	1.4	1.2
Children ever born	3.0	2.8
Work disability and mobility limitation status	1.2	1.1
Place of birth	2.5	2.3
Citizenship	2.1	1.8
Residence in 1985	2.4	2.2
Year of entry	3.2	2.7
Ability to speak Spanish and/ or English	1.5	1.3
Educational attainment	1.3	1.1
School enrollment	1.9	1.6
Ability to read and write	1.5	1.3
Vocational training	1.6	1.4
Length of last stay in the United States	3.3	2.7
School attendance	3.3	2.7
Type of residence (urban/ rural)	2.7	2.2
Household type	1.2	1.1
Family type	1.4	1.3
Subfamily type and presence of children	1.2	1.1
Group quarters	1.1	0.9
Employment status	1.2	1.1
Industry	1.2	1.1
Occupation	1.2	1.1
Class of worker	1.3	1.2
Hours per week and weeks worked in 1989	1.2	1.1
Number of workers in family	1.3	1.1
Place of work	1.3	1.2
Means of transportation to work	1.3	1.1
Travel time to work	1.3	1.1
Time leaving home to go to work	1.3	1.1
Private vehicle occupancy	1.3	1.2
Type of income in 1989	1.4	1.2
Household income in 1989	1.2	1.1
Family income in 1989	1.2	1.1
Poverty status in 1989 (persons)	1.3	1.2
Poverty status in 1989 (families)	1.2	1.1
Armed Forces and veteran status	1.7	1.4
<b>HOUSING</b>		
Age of householder	1.0	0.9
Type of residence (urban/ rural)	1.0	0.9
Units in structure	1.2	1.2
Tenure	1.3	1.1
Occupancy status	1.5	1.3
Condominium status	1.2	1.0
Value	1.2	1.0
Gross rent	1.2	1.0
Household income in 1989	1.2	1.1
Year structure built	1.2	1.1
Type of construction	1.3	1.2
Condition of housing unit	1.4	1.4
Rooms, bedrooms, and bathrooms	1.2	1.1
Kitchen facilities	1.6	1.3
Cooking fuel	1.2	1.1
Source of water, plumbing facilities	1.3	1.3
Type of water heater	1.2	1.1
Sewage disposal	1.1	1.0
Air conditioning	1.4	1.2
Telephone in housing unit	1.2	1.1
Vehicles available	1.2	1.1
Year householder moved into structure	1.2	1.1
Mortgage status and monthly mortgage costs	1.2	1.0
Mortgage status and selected monthly owner costs	1.2	1.0
Gross rent as a percentage of household income in 1989	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income	1.2	1.0

**Table C. Standard Error Design Factors—Arecibo**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age.....	1.2	1.1
Sex.....	1.7	1.5
Marital status.....	1.2	1.0
Household type and relationship.....	1.4	1.2
Children ever born.....	3.0	2.8
Work disability and mobility limitation status.....	1.2	1.1
Place of birth.....	2.5	2.3
Citizenship.....	2.1	1.8
Residence in 1985.....	2.4	2.2
Year of entry.....	3.2	2.7
Ability to speak Spanish and/ or English.....	1.5	1.3
Educational attainment.....	1.3	1.1
School enrollment.....	1.9	1.6
Ability to read and write.....	1.5	1.3
Vocational training.....	1.6	1.4
Length of last stay in the United States.....	3.3	2.7
School attendance.....	3.3	2.7
Type of residence (urban/ rural).....	2.7	2.2
Household type.....	1.2	1.1
Family type.....	1.4	1.3
Subfamily type and presence of children.....	1.2	1.1
Group quarters.....	1.1	0.9
Employment status.....	1.2	1.1
Industry.....	1.2	1.1
Occupation.....	1.2	1.1
Class of worker.....	1.3	1.2
Hours per week and weeks worked in 1989.....	1.2	1.1
Number of workers in family.....	1.3	1.1
Place of work.....	1.3	1.2
Means of transportation to work.....	1.3	1.1
Travel time to work.....	1.3	1.1
Time leaving home to go to work.....	1.3	1.1
Private vehicle occupancy.....	1.3	1.2
Type of income in 1989.....	1.4	1.2
Household income in 1989.....	1.2	1.1
Family income in 1989.....	1.2	1.1
Poverty status in 1989 (persons).....	1.3	1.2
Poverty status in 1989 (families).....	1.2	1.1
Armed Forces and veteran status.....	1.7	1.4
<b>HOUSING</b>		
Age of householder.....	1.0	0.9
Type of residence (urban/ rural).....	1.0	0.9
Units in structure.....	1.2	1.2
Tenure.....	1.3	1.1
Occupancy status.....	1.5	1.3
Condominium status.....	1.2	1.0
Value.....	1.2	1.0
Gross rent.....	1.2	1.0
Household income in 1989.....	1.2	1.1
Year structure built.....	1.2	1.1
Type of construction.....	1.3	1.2
Condition of housing unit.....	1.4	1.4
Rooms, bedrooms, and bathrooms.....	1.2	1.1
Kitchen facilities.....	1.6	1.3
Cooking fuel.....	1.2	1.1
Source of water, plumbing facilities.....	1.3	1.3
Type of water heater.....	1.2	1.1
Sewage disposal.....	1.1	1.0
Air conditioning.....	1.4	1.2
Telephone in housing unit.....	1.2	1.1
Vehicles available.....	1.2	1.1
Year householder moved into structure.....	1.2	1.1
Mortgage status and monthly mortgage costs.....	1.2	1.0
Mortgage status and selected monthly owner costs.....	1.2	1.0
Gross rent as a percentage of household income in 1989.....	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income.....	1.2	1.0

**Table C. Standard Error Design Factors—Caguas**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age.....	1.2	1.1
Sex.....	1.7	1.5
Marital status.....	1.2	1.0
Household type and relationship.....	1.4	1.2
Children ever born.....	3.0	2.8
Work disability and mobility limitation status.....	1.2	1.1
Place of birth.....	2.5	2.3
Citizenship.....	2.1	1.8
Residence in 1985.....	2.4	2.2
Year of entry.....	3.2	2.7
Ability to speak Spanish and/ or English.....	1.5	1.3
Educational attainment.....	1.3	1.1
School enrollment.....	1.9	1.6
Ability to read and write.....	1.5	1.3
Vocational training.....	1.6	1.4
Length of last stay in the United States.....	3.3	2.7
School attendance.....	3.3	2.7
Type of residence (urban/ rural).....	2.7	2.2
Household type.....	1.2	1.1
Family type.....	1.4	1.3
Subfamily type and presence of children.....	1.2	1.1
Group quarters.....	1.1	0.9
Employment status.....	1.2	1.1
Industry.....	1.2	1.1
Occupation.....	1.2	1.1
Class of worker.....	1.3	1.2
Hours per week and weeks worked in 1989.....	1.2	1.1
Number of workers in family.....	1.3	1.1
Place of work.....	1.3	1.2
Means of transportation to work.....	1.3	1.1
Travel time to work.....	1.3	1.1
Time leaving home to go to work.....	1.3	1.1
Private vehicle occupancy.....	1.3	1.2
Type of income in 1989.....	1.4	1.2
Household income in 1989.....	1.2	1.1
Family income in 1989.....	1.2	1.1
Poverty status in 1989 (persons).....	1.3	1.2
Poverty status in 1989 (families).....	1.2	1.1
Armed Forces and veteran status.....	1.7	1.4
<b>HOUSING</b>		
Age of householder.....	1.0	0.9
Type of residence (urban/ rural).....	1.0	0.9
Units in structure.....	1.2	1.2
Tenure.....	1.3	1.1
Occupancy status.....	1.5	1.3
Condominium status.....	1.2	1.0
Value.....	1.2	1.0
Gross rent.....	1.2	1.0
Household income in 1989.....	1.2	1.1
Year structure built.....	1.2	1.1
Type of construction.....	1.3	1.2
Condition of housing unit.....	1.4	1.4
Rooms, bedrooms, and bathrooms.....	1.2	1.1
Kitchen facilities.....	1.6	1.3
Cooking fuel.....	1.2	1.1
Source of water, plumbing facilities.....	1.3	1.3
Type of water heater.....	1.2	1.1
Sewage disposal.....	1.1	1.0
Air conditioning.....	1.4	1.2
Telephone in housing unit.....	1.2	1.1
Vehicles available.....	1.2	1.1
Year householder moved into structure.....	1.2	1.1
Mortgage status and monthly mortgage costs.....	1.2	1.0
Mortgage status and selected monthly owner costs.....	1.2	1.0
Gross rent as a percentage of household income in 1989.....	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income.....	1.2	1.0

**Table C. Standard Error Design Factors—Mayaguez**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age.....	1.2	1.1
Sex.....	1.7	1.5
Marital status.....	1.2	1.0
Household type and relationship.....	1.4	1.2
Children ever born.....	3.0	2.8
Work disability and mobility limitation status.....	1.2	1.1
Place of birth.....	2.5	2.3
Citizenship.....	2.1	1.8
Residence in 1985.....	2.4	2.2
Year of entry.....	3.2	2.7
Ability to speak Spanish and/ or English.....	1.5	1.3
Educational attainment.....	1.3	1.1
School enrollment.....	1.9	1.6
Ability to read and write.....	1.5	1.3
Vocational training.....	1.6	1.4
Length of last stay in the United States.....	3.3	2.7
School attendance.....	3.3	2.7
Type of residence (urban/ rural).....	2.7	2.2
Household type.....	1.2	1.1
Family type.....	1.4	1.3
Subfamily type and presence of children.....	1.2	1.1
Group quarters.....	1.1	0.9
Employment status.....	1.2	1.1
Industry.....	1.2	1.1
Occupation.....	1.2	1.1
Class of worker.....	1.3	1.2
Hours per week and weeks worked in 1989.....	1.2	1.1
Number of workers in family.....	1.3	1.1
Place of work.....	1.3	1.2
Means of transportation to work.....	1.3	1.1
Travel time to work.....	1.3	1.1
Time leaving home to go to work.....	1.3	1.1
Private vehicle occupancy.....	1.3	1.2
Type of income in 1989.....	1.4	1.2
Household income in 1989.....	1.2	1.1
Family income in 1989.....	1.2	1.1
Poverty status in 1989 (persons).....	1.3	1.2
Poverty status in 1989 (families).....	1.2	1.1
Armed Forces and veteran status.....	1.7	1.4
<b>HOUSING</b>		
Age of householder.....	1.0	0.9
Type of residence (urban/ rural).....	1.0	0.9
Units in structure.....	1.2	1.2
Tenure.....	1.3	1.1
Occupancy status.....	1.5	1.3
Condominium status.....	1.2	1.0
Value.....	1.2	1.0
Gross rent.....	1.2	1.0
Household income in 1989.....	1.2	1.1
Year structure built.....	1.2	1.1
Type of construction.....	1.3	1.2
Condition of housing unit.....	1.4	1.4
Rooms, bedrooms, and bathrooms.....	1.2	1.1
Kitchen facilities.....	1.6	1.3
Cooking fuel.....	1.2	1.1
Source of water, plumbing facilities.....	1.3	1.3
Type of water heater.....	1.2	1.1
Sewage disposal.....	1.1	1.0
Air conditioning.....	1.4	1.2
Telephone in housing unit.....	1.2	1.1
Vehicles available.....	1.2	1.1
Year householder moved into structure.....	1.2	1.1
Mortgage status and monthly mortgage costs.....	1.2	1.0
Mortgage status and selected monthly owner costs.....	1.2	1.0
Gross rent as a percentage of household income in 1989.....	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income.....	1.2	1.0

**Table C. Standard Error Design Factors—Ponce**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age.....	1.2	1.1
Sex.....	1.7	1.5
Marital status.....	1.2	1.0
Household type and relationship.....	1.4	1.2
Children ever born.....	3.0	2.8
Work disability and mobility limitation status.....	1.2	1.1
Place of birth.....	2.5	2.3
Citizenship.....	2.1	1.8
Residence in 1985.....	2.4	2.2
Year of entry.....	3.2	2.7
Ability to speak Spanish and/ or English.....	1.5	1.3
Educational attainment.....	1.3	1.1
School enrollment.....	1.9	1.6
Ability to read and write.....	1.5	1.3
Vocational training.....	1.6	1.4
Length of last stay in the United States.....	3.3	2.7
School attendance.....	3.3	2.7
Type of residence (urban/ rural).....	2.7	2.2
Household type.....	1.2	1.1
Family type.....	1.4	1.3
Subfamily type and presence of children.....	1.2	1.1
Group quarters.....	1.1	0.9
Employment status.....	1.2	1.1
Industry.....	1.2	1.1
Occupation.....	1.2	1.1
Class of worker.....	1.3	1.2
Hours per week and weeks worked in 1989.....	1.2	1.1
Number of workers in family.....	1.3	1.1
Place of work.....	1.3	1.2
Means of transportation to work.....	1.3	1.1
Travel time to work.....	1.3	1.1
Time leaving home to go to work.....	1.3	1.1
Private vehicle occupancy.....	1.3	1.2
Type of income in 1989.....	1.4	1.2
Household income in 1989.....	1.2	1.1
Family income in 1989.....	1.2	1.1
Poverty status in 1989 (persons).....	1.3	1.2
Poverty status in 1989 (families).....	1.2	1.1
Armed Forces and veteran status.....	1.7	1.4
<b>HOUSING</b>		
Age of householder.....	1.0	0.9
Type of residence (urban/ rural).....	1.0	0.9
Units in structure.....	1.2	1.2
Tenure.....	1.3	1.1
Occupancy status.....	1.5	1.3
Condominium status.....	1.2	1.0
Value.....	1.2	1.0
Gross rent.....	1.2	1.0
Household income in 1989.....	1.2	1.1
Year structure built.....	1.2	1.1
Type of construction.....	1.3	1.2
Condition of housing unit.....	1.4	1.4
Rooms, bedrooms, and bathrooms.....	1.2	1.1
Kitchen facilities.....	1.6	1.3
Cooking fuel.....	1.2	1.1
Source of water, plumbing facilities.....	1.3	1.3
Type of water heater.....	1.2	1.1
Sewage disposal.....	1.1	1.0
Air conditioning.....	1.4	1.2
Telephone in housing unit.....	1.2	1.1
Vehicles available.....	1.2	1.1
Year householder moved into structure.....	1.2	1.1
Mortgage status and monthly mortgage costs.....	1.2	1.0
Mortgage status and selected monthly owner costs.....	1.2	1.0
Gross rent as a percentage of household income in 1989.....	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income.....	1.2	1.0

**Table C. Standard Error Design Factors—San Juan**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age.....	1.2	1.1
Sex.....	1.7	1.5
Marital status.....	1.2	1.0
Household type and relationship.....	1.4	1.2
Children ever born.....	3.0	2.8
Work disability and mobility limitation status.....	1.2	1.1
Place of birth.....	2.5	2.3
Citizenship.....	2.1	1.8
Residence in 1985.....	2.4	2.2
Year of entry.....	3.2	2.7
Ability to speak Spanish and/ or English.....	1.5	1.3
Educational attainment.....	1.3	1.1
School enrollment.....	1.9	1.6
Ability to read and write.....	1.5	1.3
Vocational training.....	1.6	1.4
Length of last stay in the United States.....	3.3	2.7
School attendance.....	3.3	2.7
Type of residence (urban/ rural).....	2.7	2.2
Household type.....	1.2	1.1
Family type.....	1.4	1.3
Subfamily type and presence of children.....	1.2	1.1
Group quarters.....	1.1	0.9
Employment status.....	1.2	1.1
Industry.....	1.2	1.1
Occupation.....	1.2	1.1
Class of worker.....	1.3	1.2
Hours per week and weeks worked in 1989.....	1.2	1.1
Number of workers in family.....	1.3	1.1
Place of work.....	1.3	1.2
Means of transportation to work.....	1.3	1.1
Travel time to work.....	1.3	1.1
Time leaving home to go to work.....	1.3	1.1
Private vehicle occupancy.....	1.3	1.2
Type of income in 1989.....	1.4	1.2
Household income in 1989.....	1.2	1.1
Family income in 1989.....	1.2	1.1
Poverty status in 1989 (persons).....	1.3	1.2
Poverty status in 1989 (families).....	1.2	1.1
Armed Forces and veteran status.....	1.7	1.4
<b>HOUSING</b>		
Age of householder.....	1.0	0.9
Type of residence (urban/ rural).....	1.0	0.9
Units in structure.....	1.2	1.2
Tenure.....	1.3	1.1
Occupancy status.....	1.5	1.3
Condominium status.....	1.2	1.0
Value.....	1.2	1.0
Gross rent.....	1.2	1.0
Household income in 1989.....	1.2	1.1
Year structure built.....	1.2	1.1
Type of construction.....	1.3	1.2
Condition of housing unit.....	1.4	1.4
Rooms, bedrooms, and bathrooms.....	1.2	1.1
Kitchen facilities.....	1.6	1.3
Cooking fuel.....	1.2	1.1
Source of water, plumbing facilities.....	1.3	1.3
Type of water heater.....	1.2	1.1
Sewage disposal.....	1.1	1.0
Air conditioning.....	1.4	1.2
Telephone in housing unit.....	1.2	1.1
Vehicles available.....	1.2	1.1
Year householder moved into structure.....	1.2	1.1
Mortgage status and monthly mortgage costs.....	1.2	1.0
Mortgage status and selected monthly owner costs.....	1.2	1.0
Gross rent as a percentage of household income in 1989.....	1.2	1.1
Household income in 1989 by selected monthly owner costs as a percentage of income.....	1.2	1.0

**Table C. Standard Error Design Factors—Puerto Rico**

[Percent of persons or housing units in sample]

Characteristic	Less than 15 percent	15 percent or more
<b>POPULATION</b>		
Age .....	0.0	0.0
Sex .....	0.0	0.0
Marital status .....	0.0	0.0
Household type and relationship .....	0.0	0.0
Children ever born .....	0.0	0.0
Work disability and mobility limitation status .....	0.0	0.0
Place of birth .....	0.0	0.0
Citizenship .....	0.0	0.0
Residence in 1985 .....	0.0	0.0
Year of entry .....	0.0	0.0
Ability to speak Spanish and/ or English .....	0.0	0.0
Educational attainment .....	0.0	0.0
School enrollment .....	0.0	0.0
Ability to read and write .....	0.0	0.0
Vocational training .....	0.0	0.0
Length of last stay in the United States .....	0.0	0.0
School attendance .....	0.0	0.0
Type of residence (urban/ rural) .....	0.0	0.0
Household type .....	0.0	0.0
Family type .....	0.0	0.0
Subfamily type and presence of children .....	0.0	0.0
Group quarters .....	0.0	0.0
Employment status .....	0.0	0.0
Industry .....	0.0	0.0
Occupation .....	0.0	0.0
Class of worker .....	0.0	0.0
Hours per week and weeks worked in 1989 .....	0.0	0.0
Number of workers in family .....	0.0	0.0
Place of work .....	0.0	0.0
Means of transportation to work .....	0.0	0.0
Travel time to work .....	0.0	0.0
Time leaving home to go to work .....	0.0	0.0
Private vehicle occupancy .....	0.0	0.0
Type of income in 1989 .....	0.0	0.0
Household income in 1989 .....	0.0	0.0
Family income in 1989 .....	0.0	0.0
Poverty status in 1989 (persons) .....	0.0	0.0
Poverty status in 1989 (families) .....	0.0	0.0
Armed Forces and veteran status .....	0.0	0.0
<b>HOUSING</b>		
Age of householder .....	0.0	0.0
Type of residence (urban/ rural) .....	0.0	0.0
Units in structure .....	0.0	0.0
Tenure .....	0.0	0.0
Occupancy status .....	0.0	0.0
Condominium status .....	0.0	0.0
Value .....	0.0	0.0
Gross rent .....	0.0	0.0
Household income in 1989 .....	0.0	0.0
Year structure built .....	0.0	0.0
Type of construction .....	0.0	0.0
Condition of housing unit .....	0.0	0.0
Rooms, bedrooms, and bathrooms .....	0.0	0.0
Kitchen facilities .....	0.0	0.0
Cooking fuel .....	0.0	0.0
Source of water, plumbing facilities .....	0.0	0.0
Type of water heater .....	0.0	0.0
Sewage disposal .....	0.0	0.0
Air conditioning .....	0.0	0.0
Telephone in housing unit .....	0.0	0.0
Vehicles available .....	0.0	0.0
Year householder moved into structure .....	0.0	0.0
Mortgage status and monthly mortgage costs .....	0.0	0.0
Mortgage status and selected monthly owner costs .....	0.0	0.0
Gross rent as a percentage of household income in 1989 .....	0.0	0.0
Household income in 1989 by selected monthly owner costs as a percentage of income .....	0.0	0.0

# APPENDIX D.

## Collection and Processing Procedures

### CONTENTS

Data Collection Procedures .....	D-2
Enumeration and Residence Rules.....	D-1
Processing Procedures .....	D-4

### ENUMERATION AND RESIDENCE RULES

In accordance with census practice dating back to the first United States census in 1790, each person was to be enumerated as an inhabitant of his or her "usual residence" in the 1990 census. Usual residence is the place where the person lives and sleeps most of the time or considers to be his or her usual residence. This place is not necessarily the same as the person's legal residence or voting residence. In the vast majority of cases, however, the use of these different bases of classification would produce substantially the same statistics, although there might be appreciable differences for a few areas.

The implementation of this practice has resulted in the establishment of rules for certain categories of persons whose usual place of residence is not immedi-

that the person considers to be his or her usual home. If a person had no usual residence, the person was to be counted where he or she happened to be staying on April 1, 1990.

Persons temporarily away from their usual residence, whether in Puerto Rico, the United States or overseas, on a vacation or on a business trip, were counted at their usual residence. Persons who occupied more than one residence during the year were counted at the one they considered to be their usual residence. Persons who moved on or near Census Day were counted at the place they considered to be their usual residence.

**Persons in the U.S. Armed Forces**—Members of the U.S. Armed Forces were counted as residents of the area in which the installation was located, either on the installation or in the surrounding community. Family members of U.S. Armed Forces personnel were counted where they were living on Census Day (for example, with the U.S. Armed Forces person or at another location).

Each U.S. Navy ship not deployed to the 6th or 7th Fleet was attributed to the municipio in Puerto Rico or the locality in the United States that the Department of

place where they happened to be staying on Census Day (April 1, 1990).

#### Enumeration Rules

Each person whose usual residence was in Puerto Rico was to be included in the census, without regard to the person's legal status or citizenship. In a departure from earlier censuses, foreign diplomatic personnel participated voluntarily in the census. As in previous censuses, persons in Puerto Rico specifically excluded from the census were foreign travelers who had not established a residence in Puerto Rico.

Persons with a usual residence outside Puerto Rico were not enumerated in the 1990 census of Puerto Rico. On the other hand, persons temporarily overseas were to be enumerated at their usual residence in Puerto Rico.

#### Residence Rules

Each person included in the census was to be counted at his or her usual residence—the place where he or she lives and sleeps most of the time or the place

included more than one municipio in Puerto Rico or more than one locality in the United States, ships berthed there on Census Day were assigned by the U.S. Bureau of the Census to the municipio in Puerto Rico or the locality in the United States in which the land immediately adjacent to the dock or pier was actually located. Ships attributed to the homeport, but not physically present and not deployed to the 6th or 7th Fleet, were assigned to the municipio in Puerto Rico or the locality in the United States named on the Department of the Navy's homeport list. These rules also apply to U.S. Coast Guard vessels.

Personnel assigned to each U.S. Navy and Coast Guard ship were given the opportunity to report a residence off the ship. Those who did report an off-ship residence in the communities surrounding the homeport were counted there; those who did not were counted as residents of the ship. Personnel on U.S. Navy ships deployed to the 6th or 7th Fleet on Census Day were considered to be part of the U.S. overseas population.

**Persons on U.S. Maritime Ships**—Persons aboard U.S. maritime ships who reported an off-ship residence were counted at that residence. Those who did not were counted as residents of the ship and were attributed as follows:

1. The port where the ship was docked on Census Day, if that port was in Puerto Rico, the United States, or its other territories.
2. The port of departure if the ship was at sea, provided the port was in Puerto Rico, the United States, or its other territories.
3. The port of destination in Puerto Rico, the United States, or its other territories, if the port of departure of a ship at sea was a foreign port.
4. The overseas population if the ship was docked at a foreign port or was at sea between foreign ports.

**Persons Away at School**—College students were counted as residents of the area in which they were living while attending college, as they have been since the 1950 census. Children in boarding schools below the college level were counted at their parental home.

**Persons in Institutions**—Persons under formally authorized, supervised care or custody, such as in Commonwealth of Puerto Rico prisons; local jails; juvenile institutions; nursing, convalescent, and rest homes for the aged and dependent; or homes, schools, hospitals, or wards for the physically handicapped, mentally retarded, or mentally ill, were counted at these places.

**Persons Away From Their Usual Residence on Census Day**—In some parts of the island, Hurricane Hugo, which struck in September 1989, displaced significant numbers of households from their usual place of residence. If these persons reported a destroyed or damaged residence as their usual residence, they were counted at that location.

Persons away from their usual residence were counted by means of interviews with other members of their families, resident managers, or neighbors.

## DATA COLLECTION PROCEDURES

The 1990 Census of Puerto Rico was conducted through a combination of self-enumeration and personal interview. This method, formerly known as conventional or door-to-door enumeration, is called list/ enumerate.

Spanish-language short-form questionnaires were delivered to residences by the United States Postal Service (USPS) 1 week before Census Day (April 1, 1990) in an unaddressed packet. The questionnaire packet also included general information about the 1990 census and instructions to the respondents explaining how to complete the questionnaire. English-language questionnaires were available on request.

During the enumeration of housing units in Puerto Rico, enumerators used one of the following questionnaires:

1. A short-form questionnaire that contained a limited number of basic population and housing questions; these questions were asked of all persons and housing units and are often referred to as the 100-percent questions. (This questionnaire contained the same items as the questionnaire delivered by the USPS 1 week before Census Day, but was designed to be administered by the enumerator during personal interviews.)
2. A long-form questionnaire that contained the 100-percent items and a number of additional questions; a sampling procedure was used to determine those housing units that were to answer the long-form questionnaire. This form was used by enumerators during personal interviews; thus, there were no respondent instructions.

These forms were keyable documents similar in content to the stateside forms. The Puerto Rico forms, however, included a number of questions specifically designed to meet Puerto Rico's data needs. The sampling rate used in the 1990 Census of Puerto Rico required that one in every six housing units (about 17 percent) answer the long-form or sample questionnaire.

### Enumeration of Housing Units

Starting a week before Census Day, enumerators canvassed their assigned areas, created a list of all housing units, completed long-form questionnaires as required, picked up the completed short-form questionnaires delivered by the USPS, or completed a short-form questionnaire as necessary.

### Field Followup

Followup enumerators visited those housing units for which questionnaires were missing and those initially identified as vacant to obtain a completed questionnaire or to verify the vacancy status of the unit as of Census Day.

**Coverage and Edit-Failure Followup**—The enumerators conducted an initial check of the questionnaires for completeness and consistency. The census office staff performed additional coverage and edit checks. Those households whose questionnaires did not meet specific quality standards because of incomplete or inconsistent information were contacted by telephone or by personal visit during the Field Followup operation to obtain the missing information or rectify the inconsistencies.

### Special Enumeration Procedures

Special procedures and questionnaires were used for the enumeration of persons in group quarters such as college dormitories, nursing homes, prisons, military

barracks, and ships. The questionnaires (Individual Census Reports, Military Census Reports, and Shipboard Census Reports) included the 100-percent population questions but did not include any housing questions. In all group quarters, all persons were asked the basic population questions; in most group quarters, additional questions were asked of a sample (one-in-six) of persons.

### **Shelter and Street Night (S-Night)**

The Census Bureau collected data for various components of the homeless population at different stages in the 1990 census. "Shelter and Street Night" (S-Night) was a special census operation to count the population in four types of locations where homeless people are found. On the evening of March 20, 1990, and during the early morning hours of March 21, 1990, enumerators counted persons in pre-identified locations:

1. Emergency shelters for homeless persons, with sleeping facilities (public and private; permanent and temporary).
2. Shelters with temporary lodging for runaway, neglected, and homeless children.
3. Shelters for abused women and their children.
4. Open locations in streets or other places not intended for habitation.

Emergency shelters include all hotels and motels (regardless of cost) used entirely to shelter homeless persons, and pre-identified rooms in hotels and motels used for homeless persons and families, and similar places known to have persons who have no usual home elsewhere staying overnight. Enumeration in shelters usually occurred from 6 p.m. to midnight; street enumeration, from 2 a.m. to 4 a.m.; abandoned and boarded-up buildings from 4 a.m. to 8 a.m.; and shelters for abused women, from 6 p.m. on March 20 to noon on March 21.

Other components, which some consider as part of the homeless population, were enumerated as part of regular census operations. These include persons doubled up with other families, as well as persons with no other usual home living in transient sites, such as commercial campgrounds, maternity homes for unwed mothers, and drug/alcohol abuse detoxification centers. In institutions, such as local jails and mental hospitals, the Census Bureau does not know who has a usual home elsewhere; therefore, even though some are literally homeless, these persons cannot be identified separately as a component of the homeless population.

There is no generally agreed-upon definition of "the homeless," and there are limitations in the census count that prevent obtaining a total count of the homeless population under any definition. As such, the Census Bureau does not have a definition and will not

provide a total count of the "homeless." Rather, the Census Bureau will provide counts and characteristics of persons found at the time of the census in *selected* types of living arrangements. These selected components can be used as building blocks to construct a count of homeless persons appropriate to particular purposes as long as the data limitations are taken into account.

In preparation for "Shelter-and-Street-Night" enumeration, the New York Regional Census Center (RCC) mailed a certified letter (Form D-33(L) PR(S)) to the mayor of each municipio requesting that he/she identify:

1. All shelters with sleeping facilities (permanent and temporary, such as churches, armories, public buildings, and so forth, that could be open on March 20).
2. Hotels and motels used to house homeless persons and families.
3. A list of outdoor locations where homeless persons tend to be at night.
4. Places such as bus stations, airports, hospital emergency rooms, and so forth, where homeless persons seek shelter at night.
5. The specific addresses of abandoned or boarded-up buildings where homeless persons were thought to stay at night.

The letter from the RCC to the municipios emphasized the importance of listing night-time congregating sites. The list of shelters was expanded using information from other informed local sources. The street sites were limited to the list provided by the municipios. All municipios were eligible for "Shelter and Street Night." The Census Bureau encouraged persons familiar with homeless persons and the homeless themselves to apply as enumerators.

For shelters, both long- and short-form Individual Census Reports (ICR's) were distributed. For street enumeration, only short-form ICR's were used. Persons in shelters and at street locations were asked the basic population questions. Additional questions about social and economic characteristics were asked of a sample of persons in shelters only.

Enumerators were instructed *not* to ask who was homeless; rather, they were told to count all persons (including children) staying overnight at the shelters, and everyone they saw on the street except the police, other persons in uniform, and persons engaged in employment or obvious money-making activities other than begging and panhandling.

At both shelter and street sites, persons found sleeping were not awakened to answer questions. Rather, the enumerator answered the sex question by observation and estimated the person's age to the best of his or

her ability. In shelters, administrative records and information from the shelter operator were used, when available, for persons who were already asleep.

The "street" count was restricted to persons who were visible when the enumerator came to the open, public locations that had been identified by each municipio. Homeless persons who were well hidden, moving about, or in locations other than those identified were likely missed. The number missed will never be known and there is no basis to make an estimate of the number missed from census data. The count of persons in open, public places was affected by many factors, including the extra efforts made to encourage people to go to shelters for "Shelter and Street Night," the presence of the media, and distrust of the census. Expectations of the number of homeless persons on the street cannot be based on the number seen during the day because the night-time situation is normally very different as more homeless persons are in shelters or very well hidden.

For both "Shelter-and-Street-Night" locations, the Census Bureau assumed that the usual home of those enumerated was in the block where they were found (shelter or street).

The "Shelter-and-Street-Night" operation replaced and expanded the 1980 Mission Night (M-Night). This operation was aimed at counting the population who reported having no usual residence. M-Night was conducted a week after Census Day, in April 1980. Enumerators visited hotels, motels and similar places costing \$4 or less each night; missions, flophouses, local jails

and similar places at which the average length of stay was 30 days or less; and nonshelter locations, such as bus stations. Questions were asked of everyone, regardless of age. Enumerators conducted M-Night up to midnight on April 8, 1980, and returned the next morning to collect any forms completed after midnight.

## PROCESSING PROCEDURES

The Puerto Rico questionnaires were processed in a section of the Census Bureau Processing Office in Jacksonville, Florida specifically set up for the processing of keyable documents. For most items on the questionnaire, the information supplied by the respondent or obtained by the enumerator had been indicated by marking the answers in predesignated boxes.

The data processing was performed in several stages. All questionnaires passed through a check-in procedure upon their arrival at the processing office. Selected written entries on both the short and long forms were coded clerically. The coded information included written entries for industry and occupation, migration, place of birth, and household relationship. All responses to the questions on Individual Census Reports (ICRs), Military Census Reports (MCRs), and Shipboard Census Reports (SCRs) were keyed. After all coding operations were completed, the short and long forms were keyed. The resulting file was sent to the Census Bureau headquarters for computer editing, weighting, and tabulating operations.

# APPENDIX E. Facsimiles of Respondent Instructions and Questionnaire Pages

## Your Guide for the **1990 U.S. Census Form**

This guide gives helpful information on filling out your census form. If you need more help, call the local U.S. census office. **The telephone number is on the cover of the questionnaire.** After you have filled out your form, please return it in the **envelope** we have provided.

On the inside	Page
<b>How</b> to fill out your census form	<b>2</b>
<b>Example</b>	<b>2</b>
<b>Your</b> answers are confidential	<b>2</b>
<b>Instructions</b> for the census questions	<b>3-11</b>
<b>What</b> the census is about	<b>12</b>
<b>Why</b> the census asks certain questions	<b>12</b>

CENSUS '90



U.S. DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS

D-4

## How to Fill Out Your Census Form

Please use a black lead pencil only. Black lead pencil is better to use than ballpoint or other pens. Most questions ask you to fill in the circle, or to print the information. See Example below.

Make sure you print answers for everyone in this household. If someone in the household, such as a roomer or boarder, does not want to give you all the information for the form, print at least the person's name and answer questions 2 and 3. A census taker will call to get the other information directly from the person.

There may be a question you cannot answer exactly. For example, you might not know the age of an elderly person or the price for which your house would sell. Ask someone else in your household; if no one knows, give your best estimate.

Instructions for individual questions begin on page 3 of this guide. They will help you to understand the questions and answer them correctly.

If you have a question about filling out the census form or need assistance, call the local U.S. census office. The telephone number is given on the cover of the questionnaire.

If you do not mail back your census form, a census taker will be sent out to assist you. But it saves time and your taxpayer dollars if you fill out the form yourself and mail it back.

### Example

a. Age	b. Year of birth	a. Age	b. Year of birth
<input checked="" type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	41	<input checked="" type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	1949
<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	<input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9	1981

## Your Answers Are Confidential

The law authorizing the census (Title 13, U.S. Code) also provides that your answers are confidential. No one except census workers may see your completed form and they can be fined and/or imprisoned for any disclosure of your answers. Only after 72 years can your individual census form become available to other government agencies (whether federal, state, county, or local). Until then, no other person or business can see your individual report.

The same law that protects the confidentiality of your answers requires that you provide the information asked in this census to the best of your knowledge.

Information collected from the decennial census is used for a variety of statistical purposes. Census information is used to find out where funding is most needed for schools, health centers, highways, and other services. Census results are used by members of public and private groups—including community organizations—and by businesses and industries, as well as by agencies at all levels of government.

## Instructions for Questions 1a through 7

- 1a. List everyone who lives at this address in question 1a. If you are not sure if you should list a person, see the rules on page 1 of the census form. If you are still not sure, answer as best you can and fill in "Yes" for question H1a or H1b, as appropriate.
    - If there are more than seven people in your household, please list all the persons in question 1a, complete the form for seven people, and mail it back in the enclosed envelope. A census taker will call to obtain the information for the additional persons.
  - b. If everyone listed in question 1a usually lives at another address(es), print the address(es) in 1b.
  2. Fill one circle to show how each person is related to the person in column 1. If Other relative of the person in column 1, print the exact relationship such as son-in-law, daughter-in-law, grandparent, nephew, niece, mother-in-law, father-in-law, cousin, and so on.
    - If the Stepson/stepdaughter of the person in column 1 also has been legally adopted by the person in column 1, mark Stepson/stepdaughter but do not mark Natural-born or adopted son/daughter. In other words, Stepson/stepdaughter takes precedence over Adopted son/daughter.
  4. Fill ONE circle for the race each person considers himself/herself to be.
    - If you fill the Indian (Amer.) circle, print the name of the tribe or tribes in which the person is enrolled. If the person is not enrolled in a tribe, print the name of the principal tribe(s).
    - If you fill the Other API circle (under Asian or Pacific Islander (API)), only print the name of the group to which the person belongs. For example, the Other API category includes persons who identify as Burmese, Fijian, Hmong, Indonesian, Laotian, Bangladeshi, Pakistani, Tongan, Thai, Cambodian, Sri Lankan, and so on.
    - If you fill the Other race circle, be sure to print the name of the race.
    - If the person considers himself/herself to be White, Black or Negro, Eskimo or Aleut, fill one circle only. Please do not print the race in the boxes.
    - The Black or Negro category also includes persons who identify as African-American, Afro-American, Haitian, Jamaican, West Indian, Nigerian, and so on.
    - All persons, regardless of citizenship status, should answer this question.
  5. Print age at last birthday in the space provided (print "00" for babies less than 1 year old). Fill in the matching circle below each box. Also, print year of birth in the space provided. Then fill in the matching circle below each box. For an illustration of how to complete question 5, see the Example on page 2 of this guide.
  6. If the person's only marriage was annulled, mark Never married.
  7. A person is of Spanish/Hispanic origin if the person's origin (ancestry) is Mexican, Mexican-Am., Chicano, Puerto Rican, Cuban, Argentinean, Colombian, Costa Rican, Dominican, Ecuatoran, Guatemalan, Honduran, Nicaraguan, Peruvian, Salvadoran, from other Spanish-speaking countries of the Caribbean or Central or South America, or from Spain.
    - If you fill the Yes, other Spanish/Hispanic circle, print one group.
    - A person who is not of Spanish/Hispanic origin should answer this question by filling the No (not Spanish/Hispanic) circle. Note that the term "Mexican-Am." refers only to persons of Mexican origin or ancestry.
    - All persons, regardless of citizenship status, should answer this question.
- ## Instructions for Question H1a through H1b
- H1a. Refer to the list of persons you entered in question 1a on page 1. If you left anyone out of your list because you were not sure if the person(s) should be listed, answer question H1a as Yes. Then enter the name(s) and reason(s) why you did not list the person(s) on the lines provided. Otherwise, answer question H1a as No.
  - b. If you included anyone on your list even though you were not sure that you should list the person(s), answer question H1b as Yes. Then enter the name(s) and reason(s) why you listed the person(s) on the lines provided. Otherwise, answer question H1b as No.

## Instructions for Questions H2 through H7b

### H2. Fill only one circle.

Count all occupied and vacant apartments in the house or building. Do not count stores or office space.

*Detached* means there is open space on all sides, or the house is joined only to a shed or garage. *Attached* means that the house is joined to another house or building by at least one wall that goes from ground to roof. An example of a one-family house attached to one or more houses is a house in a row of houses attached to one another.

A mobile home or trailer that has had one or more rooms added or built onto it should be counted as a *one-family detached house*; a porch or shed is not considered a room.

### H3. Count only whole rooms in your house, apartment, or mobile home used for living purposes, such as living rooms, dining rooms, kitchens, bedrooms, finished recreation rooms, family rooms, etc. Do not count bathrooms, kitchenettes, strip or pullman kitchens, utility rooms, foyers, halls, half-rooms, porches, balconies, unfinished attics, unfinished basements, or other unfinished space used for storage.

### H4. Housing is owned if the owner or co-owner lives in it. Mark **Owned by you or someone in this household with a mortgage or loan** if the house, apartment, or mobile home is mortgaged or there is a contract to purchase. Mark **Owned by you or someone in this household free and clear (without a mortgage)** if there is no mortgage or other debt. If the house, apartment, or mobile home is owned but the land is rented, mark this question to show the status of the house, apartment, or mobile home.

Mark **Rented for cash rent** if any money rent is paid, even if the rent is paid by persons who are not members of your household, or by a federal, state, or local government agency.

Mark **Occupied without payment of cash rent** if the unit is not owned or being bought by the occupants and if money rent is not paid or contracted. The unit may be owned by friends or relatives who live elsewhere and who allow occupancy without charge. A house or apartment may be provided as part of wages or salary. Examples are: caretaker's or janitor's house or apartment; personages; tenant farmer or sharecropper houses for which the occupants do not pay cash rent; or military housing.

### H5a. Answer H5a and H5b if you live in a one-family house or a mobile home; include only land that you own or rent.

- b. A business is easily recognized from the outside; for example, a grocery store or barber shop. A medical office is a doctor's or dentist's office regularly visited by patients.

### H6. If this is a house, include the value of the house, the land it is on, and any other structures on the same property. If the house is owned but the land is rented, estimate the combined value of the house and the land. If this is a condominium unit, estimate the value for your house or apartment including your share of the common elements. If this is a mobile home, include the value of the mobile home and the value of the land. If you rent the land, estimate the value of the rented land and add it to the value of the mobile home.

### H7a. Report the rent agreed to or contracted for, even if the rent for your house, apartment, or mobile home is unpaid or paid by someone else.

If rent is paid:	Multiply rent by:	If rent is paid:	Divide rent by:
By the day . . . . .	30	4 times a year . . . . .	3
By the week . . . . .	4	2 times a year . . . . .	6
Every other week . . . . .	2	Once a year . . . . .	12

- b. Answer **Yes** if meals are included in the monthly rent payment, or you must contract for meals or a meal plan in order to live in this building.

## Instructions for Questions H8 through H19b

### H8. The person listed in column 1 refers to the person listed in the first column on page 2. This person should be the household member (or one of the members) in whose name the house, apartment, or mobile home is owned, being bought, or rented. If there is no such person, any adult household member can be the person in column 1. Mark when this person last moved into this house, apartment, or mobile home.

### H9. Include all rooms intended to be used as bedrooms in this house, apartment, or mobile home, even if they are currently being used for other purposes.

### H10. Mark **Yes**, have all three facilities if you have all the facilities mentioned; all facilities must be in your house, apartment, or mobile home, but not necessarily in the same room. Consider that you have hot water even if you have it only part of the time. Mark **No** if any of the three facilities is not present.

### H11. The kitchen sink, stove, and refrigerator must be located in the building but do not have to be in the same room. Portable cooking equipment is not considered as a range or cookstove.

### H12. Answer **Yes** only if the telephone is located in your house, apartment, or mobile home.

### H13. Count company cars (including police cars and taxicabs) and company trucks of one-ton capacity or less that are regularly kept at home and used by household members for nonbusiness purposes. Do not count cars or trucks permanently out of working order.

### H14. Fill the circle for the fuel used most to heat your house, apartment, or mobile home. In buildings containing more than one apartment you may obtain this information from the owner, manager, or janitor.

Solar energy is provided by a system that collects, stores, and distributes heat from the sun. Other fuel includes any fuel not separately listed; for example, purchased steam, fuel briquettes, waste material, etc.

### H15. If a well provides water for five or more houses, apartments, or mobile homes, mark **A public system**. If a well provides water for four or fewer houses, apartments, or mobile homes, fill one of the circles for **Individual well**.

Drilled wells, or small diameter wells, are usually less than 1½ feet in diameter. Dug wells are generally hand dug and are larger than 1½ feet wide.

### H16. A public sewer may be operated by a government body or private organization. A septic tank or cesspool is an underground tank or pit used for disposal of sewage.

### H17. Fill the circle corresponding to the period in which the original construction was completed, not the time of any later remodeling, additions, or conversions. In buildings containing more than one apartment, the owner, manager, or janitor may be of help in determining when the building was built.

If you live in a houseboat or a trailer or mobile home, fill the circle corresponding to the model year in which it was manufactured.

If you do not know the period when the building was first constructed, fill the circle for **Don't know**.

### H18. A condominium is a type of ownership in which the apartments, houses, or mobile homes in a building or development are individually owned, but the common areas, such as lobbies, halls, etc., are jointly owned. Cooperative occupants should mark **No**.

### H19a. Answer H19a and H19b if you live in a one-family house or mobile home.

- b. This property is the acreage on which the house is located; it includes adjoining land you rent for your use. Report sales made in 1989 from this property by you or previous occupants.

## Instructions for Questions H20 through H26

**H20.** If your house or apartment is rented, enter the costs for utilities and fuels only if you pay for them in addition to the rent entered in H7a.

If you live in a condominium, enter the costs for utilities and fuels only if you pay for them in addition to your condominium fee.

If your fuel and utility costs are already included in your rent or condominium fee, fill the included in rent or in condominium fee circle. Do not enter any dollar amounts.

The amounts to be reported should be the total amount for the past 12 months. Estimate as closely as possible when exact costs are not known. If you have lived in this house or apartment less than 1 year, estimate the yearly cost.

Report amounts even if your bills are unpaid or paid by someone else. If the bills include utilities or fuel used also by another apartment or a business establishment, estimate the amounts for your own house or apartment. If gas and electricity are billed together, enter the combined amount on the electricity line and bracket [ ] the two utilities.

**H21.** Report taxes for all taxing jurisdictions (city or town, county, state, school district, etc.) even if they are included in your mortgage payment, not yet paid or paid by someone else, or are delinquent. Do not include taxes past due from previous years.

**H22.** When premiums are paid on other than a yearly basis, convert to a yearly basis. Enter the yearly amount even if no payment was made during the past 12 months.

**H23a.** The word *mortgage* is used as a general term to indicate all types of loans that are secured by real estate.

**b.** Enter a monthly amount even if it is unpaid or paid by someone else. If the amount is paid on some other periodic basis, see the instructions for H7a to change it to a monthly amount.

Include payments on first mortgages and contracts to purchase only. Payments for second or junior mortgages and home equity loans should be reported in H24b.

**H24a.** A second or junior mortgage or home equity loan is secured by real estate.

**b.** Enter a monthly amount even if it is unpaid or paid by someone else. If the amount is paid on some other periodic basis, see instructions for H7a and change it to a monthly amount. Include payments on all second or junior mortgages or home equity loans.

**H25.** A *condominium fee* is normally assessed by the condominium owners' association for the purpose of improving and maintaining the common areas. Enter a monthly amount even if it is unpaid or paid by someone else. If the amount is paid on some other periodic basis, see the instructions for H7a on how to change it to a monthly amount.

**H26.** Report amount even if your bills are unpaid or paid by someone else. Include payments for personal property taxes, land or site rent, registration fees and license fees. Do not include real estate taxes already reported in H21. The amount to be reported should be the total amount for an entire 12-month billing period even if made in two or more installments. Estimate as closely as possible when exact costs are not known.

## Instructions for Question 8

**8.** For persons born in the United States:

Print the name of the State in which this person was born. If the person was born in Washington, D.C., print District of Columbia. If the person was born in a U.S. territory or commonwealth, print Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, or Northern Marianas.

For persons born outside the United States:

Print the name of the foreign country or area where the person was born. Use current boundaries, not boundaries at the time of the person's birth. Specify whether Northern Ireland or the Republic of Ireland (Eire); East or West Germany; North or South Korea; England, Scotland, or Wales (not Great Britain or United Kingdom). Specify the particular country or island in the Caribbean (not, for example, West Indies).

## Instructions for Questions 9 through 13

**9.** A person should fill the **Yes, U.S. citizen by naturalization** circle only if he/she has completed the naturalization process and is now a United States citizen. If the person was born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas, he/she should fill the **Yes, born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas** circle. If the person was born outside the United States (or at sea) and has at least one American parent, he/she should fill the **Yes, born abroad of American parent or parents** circle.

**10.** If the person has entered the United States (that is, the 50 states and the District of Columbia) more than once, fill the circle for the latest year he/she came to stay.

**11.** Do not include enrollment in a trade or business school, company training, or tutoring unless the course would be accepted for credit at a regular elementary school, high school, or college.

A *public school* is any school or college that is controlled and supported primarily by a local, county, State, or Federal Government. Schools are private if supported and controlled primarily by religious organizations or other private groups.

**12.** Mark the category for the highest grade or level of schooling the person has successfully completed or the highest degree the person received. If the person is enrolled in school, mark the category containing the highest grade completed (the grade previous to the grade in which enrolled). Schooling completed in foreign or ungraded schools should be reported as the equivalent level of schooling in the regular American school system.

Persons who completed high school by passing an equivalency test, such as the General Educational Development (GED) examination, and did not attend college, should fill the circle for high school graduate.

Do not include vocational certificates or diplomas from vocational, trade, or business schools or colleges unless they were college level associate degrees or higher.

Some examples of *professional school degrees* include medicine, dentistry, chiropractic, optometry, osteopathic medicine, pharmacy, podiatry, veterinary medicine, law, and theology. Do not include barber school, cosmetology, or other training for a specific trade.

Do not include honorary degrees awarded by colleges and universities to individuals for their accomplishments. Include only "earned" degrees.

**13.** Print the ancestry group. Ancestry refers to the person's ethnic origin or descent, "roots," or heritage. Ancestry also may refer to the country of birth of the person or the person's parents or ancestors before their arrival in the United States. All persons, regardless of citizenship status, should answer this question.

Persons who have more than one origin and cannot identify with a single ancestry group may report two ancestry groups (for example, German-Irish).

Be specific. For example, print whether West Indian, Asian Indian, or American Indian. West Indian includes persons whose ancestors came from Jamaica, Trinidad, Haiti, etc. Distinguish Cape Verdean from Portuguese; French Canadian from Canadian; and Dominican Republic from Dominica Island.

A religious group should not be reported as a person's ancestry.

## Instructions for Questions 14a through 19

- 14a. Mark Yes if this person lived in this same house or apartment on April 1, 1985, even if he/she moved away and came back since then. Mark No if this person lived in the same building but in a different apartment (or in the same mobile home or trailer but on a different lot or trailer site).
- b. If this person lived in a different house or apartment on April 1, 1985, give the location of this person's usual home at that time.

### Part (1)

If the person lived in the United States on April 1, 1985, print the name of the State (or District of Columbia) where he or she lived. Continue with parts (2) through (4).

If the person lived in a U.S. territory or commonwealth, print the name of the territory or commonwealth, such as Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, or Northern Marianas. Then go to question 15a.

If the person lived outside the United States, print the name of the foreign country or area where he or she lived. Specify whether Northern Ireland or the Republic of Ireland (Eire); East or West Germany; North or South Korea; England, Scotland or Wales (not Great Britain or United Kingdom). Specify the particular country or island in the Caribbean (not, for example, West Indies). Then go to question 15a.

### Part (2)

If the person lived in Louisiana, print the parish name. If the person lived in Alaska, print the borough name. If the person lived in New York city and the county name is not known, print the borough name. If the person lived in an independent city (not in any county) or in Washington, D.C., leave blank and enter the city name in part (3).

### Part (3)

If the person lived in New England, print the name of the town rather than the village name, unless the name of the town is not known. If the person lived outside the limits or boundaries of any city or town, print the name of the post office or the nearest town and mark No, lived outside the city/town limits in part (4).

### Part (4)

Mark Yes if the location is now inside the city/town limits even if it was not inside the limits on April 1, 1985; that is, if the area was annexed by the city/town since that time.

15. Mark Yes if the person sometimes or always speaks a language other than English at home.

Do not mark Yes for a language spoken only at school or if speaking is limited to a few expressions or slang.

Print the name of the language spoken at home. If this person speaks more than one non-English language and cannot determine which is spoken more often, report the first language the person learned to speak.

- 17a. For a person with service in the National Guard or a military reserve unit, fill one of the two Yes, active duty circles if and only if the person has ever been called up for active duty other than training; otherwise, mark Yes, service in Reserves or National Guard only. For a person whose only service was as a civilian employee or volunteer for the Red Cross, USO, Public Health Service, or War or Defense Department, mark No. Count World War II Merchant Marine Seaman service as active duty; do not count other Merchant Marine service as active duty.
18. Mark Yes to part (a) if a health condition substantially limits this person in his or her choice of occupation or if the condition limits the amount of work that can be accomplished in a given period of time. Mark Yes to part (b) if the health condition prevents this person from holding any significant employment.
19. Consider a person to have difficulty with these activities if any of the following situations apply: (1) it takes extra time or extra effort for the person to perform one or more of the activities, (2) there are times when the person cannot perform one or more of the activities, or (3) the person is completely unable to perform one or more of the activities.

## Instructions for Questions 20 through 23b

20. Count all children born alive, including any who have died (even shortly after birth) or who no longer live with you. Do not include miscarriages or stillborn children or any adopted, foster, or stepchildren.

### 21a. Count as work — Mark Yes:

- Work for someone else for wages, salary, piece rate, commission, tips, or payments "in kind" (for example, food, lodging received as payment for work performed).
- Work in own business, professional practice, or farm.
- Any work in a family business or farm, paid or not.
- Any part-time work including babysitting, paper routes, etc.
- Active duty in Armed Forces.

### Do not count as work — Mark No:

- Housework or yard work at home.
- Unpaid volunteer work.
- School work.
- Work done as a resident of an institution.

- 22a. Include the street type (for example, St., Road, Ave.) and the street direction (if a direction such as "North" is part of the address). For example, print 1239 N. Main St. or 1239 Main St., N.W. not just 1239 Main.

If the only known address is a post office box, give a description of the work location. For example, print the name of the building or shopping center where the person works, the nearest intersection, the nearest street where the workplace is located, etc. DO NOT GIVE A POST OFFICE BOX NUMBER.

If the person worked at a military installation or military base that has no street address, report the name of the military installation or base.

If the person worked at several locations, but reported to the same location each day to begin work, print the address of the location where he or she reported. If the person did not report to the same location each day to begin work, print the address of the location where he or she worked most last week.

If the person's employer operates in more than one location (such as a grocery store chain or public school system), print the exact address of the location or branch where the person worked. If the exact address of a school is not known, print the name of the school.

If the person worked on a college or university campus and the exact address of the workplace is not known, print the name of the building where he or she worked.

- d. If the person worked in New York city and the county is not known, print the name of the borough where the person worked.

If the person worked in Louisiana, print the name of the parish where the person worked.

If the person worked in Alaska, print the name of the borough where the person worked.

- e. If the person worked in a foreign country or Puerto Rico, Guam, etc., print the name of the country in 22e and leave the other parts of question 22 blank.

- 23a. If the person usually used more than one type of transportation to get to work (for example, rode the bus and transferred to the subway), fill the circle of the one method of transportation that he/she used for most of the distance during the trip.

- b. If the person was driven to work by someone who then drove back home or to a nonwork destination, fill the circle for Drove alone.

DO NOT include persons who rode to school or some other nonwork destination in the count of persons who rode in the vehicle.

## Instructions for Questions 24a through 30

**24a.** Give the time of day the person usually left home to go to work. DO NOT give the time that the person usually began his or her work.  
If the person usually left home to go to work sometime between 12:00 o'clock midnight and 12:00 o'clock noon, fill the a.m. circle.  
If the person usually left home to go to work sometime between 12:00 o'clock noon and 12:00 o'clock midnight, fill the p.m. circle.

**b.** Travel time is from door to door. Include time taken waiting for public transportation or picking up passengers in a carpool.

**25.** If the person works only during certain seasons or on a day-by-day basis when work is available, mark **No**.

**26a.** Mark **Yes** if the person tried to get a job or to start a business or professional practice at any time in the last 4 weeks; for example, registered at an employment office, went to a job interview, placed or answered ads, or did anything toward starting a business or professional practice.

**b.** Mark **No**, already has a job if the person was on layoff or was expecting to report to a job within 30 days.

Mark **No**, temporarily ill if the person expects to be able to work within 30 days.

Mark **No**, other reasons if the person could not have taken a job because he or she was going to school, taking care of children, etc.

**27.** Look at the instructions for question 21a to see what to count as work. Mark **Never worked** if the person: (1) never worked at any kind of job or business, either full or part time, (2) never did any work, with or without pay, in a family business or farm, and (3) never served in the Armed Forces.

**28a.** If the person worked for a company, business, or government agency, print the name of the company, not the name of the person's supervisor. If the person worked for an individual or a business that had no company name, print the name of the individual worked for. If the person worked in his/her own business, print "self-employed."

**b.** Print two or more words to tell what the business, industry, or individual employer named in 28a did. If there is more than one activity, describe only the major activity at the place where the person worked. Enter what is made, what is sold, or what service is given.

Some examples of what to enter:

Enter a description like the following -

Metal furniture manufacturing  
Retail grocery store  
Petroleum refining  
Cattle ranch

Do not enter -

Furniture company  
Grocery store  
Oil company  
Ranch

**29.** Print two or more words to describe the kind of work the person did. If the person was a trainee, apprentice, or helper, include that in the description.

Some examples of what to enter:

Enter a description like the following -

Production clerk  
Carpenter's helper  
Auto engine mechanic  
Registered nurse

Do not enter -

Clerk  
Helper  
Mechanic  
Nurse

**30.** Mark **Employee of a PRIVATE NOT-FOR-PROFIT . . . organization** if the person worked for a cooperative, credit union, mutual insurance company, or similar organization.

Employees of foreign governments, the United Nations, and other international organizations should mark **PRIVATE NOT-FOR-PROFIT . . . organization**.

For persons who worked at a public school, college or university, mark the appropriate **government** category; for example, mark **State GOVERNMENT employee** for a state university, or mark **Local GOVERNMENT employee** for a county-run community college or a city-run public school.

## Instructions for Questions 31a through 32h

**31a.** Look at the instructions for question 21a to see what to count as work.

**b.** Count every week in which the person did any work at all, even for an hour.

**32.** Fill the **Yes** or **No** circle for each part and enter the amount received during 1989.

If income from any source was received jointly by household members, report, if possible, the appropriate share for each person; otherwise, report the whole amount for only one person and fill the **No** circle for the other person.

**a.** Include wages and salaries from all jobs before deductions. Be sure to include any tips, commissions, or bonuses. Owners of incorporated businesses should enter their salary here. Military personnel should include base pay plus cash housing and/or subsistence allowance, flight pay, uniform allotments, reenlistment bonuses, etc.

**b.** Include **NONFARM** profit (or loss) from self-employment in sole proprietorships and partnerships. Exclude profit (or loss) of incorporated businesses you own.

**c.** Include **FARM** profit (or loss) from self-employment in sole proprietorships and partnerships. Exclude profit (or loss) of incorporated farm businesses you own. Also exclude amounts from land rented for cash but include amounts from land rented for shares.

**d.** Include interest received or credited to checking and savings accounts, money market funds, certificates of deposit (CDs), IRAs, KEOGHs, and government bonds.

Include dividends received, credited, or reinvested from ownership of stocks or mutual funds.

Include profit (or loss) from royalties and the rental of land, buildings or real estate, or from roomers or boarders. Income received by self-employed persons whose primary source of income is from renting property or from royalties should be included in questions 32b or 32c above. Include regular payments from an estate or trust fund.

**e.** Include Social Security (and/or Railroad Retirement) payments to retired persons, to dependents of deceased insured workers, and to disabled workers before Medicare deductions.

**f.** Include Supplemental Security Income received by aged, blind, or disabled persons, Aid to Families with Dependent Children, or income from other government programs such as general or emergency assistance. Do not include assistance received from private charities. Exclude assistance to pay for heating (cooling) costs.

**g.** Include retirement, disability, or survivor benefits received from companies and unions; Federal, State, and local governments, and the U.S. military. Include regular income from annuities and IRA or KEOGH retirement plans.

**h.** Include Veterans' (VA) disability compensation and educational assistance payments (VEAP), unemployment compensation, child support or alimony, and all other regular payments such as Armed Forces transfer payments; assistance from private charities; regular contributions from persons not living in the household, etc.

Do not include the following as income in any item:

- Refunds or rebates of any kind
- Withdrawals from savings of any kind
- Capital gains or losses from the sale of homes, shares of stock, etc.
- Inheritances or insurance settlements
- Any type of loan
- Pay in-kind such as food, free rent, etc.

## **What the Census Is About — Some Questions and Answers**

### **Why are we taking a census?**

The most important reason for taking a decennial census is to determine how many representatives each state will have in Congress.

### **What does the Census Bureau do with the information you provide?**

The individual information collected in the census is grouped together into statistical totals. Information such as the number of persons in a given area, their ages, educational background, the characteristics of their housing, etc., enable government, business, and industry to plan more effectively.

### **How long have we been taking the census?**

The first census was taken in 1790 in accordance with the requirement in the first article of the constitution. A census has been taken every 10 years since. The 1990 Decennial Census marks the 200th anniversary of the census.

### **How are you being counted?**

Census forms are delivered to all households a few days before census day. Households are requested to fill out the form and mail it back to the census office.

## **Why the Census Asks Certain Questions**

**Here are a few reasons for asking some of the questions.**

*It is as important to get information about people and their houses as it is to count them.*

### **Name?**

Names help make sure that everyone in a household is counted, but that no one is counted twice.

### **Value or rent?**

Government and planning agencies use answers to these questions in combination with other information to develop housing programs to meet the needs of people at different economic levels.

### **Complete plumbing?**

This question gives information on the quality of housing. The data are used with other statistics to show how the "level of living" compares in various areas and how it has changed over time.

### **Place of birth?**

This question provides information used to study long-term trends as to where people move and to study migration patterns and differences in growth patterns.

### **Job?**

Answers to the questions about the jobs people hold provide information on the extent and types of employment in different areas of the country. From this information, training programs can be developed and the need for new industries can be determined.

### **Income?**

Income, more than anything else, determines how families or persons live. Income information makes it possible to compare the economic levels of different areas.

CENSUS '90

# OFFICIAL 1990 U.S. CENSUS FORM



Thank you for taking time to complete and return this census questionnaire. It's important to you, your community, and the Nation.

**The law requires answers but guarantees privacy.**

By law (Title 13, U.S. Code), you're required to answer the census questions to the best of your knowledge. However, the same law guarantees that your census form remains confidential. For 72 years—or until the year 2062—only Census Bureau employees can see your form. No one else—no other government body, no police department, no court system or welfare agency—is permitted to see this confidential information under any circumstances.

**How to get started—and get help.**

Start by listing on the next page the names of all the people who live in your home. Please answer all questions with a black lead pencil. You'll find detailed instructions for answering the census in the enclosed guide. If you need additional help, call the toll-free telephone number to the left, near your address.

**Please answer and return your form promptly.**

Complete your form and return it by April 1, 1990 in the postage-paid envelope provided. Avoid the inconvenience of having a census taker visit your home.

Again, thank you for answering the 1990 Census.  
**Remember: Return the completed form by April 1, 1990.**

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**Para personas de habla hispana -**  
(For Spanish-speaking persons)

Si usted desea un cuestionario del censo en español, llame sin cargo alguno al siguiente número: **1-800-CUENTAN**  
(o sea 1-800-283-6826)

U.S. Department of Commerce  
BUREAU OF THE CENSUS  
FORM D-2

OMB No. 0607-0628  
Approval Expires 07/31/91

The 1990 census must count every person at his or her "usual residence." This means the place where the person lives and sleeps most of the time.

**1a. List on the numbered lines below the name of each person living here on Sunday, April 1, including all persons staying here who have no other home. If EVERYONE at this address is staying here temporarily and usually lives somewhere else, follow the instructions given in question 1b below.**

**Include**

- Everyone who usually lives here such as family members, housemates and roommates, foster children, roomers, boarders, and live-in employees
- Persons who are temporarily away on a business trip, on vacation, or in a general hospital
- College students who stay here while attending college
- Persons in the Armed Forces who live here
- Newborn babies still in the hospital
- Children in boarding schools below the college level
- Persons who stay here most of the week while working even if they have a home somewhere else
- Persons with no other home who are staying here on April 1

**Do NOT include**

- Persons who usually live somewhere else
- Persons who are away in an institution such as a prison, mental hospital, or a nursing home
- College students who live somewhere else while attending college
- Persons in the Armed Forces who live somewhere else
- Persons who stay somewhere else most of the week while working

Print last name, first name, and middle initial for each person. Begin on line 1 with the household member (or one of the household members) in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start on line 1 with any adult household member.

LAST	FIRST	INITIAL	LAST	FIRST	INITIAL
1			7		
2			8		
3			9		
4			10		
5			11		
6			12		

**1b. If EVERYONE is staying here only temporarily and usually lives somewhere else, list the name of each person on the numbered lines above, fill this circle  and print their usual address below. DO NOT PRINT THE ADDRESS LISTED ON THE FRONT COVER.**

House number \_\_\_\_\_ Street or road/Rural route and box number \_\_\_\_\_ Apartment number \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP Code \_\_\_\_\_

County or foreign country \_\_\_\_\_ Names of nearest intersecting streets or roads \_\_\_\_\_

**NOW PLEASE OPEN THE FLAP TO PAGE 2 AND ANSWER ALL QUESTIONS FOR THE FIRST 7 PEOPLE LISTED. USE A BLACK LEAD PENCIL ONLY.**

PLEASE ALSO ANSWER HOUSING QUESTIONS ON PAGE 3

Please fill one column → for each person listed in Question 1a on page 1.	PERSON 1		PERSON 2	
	Last name	First name Middle Initial	Last name	First name Middle Initial
<b>2. How is this person related to PERSON 1?</b> Fill ONE circle for each person. If Other relative of person in column 1, fill circle and print exact relationship, such as mother-in-law, grandparent, son-in-law, niece, cousin, and so on.	START in this column with the household member (or one of the members) in whose name the home is owned, being bought, or rented.  If there is no such person, start in this column with any adult household member.		If a RELATIVE of Person 1: <input type="radio"/> Husband/wife <input type="radio"/> Brother/sister <input type="radio"/> Natural-born or adopted son/daughter <input type="radio"/> Father/mother <input type="radio"/> Stepson/stepdaughter <input type="radio"/> Grandchild <input type="radio"/> Other relative →	
<b>3. Sex</b> Fill ONE circle for each person.	<input type="radio"/> Male <input type="radio"/> Female		If NOT RELATED to Person 1: <input type="radio"/> Roomer, boarder, or foster child <input type="radio"/> Unmarried partner <input type="radio"/> Housemate, roommate <input type="radio"/> Other nonrelative	
<b>4. Race</b> Fill ONE circle for the race that the person considers himself/herself to be. If Indian (Amer.), print the name of the enrolled or principal tribe. →  If Other Asian or Pacific Islander (API), print one group, for example: Hmong, Fijian, Laotian, Thai, Tongan, Pakistani, Cambodian, and so on. → If Other race, print race. →	<input type="radio"/> White <input type="radio"/> Black or Negro <input type="radio"/> Indian (Amer.) (Print the name of the enrolled or principal tribe.) → <input type="radio"/> Eskimo <input type="radio"/> Aleut <input type="radio"/> Asian or Pacific Islander (API) <input type="radio"/> Chinese <input type="radio"/> Japanese <input type="radio"/> Filipino <input type="radio"/> Asian Indian <input type="radio"/> Hawaiian <input type="radio"/> Samoan <input type="radio"/> Korean <input type="radio"/> Guamanian <input type="radio"/> Vietnamese <input type="radio"/> Other API → <input type="radio"/> Other race (Print race) →		<input type="radio"/> White <input type="radio"/> Black or Negro <input type="radio"/> Indian (Amer.) (Print the name of the enrolled or principal tribe.) → <input type="radio"/> Eskimo <input type="radio"/> Aleut <input type="radio"/> Asian or Pacific Islander (API) <input type="radio"/> Chinese <input type="radio"/> Japanese <input type="radio"/> Filipino <input type="radio"/> Asian Indian <input type="radio"/> Hawaiian <input type="radio"/> Samoan <input type="radio"/> Korean <input type="radio"/> Guamanian <input type="radio"/> Vietnamese <input type="radio"/> Other API → <input type="radio"/> Other race (Print race) →	
<b>5. Age and year of birth</b> a. Print each person's age at last birthday. Fill in the matching circle below each box.  b. Print each person's year of birth and fill the matching circle below each box.	a. Age 0 0 0 0 0 1 0 1 0 1 0 2 0 2 0 3 0 3 0 4 0 4 0 5 0 5 0 6 0 6 0 7 0 7 0 8 0 8 0 9 0 9 0	b. Year of birth 1 8 0 0 0 0 0 9 0 1 0 1 0 2 0 2 0 3 0 3 0 4 0 4 0 5 0 5 0 6 0 6 0 7 0 7 0 8 0 8 0 9 0 9 0	a. Age 0 0 0 0 0 1 0 1 0 1 0 2 0 2 0 3 0 3 0 4 0 4 0 5 0 5 0 6 0 6 0 7 0 7 0 8 0 8 0 9 0 9 0	b. Year of birth 1 8 0 0 0 0 0 9 0 1 0 1 0 2 0 2 0 3 0 3 0 4 0 4 0 5 0 5 0 6 0 6 0 7 0 7 0 8 0 8 0 9 0 9 0
<b>6. Marital status</b> Fill ONE circle for each person.	<input type="radio"/> Now married <input type="radio"/> Separated <input type="radio"/> Widowed <input type="radio"/> Never married <input type="radio"/> Divorced		<input type="radio"/> Now married <input type="radio"/> Separated <input type="radio"/> Widowed <input type="radio"/> Never married <input type="radio"/> Divorced	
<b>7. Is this person of Spanish/Hispanic origin?</b> Fill ONE circle for each person.  If Yes, other Spanish/Hispanic, print one group. →	<input type="radio"/> No (not Spanish/Hispanic) <input type="radio"/> Yes, Mexican, Mexican-Am., Chicano <input type="radio"/> Yes, Puerto Rican <input type="radio"/> Yes, Cuban <input type="radio"/> Yes, other Spanish/Hispanic (Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadorian, Spaniard, and so on.) →		<input type="radio"/> No (not Spanish/Hispanic) <input type="radio"/> Yes, Mexican, Mexican-Am., Chicano <input type="radio"/> Yes, Puerto Rican <input type="radio"/> Yes, Cuban <input type="radio"/> Yes, other Spanish/Hispanic (Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadorian, Spaniard, and so on.) →	
<b>FOR CENSUS USE</b> →	<input type="radio"/> <input type="radio"/>		<input type="radio"/> <input type="radio"/>	

NOW PLEASE ANSWER QUESTIONS H1a--H26 FOR THIS HOUSEHOLD

**PERSON 7**

Last name: \_\_\_\_\_ First name: \_\_\_\_\_

**If a RELATIVE of Person 1:**

Husband/wife  Brother/sister  
 Natural-born or adopted son/daughter  Father/mother or Grandchild  
 Stepson/stepdaughter  Other relative

**If NOT RELATED to Person 1:**

Roomer, boarder, or foster child  Unmarried partner  
 Housemate, roommate  Other nonrelative

Male  Female

**C** White  
 Black or Negro  
 Indian (Amer.) (Print the name of the enrolled or principal tribe.)  
 Eskimo  
 Alnet Asian or Pacific Islander (API)  
 Chinese  Japanese  
 Filipino  Asian Indian  
 Hawaiian  Samoan  
 Korean  Guamanian  
 Vietnamese  Other API  
 Other race (Print race)

**a. Age**      **b. Year of birth**

0	0	0	0	0	1	0	8	0	0	0	0
1	0	1	0	1	9	0	1	0	1	0	0
2	0	2	0	2	0	2	0	2	0	2	0
3	0	3	0	3	0	3	0	3	0	3	0
4	0	4	0	4	0	4	0	4	0	4	0
5	0	5	0	5	0	5	0	5	0	5	0
6	0	6	0	6	0	6	0	6	0	6	0
7	0	7	0	7	0	7	0	7	0	7	0
8	0	8	0	8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0	9	0	9	0

Now married  Separated  
 Widowed  Never married  
 Divorced

No (not Spanish/Hispanic)  
 Yes, Mexican, Mexican-Am., Chicano  
 Yes, Puerto Rican  
 Yes, Cuban  
 Yes, other Spanish/Hispanic (Print one group, for example: Argentinian, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.)

**H1a.** Did you leave anyone out of your list of persons for Question 1a on page 1 because you were not sure if the person should be listed -- for example, someone temporarily away on a business trip or vacation, a newborn baby still in the hospital, or a person who stays here once in a while and has no other home?  
 Yes, please print the name(s) and reason(s).  
 No

**b.** Did you include anyone in your list of persons for Question 1a on page 1 even though you were not sure that the person should be listed -- for example, a visitor who is staying here temporarily or a person who usually lives somewhere else?  
 Yes, please print the name(s) and reason(s).  
 No

**H2.** Which best describes this building? Include all apartments, flats, etc., even if vacant.  
 A mobile home or trailer  
 A one-family house detached from any other house  
 A one-family house attached to one or more houses  
 A building with 2 apartments  
 A building with 3 or 4 apartments  
 A building with 5 to 9 apartments  
 A building with 10 to 19 apartments  
 A building with 20 to 49 apartments  
 A building with 50 or more apartments  
 Other

**H3.** How many rooms do you have in this house or apartment? Do NOT count bathrooms, porches, balconies, foyers, halls, or half-rooms.  
 1 room  2 rooms  3 rooms  4 rooms  5 rooms  6 rooms  7 rooms  8 rooms  9 or more rooms

**H4.** Is this house or apartment --  
 Owned by you or someone in this household with a mortgage or loan?  
 Owned by you or someone in this household free and clear (without a mortgage)?  
 Rented for cash rent?  
 Occupied without payment of cash rent?

**If this is a ONE-FAMILY HOUSE --**

**H5a.** Is this house on ten or more acres?  
 Yes  No

**b.** Is there a business (such as a store or barber shop) or a medical office on this property?  
 Yes  No

**Answer only if you or someone in this household OWNS OR IS BUYING this house or apartment --**

**H6.** What is the value of this property; that is, how much do you think this house and lot or condominium unit would sell for if it were for sale?  
 Less than \$10,000  \$70,000 to \$74,999  
 \$10,000 to \$14,999  \$75,000 to \$79,999  
 \$15,000 to \$19,999  \$80,000 to \$89,999  
 \$20,000 to \$24,999  \$90,000 to \$99,999  
 \$25,000 to \$29,999  \$100,000 to \$124,999  
 \$30,000 to \$34,999  \$125,000 to \$149,999  
 \$35,000 to \$39,999  \$150,000 to \$174,999  
 \$40,000 to \$44,999  \$175,000 to \$199,999  
 \$45,000 to \$49,999  \$200,000 to \$249,999  
 \$50,000 to \$54,999  \$250,000 to \$299,999  
 \$55,000 to \$59,999  \$300,000 to \$399,999  
 \$60,000 to \$64,999  \$400,000 to \$499,999  
 \$65,000 to \$69,999  \$500,000 or more

**Answer only if you PAY RENT for this house or apartment --**

**H7a.** What is the monthly rent?  
 Less than \$80  \$375 to \$399  
 \$80 to \$99  \$400 to \$424  
 \$100 to \$124  \$425 to \$449  
 \$125 to \$149  \$450 to \$474  
 \$150 to \$174  \$475 to \$499  
 \$175 to \$199  \$500 to \$524  
 \$200 to \$224  \$525 to \$549  
 \$225 to \$249  \$550 to \$599  
 \$250 to \$274  \$600 to \$649  
 \$275 to \$299  \$650 to \$699  
 \$300 to \$324  \$700 to \$749  
 \$325 to \$349  \$750 to \$999  
 \$350 to \$374  \$1,000 or more

**b.** Does the monthly rent include any meals?  
 Yes  No

**FOR CENSUS USE**

<b>A. Total persons</b>	<b>B. Type of unit</b> Occupied <input type="checkbox"/> Vacant <input type="checkbox"/> <input type="checkbox"/> First form <input type="checkbox"/> Regular <input type="checkbox"/> Con'ta <input type="checkbox"/> Usual home elsewhere	<b>D. Months vacant</b> <input type="checkbox"/> Less than 1 <input type="checkbox"/> 6 up to 12 <input type="checkbox"/> 1 up to 2 <input type="checkbox"/> 12 up to 24 <input type="checkbox"/> 2 up to 6 <input type="checkbox"/> 24 or more	<b>G. DO</b>	<b>ID</b>
0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9	<b>C1. Vacancy status</b> <input type="checkbox"/> For rent <input type="checkbox"/> For seas/rec/occ <input type="checkbox"/> For sale only <input type="checkbox"/> For migrant workers <input type="checkbox"/> Rented or sold, not occupied <input type="checkbox"/> Other vacant	<b>E. Complete after</b> <input type="checkbox"/> LR <input type="checkbox"/> TC <input type="checkbox"/> Q <input type="checkbox"/> QA <input type="checkbox"/> JC 1 <input type="checkbox"/> P/F <input type="checkbox"/> RE <input type="checkbox"/> I/T <input type="checkbox"/> <input type="checkbox"/> MV <input type="checkbox"/> ED <input type="checkbox"/> EN <input type="checkbox"/> <input type="checkbox"/> P0 <input type="checkbox"/> P3 <input type="checkbox"/> P6 <input type="checkbox"/> <input type="checkbox"/> P1 <input type="checkbox"/> P4 <input type="checkbox"/> IA <input type="checkbox"/> JC 2 <input type="checkbox"/> P2 <input type="checkbox"/> P5 <input type="checkbox"/> SM <input type="checkbox"/>	0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9	
	<b>C2. Is this unit boarded up?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>F. Cov.</b> <input type="checkbox"/> 1b <input type="checkbox"/> 1a <input type="checkbox"/> 7 <input type="checkbox"/> H1		

PLEASE ALSO ANSWER THESE

<p><b>H8.</b> When did the person listed in column 1 on page 2 move into this house or apartment?</p> <p> <input type="radio"/> 1989 or 1990  <input type="radio"/> 1985 to 1988  <input type="radio"/> 1980 to 1984  <input type="radio"/> 1970 to 1979  <input type="radio"/> 1960 to 1969  <input type="radio"/> 1969 or earlier                 </p>	<p><b>H14.</b> Which FUEL is used MOST for heating this house or apartment?</p> <p> <input type="radio"/> Gas: from underground pipes serving the neighborhood  <input type="radio"/> Gas: bottled, tank, or LP  <input type="radio"/> Electricity  <input type="radio"/> Fuel oil, kerosene, etc.  <input type="radio"/> Coal or coke  <input type="radio"/> Wood  <input type="radio"/> Solar energy  <input type="radio"/> Other fuel  <input type="radio"/> No fuel used                 </p>	<p><b>H20.</b> What are the yearly costs of utilities and fees for this house or apartment? If you have lived here less than 1 year, estimate the yearly cost.</p> <p><b>a. Electricity</b></p> <p>\$ <input type="text"/> .00 Yearly cost — Dollars</p> <p>OR</p> <p> <input type="radio"/> Included in rent or in condominium fee  <input type="radio"/> No charge or electricity not used                 </p>
<p><b>H9.</b> How many bedrooms do you have; that is, how many bedrooms would you list if this house or apartment were on the market for sale or rent?</p> <p> <input type="radio"/> No bedroom  <input type="radio"/> 1 bedroom  <input type="radio"/> 2 bedrooms  <input type="radio"/> 3 bedrooms  <input type="radio"/> 4 bedrooms  <input type="radio"/> 5 or more bedrooms                 </p>	<p><b>H15.</b> Do you get water from --</p> <p> <input type="radio"/> A public system such as a city water department, or private company?  <input type="radio"/> An individual drilled well?  <input type="radio"/> An individual dug well?  <input type="radio"/> Some other source such as a spring, creek, river, cistern, etc.?                 </p>	<p><b>b. Gas</b></p> <p>\$ <input type="text"/> .00 Yearly cost — Dollars</p> <p>OR</p> <p> <input type="radio"/> Included in rent or in condominium fee  <input type="radio"/> No charge or gas not used                 </p>
<p><b>H10.</b> Do you have COMPLETE plumbing facilities in this house or apartment; that is, 1) hot and cold piped water, 2) a flush toilet, and 3) a bathtub or shower?</p> <p> <input type="radio"/> Yes, have all three facilities  <input type="radio"/> No                 </p>	<p><b>H16.</b> Is this building connected to a public sewer?</p> <p> <input type="radio"/> Yes, connected to public sewer  <input type="radio"/> No, connected to septic tank or cesspool  <input type="radio"/> No, use other means                 </p>	<p><b>c. Water</b></p> <p>\$ <input type="text"/> .00 Yearly cost — Dollars</p> <p>OR</p> <p> <input type="radio"/> Included in rent or in condominium fee  <input type="radio"/> No charge                 </p>
<p><b>H11.</b> Do you have COMPLETE kitchen facilities; that is, 1) a sink with piped water, 2) a range or cookstove, and 3) a refrigerator?</p> <p> <input type="radio"/> Yes  <input type="radio"/> No                 </p>	<p><b>H17.</b> About when was this building first built?</p> <p> <input type="radio"/> 1989 or 1990  <input type="radio"/> 1985 to 1988  <input type="radio"/> 1980 to 1984  <input type="radio"/> 1970 to 1979  <input type="radio"/> 1960 to 1969  <input type="radio"/> 1950 to 1959  <input type="radio"/> 1940 to 1949  <input type="radio"/> 1939 or earlier  <input type="radio"/> Don't know                 </p>	<p><b>d. Oil, coal, kerosene, wood, etc.</b></p> <p>\$ <input type="text"/> .00 Yearly cost — Dollars</p> <p>OR</p> <p> <input type="radio"/> Included in rent or in condominium fee  <input type="radio"/> No charge or these fuels not used                 </p>
<p><b>H12.</b> Do you have a telephone in this house or apartment?</p> <p> <input type="radio"/> Yes  <input type="radio"/> No                 </p>	<p><b>H18.</b> Is this house or apartment part of a condominium?</p> <p> <input type="radio"/> Yes  <input type="radio"/> No                 </p>	
<p><b>H13.</b> How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?</p> <p> <input type="radio"/> None  <input type="radio"/> 1  <input type="radio"/> 2  <input type="radio"/> 3  <input type="radio"/> 4  <input type="radio"/> 5  <input type="radio"/> 6  <input type="radio"/> 7 or more                 </p>	<p><i>If you live in an apartment building, skip to H20.</i></p> <p><b>H19a.</b> Is this house on less than 1 acre?</p> <p> <input type="radio"/> Yes — Skip to H20  <input type="radio"/> No                 </p> <p><b>b.</b> In 1989, what were the actual sales of all agricultural products from this property?</p> <p> <input type="radio"/> None  <input type="radio"/> \$1 to \$999  <input type="radio"/> \$1,000 to \$2,499  <input type="radio"/> \$2,500 to \$4,999  <input type="radio"/> \$5,000 to \$9,999  <input type="radio"/> \$10,000 or more                 </p>	

5  
8  
7  
6  
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4  
3  
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6  
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3  
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1  
0

**QUESTIONS FOR YOUR HOUSEHOLD**

**INSTRUCTION:**  
 Answer questions H21 TO H26, if this is a one-family house, a condominium, or a mobile home that someone in this household OWNS OR IS BUYING; otherwise, go to page 6.

**H21. What were the real estate taxes on THIS property last year?**

\$  .00  
 Yearly amount — Dollars

OR

None

**H22. What was the annual payment for fire, hazard, and flood insurance on THIS property?**

\$  .00  
 Yearly amount — Dollars

OR

None

**H23a. Do you have a mortgage, deed of trust, contract to purchase, or similar debt on THIS property?**

Yes, mortgage, deed of trust, or similar debt } Go to H23b  
 Yes, contract to purchase }  
 No — Skip to H24a

**b. How much is your regular monthly mortgage payment on THIS property? Include payment only on first mortgage or contract to purchase.**

\$  .00  
 Monthly amount — Dollars

OR

No regular payment required — Skip to H24a

**c. Does your regular monthly mortgage payment include payments for real estate taxes on THIS property?**

Yes, taxes included in payment  
 No, taxes paid separately or taxes not required

**d. Does your regular monthly mortgage payment include payments for fire, hazard, or flood insurance on THIS property?**

Yes, insurance included in payment  
 No, insurance paid separately or no insurance

**H24a. Do you have a second or junior mortgage or a home equity loan on THIS property?**

Yes  
 No — Skip to H25

**b. How much is your regular monthly payment on all second or junior mortgages and all home equity loans?**

\$  .00  
 Monthly amount — Dollars

OR

No regular payment required

*Answer ONLY if this is a CONDOMINIUM —*  
**H25. What is the monthly condominium fee?**

\$  .00  
 Monthly amount — Dollars

*Answer ONLY if this is a MOBILE HOME —*  
**H26. What was the total cost for personal property taxes, site rent, registration fees, and license fees on this mobile home and its site last year? Exclude real estate taxes.**

\$  .00  
 Yearly amount — Dollars

Please turn to page 6. ➔

9  
8  
7  
6  
5  
4  
3  
2  
1  
0



**23a. How did this person usually get to work LAST WEEK?** If this person usually used more than one method of transportation during the trip, fill the circle of the one used for most of the distance.

Car, truck, or van     Motorcycle  
 Bus or trolley bus     Bicycle  
 Streetcar or trolley car     Walked  
 Subway or elevated     Worked at home  
 Railroad     Ferryboat     Other method  
 Taxicab     Tascab     Skip to 28

*If "car, truck, or van" is marked in 23a, go to 23b. Otherwise, skip to 24a.*

**b. How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?**

Drove alone     5 people  
 2 people     6 people  
 3 people     7 to 9 people  
 4 people     10 or more people

**24a. What time did this person usually leave home to go to work LAST WEEK?**

a.m.  
 p.m.

**b. How many minutes did it usually take this person to get from home to work LAST WEEK?**

Minutes — Skip to 28

**25. Was this person TEMPORARILY absent or on layoff from a job or business LAST WEEK?**

Yes, on layoff  
 Yes, on vacation, temporary illness, labor dispute, etc.  
 No

**26a. Has this person been looking for work during the last 4 weeks?**

Yes  
 No — Skip to 27

**b. Could this person have taken a job LAST WEEK if one had been offered?**

No, already has a job  
 No, temporarily ill  
 No, other reasons (in school, etc.)  
 Yes, could have taken a job

**27. When did this person last work, even for a few days?**

1990     1980 to 1984  
 1989     1979 or earlier  
 1988     Never worked  
 1985 to 1987

*Go to 28 if 1980 to 1984, 1979 or earlier, or Never worked. Skip to 32 if 1985 to 1987.*

**28-30. CURRENT OR MOST RECENT JOB ACTIVITY.** Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business since 1985.

**28. Industry or Employer**

**a. For whom did this person work?** If now on active duty in the Armed Forces, fill this circle  and print the branch of the Armed Forces.

(Name of company, business, or other employer)

**b. What kind of business or industry was this?** Describe the activity at location where employed.

(For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, retail bakery)

**c. Is this mainly — Fill ONE circle**

Manufacturing     Other (agriculture, construction, service, government, etc.)  
 Wholesale trade  
 Retail trade

**29. Occupation**

**a. What kind of work was this person doing?**

(For example: registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, cake baker)

**b. What were this person's most important activities or duties?**

(For example: patient care, checking hiring policies, supervising order clerks, assembling engines, icing cakes)

**30. Was this person — Fill ONE circle**

Employee of a PRIVATE FOR PROFIT company or business or of an individual, for wages, salary, or commissions  
 Employee of a PRIVATE NOT-FOR-PROFIT, tax-exempt, or charitable organization  
 Local GOVERNMENT employee (city, county, etc.)  
 State GOVERNMENT employee  
 Federal GOVERNMENT employee  
 SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm  
 SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm  
 Working WITHOUT PAY in family business or farm

**31a. Last year (1989), did this person work, even for a few days, at a paid job or in a business or farm?**

Yes  
 No — Skip to 32

**b. How many weeks did this person work in 1989?** Count paid vacation, paid sick leave, and military service.

Weeks

**c. During the weeks WORKED in 1989, how many hours did this person usually work each week?**

Hours

**32. INCOME IN 1989 —** Fill the "Yes" circle below for each income source received during 1989. Otherwise, fill the "No" circle. If "Yes," enter the total amount received during 1989. For income received jointly, see instruction guide. If exact amount is not known, please give best estimate. If net income was a loss, write "Loss" above the dollar amount.

**a. Wages, salary, commissions, bonuses, or tips from all jobs — Report amount before deductions for taxes, bonds, dues, or other items.**

Yes  
 No

Annual amount — Dollars

**b. Self-employment income from own nonfarm business, including proprietorship and partnership — Report NET income after business expenses.**

Yes  
 No

Annual amount — Dollars

**c. Farm self-employment income — Report NET income after operating expenses. Include earnings as a tenant farmer or sharecropper.**

Yes  
 No

Annual amount — Dollars

**d. Interest, dividends, net rental income or royalty income, or income from estates and trusts — Report even small amounts credited to an account.**

Yes  
 No

Annual amount — Dollars

**e. Social Security or Railroad Retirement**

Yes  
 No

Annual amount — Dollars

**f. Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC), or other public assistance or public welfare payments.**

Yes  
 No

Annual amount — Dollars

**g. Retirement, survivor, or disability pensions — Do NOT include Social Security.**

Yes  
 No

Annual amount — Dollars

**h. Any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony — Do NOT include lump-sum payments such as money from an inheritance or the sale of a home.**

Yes  
 No

Annual amount — Dollars

**33. What was this person's total income in 1989?** Add entries in questions 32a through 32h; subtract any losses. If total amount was a loss, write "Loss" above amount.

None OR  Annual amount — Dollars

Please turn the page and answer questions for Person 2 listed on page 1. If this is the last person listed in question 1a on page 1, go to the back of the form.

# APPENDIX F.

## Data Products and User Assistance

### CONTENTS

Data Products .....	F-1
Geographic Products .....	F-2
Other Census Bureau Resources .....	F-6
Reference Materials .....	F-4
Sources of Assistance .....	F-5

The 1990 census data products for Puerto Rico, being released during 1991-93, are available in a variety of new and traditional media. The Census Bureau has increased the product options available to data users to meet a variety of requirements and maximize the usefulness of the data. For example, laser discs, called CD-ROM (compact disc—read-only memory), are a new data delivery medium.

The Census Bureau also expanded services and sources of assistance available to data users. For example, the data center program has over 1,400 organizations (including 25 in Puerto Rico) to provide data and services to the public.

This appendix provides a detailed introduction to the 1990 census data products and related materials, such as maps and reference publications. It concludes by describing sources of assistance and other Census Bureau data available to the public.

### DATA PRODUCTS

Printed reports and computer tape files traditionally are the most widely used products. The Census Bureau also offers data on microfiche, on CD-ROM laser discs, and through its online service, CENDATA™. These various products are described below. For information about prices and how to order, write or call Customer Services. (See the "Sources of Assistance" section for the address and phone number.)

The data products present statistics about the subjects covered in the 1990 census questionnaires for Puerto Rico. These subjects are listed in figure 1, page F-7. As the figure shows, there are 100-percent subjects (those covered in questions asked of everyone or about every housing unit) and sample subjects (those covered in questions asked at about one out of every six housing units). Generally, a data product presents either 100-percent data prepared by tabulating the responses to the 100-percent questions from all questionnaires, or sample data prepared by tabulating only the responses to the 100-percent and sample questions from the "long-form" questionnaires. One report, 1990 CPH-3, (see figure 2, page F-8), presents both 100-percent and sample data.

### Printed Reports

Printed reports are the most convenient and readily available source of data for most census users. The Census Bureau releases the reports in several series (see figure 2) that are grouped under three broad titles: *1990 Census of Population and Housing* (1990 CPH), *1990 Census of Population* (1990 CP), and *1990 Census of Housing* (1990 CH). In addition, there are reports, not reflected in figure 2, for the United States, the Virgin Islands of the United States, and the Pacific territories under U.S. jurisdiction. The reports are sold by the Superintendent of Documents, U.S. Government Printing Office. (See the "Sources of Assistance" section for the address and phone number.)

The content and geographic coverage of the Puerto Rico reports are listed in figure 2. Report series that present data for small areas, such as census tracts, contain limited subject-matter detail (for example, counts of people by age ranges—under 5 years, 5 to 9 years, etc.—rather than by single years). Report series that include greater amounts of subject-matter detail include less geographic detail.

### Computer Tape Files

The Census Bureau provides more data on tape and other machine-readable products than in printed reports. These products are sold by the Census Bureau's Customer Services. There are several general types of data files released on computer tape (available on both reels and cartridges). They are introduced below, and more information is presented in figures 3 and 4, pages F-10 and F-11.

**Redistricting Data**—This data file presents the counts designed and formatted for use in legislative redistricting. These counts also are available on CD-ROM and paper listings. Excerpts are available on CENDATA™. The counts, for areas as small as blocks, census tracts, and voting districts, include totals for population, population 18 years old and over, and housing units. (See figure 4.)

**Summary Tape Files (STF's)**—These computer tape files provide statistics with greater subject-matter detail than printed reports. They also present statistics for some types of areas, such as block groups and blocks, that are not included in the reports. (See figure 3.)

Here are some important features of STF's:

- Each STF presents a particular set of data tables for specific types of geographic areas.
- Most STF's have two file types (indicated by a letter suffix attached to the STF number) that differ in the geographic levels reported, but contain the same data detail.
- STF's 1 and 2 contain 100-percent data, and STF's 3 and 4 contain sample data.
- STF's 1 and 3 report on smaller areas and offer less data detail than STF's 2 and 4.
- STF's 1 through 4 offer greater data detail than the 1980 STF's 1 through 4.

**Public Use Microdata Sample (PUMS) Files**—These computer tape files (see figure 4) contain data from samples of long-form housing-unit records ("micro-data") for large geographic areas. Each sample housing-unit record includes essentially all the 1990 census data collected about each person in a sample household and the characteristics of the housing unit. Information that could be used to identify an individual or a housing unit is not included in the file.

Microdata files enable users to prepare customized tabulations and cross-tabulations of most items on the census questionnaire. There are two PUMS files:

- A file presenting a 5-percent sample of housing units in which each household record includes codes to let the user know in what area, such as a single municipio, a group of municipios, or a place, the household is located. Each area identified must have a population of at least 100,000.
- A file presenting a 1-percent sample of housing units. Its household records include codes associating them with metropolitan areas (MA's). (For the 1980 census, there were two files with 1-percent samples. The 1-percent sample showing data for selected urbanized areas and other large areas will not be produced for the 1990 census.)

**Other Special Computer Tape Files**—Other files include the Census/ Equal Employment Opportunity (EEO) File and the County-to-County Migration File. (See figure 4.) The Census Bureau may prepare additional special files.

### Microfiche

All printed reports are offered on microfiche from Customer Services soon after they are published. Also, STF 3A for Puerto Rico is offered on microfiche. Plans to prepare microfiche versions of selected other products were canceled, so that more products could be produced on CD-ROM.

### Compact Disc—Read-Only Memory (CD-ROM)

For the 1990 census, the Puerto Rico Redistricting file, an extract of STF 1B that presents selected statistics for blocks, and STF's 1A and 3A also are available on CD-ROM. The Census Bureau also offers on CD-ROM: PUMS Files and Census EEO File. (One 4 3/4-inch CD-ROM, a type of optical or laser disc, can hold the contents of approximately 1,600 flexible diskettes, or three or four high-density computer tapes.)

### Online Information Systems

The Census Bureau began CENDATA™, its online information service, in 1984. CENDATA™ is accessible through two information vendors, CompuServe and DIALOG. A number of Census Bureau reports, in whole or in part, are offered online. For the 1990 census, CENDATA™ provides up-to-date information about the availability of data products and carries selections of municipio, MA, and place data from the Redistricting Data tape file and STF's 1 and 3.

### Custom Data Products

These products are for users who require unique tabulations that are not included in standard products; for example, information for locally defined geographic areas. Users also can order special microdata files.

The cost of preparing custom products must be paid by the users who request them. Any data that the Census Bureau provides in these products are subject to the same standards applied to other data to ensure that confidential individual information is not revealed.

**User-Defined Areas Program (UDAP) Tabulations**—UDAP can provide a set of predefined data tables for locally defined areas that do not correspond to standard 1990 census geographic areas. Users identify the geographic areas of interest to them by delineating boundaries around groupings of census blocks on 1990 census block maps or by electronically submitting the geographic components of their area of interest. (A contact for more information is given in the "Sources of Assistance" section.)

**Special Tabulations**—The Census Bureau can prepare special data tabulations for any specific geographic or subject-matter area. Users should rely on standard reports, tapes, CD-ROM, microfiche, or user-defined area tabulations whenever possible, since special tabulations tend to be substantially more expensive and take time to arrange and produce. (Contacts for more information are given in the "Sources of Assistance" section.)

## GEOGRAPHIC PRODUCTS

### Maps

Census Bureau maps are necessary for virtually all uses of small-area 1990 census data. They are needed to locate the specific geographic areas for which the

census provides data and to study the spatial relationship of the data for analytic purposes. The Census Bureau prepares a variety of 1990 census maps. Among the most useful are these series:

**County Block Maps**—These maps show census blocks and their numbers; boundaries for statistical and governmental entities, such as census tracts and places; and physical features. The maps are prepared on electrostatic plotters by municipio (Puerto Rico's equivalent of a county for reporting statistics) with one or more map sheets each, depending on the size and shape of the area and the density of the block pattern. The maps may be purchased from Customer Services.

**County Subdivision Outline Map**—This map of Puerto Rico presents the names and boundaries of the municipios, municipio subdivisions (barrios-pueblos, barrios, and subbarrios), and places. Electrostatic-plotter copies are available for purchase from Customer Services. Also, the map is printed on multiple page-size sheets in the following Puerto Rico reports: 1990 CPH-1-53, 1990 CPH-2-53, 1990 CPH-5-53, 1990 CP-1-53, 1990 CP-2-53, 1990 CH-1-53, and 1990 CH-2-53.

**Census Tract/ Block Numbering Area (BNA) Outline Maps**—Maps in this municipio-based series depict census tract or BNA boundaries and numbers, and the features underlying the boundaries. They also show the names and boundaries of the municipio subdivisions and places. The Superintendent of Documents sells printed copies.

**Urbanized Area Outline/ Boundary Maps**—Maps in this urbanized area-based series depict the boundaries of the urbanized area and the features underlying the boundaries. They also show the boundaries for Puerto Rico, municipio, municipio subdivisions, barrios, places, the map series subject area, and selected base features and their names at a small scale. Electrostatic-plotter copies are available for purchase from Customer Services. Also, they appear on multiple page-size sheets in the State reports of the 1990 CPH-2 series and the Supplementary Report, *Population and Land Area of Urbanized Areas for the United States and Puerto Rico: 1990*.

**Voting District Outline Maps**—Maps in this municipio-based series depict voting district boundaries and the features underlying the boundaries. They also show the boundaries and names of municipio subdivisions and places. They are prepared on electrostatic plotters and sold by Customer Services.

### Geographic Publications

The *Geographic Identification Code Scheme* report in the 1990 CPH-R series will not be printed. Persons interested in this report are encouraged to use the

TIGER/ GICS™ tape file (which also will be available on CD-ROM) described below. Listings similar to the tables that would have been included in the report may be offered. Contact Customer Services, Data User Services Division, Bureau of the Census, Washington, DC 20233, telephone 301-763-4100.

The *Congressional District Atlas, 103rd Congress of the United States* is a two-volume, 1,200-page atlas depicting the boundaries and number of the districts for the 103rd Congress as defined following the 1990 decennial census. This is the first Congress defined following the 1990 decennial census and, therefore, illustrates the most significant changes of the decade, including the reapportionment of the U.S. House of Representatives. Congressional district boundaries following governmental unit boundaries such as an incorporated place of a minor civil division, are illustrated using symbology identified in the map legend. Wherever possible, features used as congressional district boundaries are identified by their feature name or their feature type. The Census Bureau may produce subsequent atlases if court ordered or State mandated redistricting creates new congressional district boundaries. The Atlas is sold by the Superintendent of Documents (stock no. 003-024-08683-2; \$42).

### Machine-Readable Geographic Files

All 1990 census summary tape files include 1990 census geographic area codes, FIPS codes, certain area names, land and total water area in square kilometers, geographic coordinates for an internal point for each entity, and other geographic information.

The Census Bureau developed an automated geographic data base, known as the TIGER (Topologically Integrated Geographic Encoding and Referencing) System, to produce the geographic products for the 1990 census. TIGER provides coordinate-based digital map information for Puerto Rico, the entire United States, the Virgin Islands, and the Pacific territories under U.S. jurisdiction.

The TIGER System has significantly improved the utility of 1990 census maps and geographic reference products. Extract files generated from the TIGER System permit users, with appropriate software, to perform such tasks as linking the statistical data in the Redistricting Data file or the STF's and displaying selected characteristics on maps or a video display screen at different scales and with whatever boundaries they select for any geographic area included in TIGER. For example, a map for a particular municipio could show the distribution of the voting age population by block.

The first extract of selected geographic and cartographic information intended for computer applications, such as plotting maps and building geographic information systems, is called the TIGER/ Line™ files. TIGER/ Line™ files (released on tape and CD-ROM) contain

attributes for the segments of each boundary and feature (for example, roads and rivers), including 1990 census geographic codes for adjacent areas, latitude/longitude coordinates of segment end points and the curvature of segments, the name and type of the feature, and the relevant census feature class code identifying the feature segment by category. TIGER/Line™ files also furnish address ranges and associated ZIP Codes for each side of street segments that have city-style (house number/ street name) addresses; provide the names of landmarks, such as lakes and golf courses; and include other information. The 1992 version also includes school district codes, 1990 census urbanized area codes, codes for districts of the 103rd Congress, and address range coverage expanded to include all areas that have city-style addresses.

TIGER/ GICS™ file is another extract. This file contains a total of 12 files, organized on a national or State-by-State basis, for a variety of geographic entities, such as metropolitan areas and their components as of the 1990 census, 1990 census urbanized areas and their components, American Indian and Alaska Native areas and their related states and counties, as well as more familiar entities including counties with their county subdivisions and places. This file contains high-level geographic names, codes, and relationship information. It can be used to link geographic entity names to the codes in the TIGER/Line™, TIGER/ SDTS™ and other TIGER extract files. It also contains 1990 census population and housing counts, population density (CD-ROM version only, but can be calculated using the tape version), and area measurement information (including land area, total water area and separate measurements for each of the four components of water—Inland, Great Lakes, Coastal, and Territorial), as well as the latitude and longitude for an internal point within each geography entity. The TIGER/ GICS™ also includes corrections to names for selected entities and corrections to the FIPS 55 codes for county subdivisions and places. The first 300 characters of each record in this file are the same as those in the Data Dictionary for the Summary Tape Files; and additional 100 characters provide the above mentioned corrections and components of water. Listings of the files in the TIGER/ GICS™ may be offered. Call Customer Services at 301-763-4100.

Other TIGER System extracts, such as TIGER/ Census Tract Comparability™ file and TIGER/ UA Limit file, are released on computer tape and, in some cases, CD-ROM. For information on TIGER extract files, contact Customer Services.

## REFERENCE MATERIALS

The Census Bureau issues several reference publications for data users. Some are sold by the Superintendent of Documents; others are distributed free by

Customer Services. Addresses and phone numbers for the Superintendent of Documents and Customer Services are given in the following section.

- *1990 Census of Population and Housing, Guide.* This guide, in the 1990 CPH-R report series, provides detailed information about all aspects of the census and a comprehensive glossary of census terms. Sold by the Superintendent of Documents, U.S. Government Printing Office. (Part A, Text: stock no. 003-024-08574-7, \$11. Part B, Glossary: stock no. 003-024-08679-4, \$5.50.)
- *1990 Census of Population and Housing Tabulation and Publication Program for Puerto Rico.* A free report describing 1990 census products for Puerto Rico, comparing 1990 products with those of the 1980 census, and more. Request from Customer Services.
- *1990 Census of Population and Housing Tabulation and Publication Program.* A free report describing 1990 census products for the States, comparing 1990 products with those of the 1980 census, and more. Request from Customer Services.
- *Census ABC's—Applications in Business and Community.* A free booklet that highlights key information about the 1990 census and illustrates a variety of ways the data can be used. Request from Customer Services.
- *Maps and More.* A free, tabloid-size booklet that describes the geographic entities for which the Census Bureau tabulates data. The booklet provides information on the types of geographic entities, how their boundaries are established, and how they relate to each other. It also covers how these entities differ among the censuses and surveys and describes the geographic products available from the Census Bureau. Request from Customer Services.
- *Strength in Numbers.* A free, tabloid-size booklet designed to assist people in using 1990 census data in redistricting. Among other features, it includes illustrations of maps and redistricting counts. It does not deal directly with Puerto Rico geography and census products, but it should still be of help in redistricting. Request from Customer Services.
- *TIGER: The Coast-to-Coast Digital Map Data Base.* A free booklet describing the structure and uses of the Census Bureau's TIGER System. Request from Customer Services.
- *Census and You.* The Census Bureau's monthly newsletter for data users. It reports on the latest 1990 census developments, selected new publications and computer tape files, other censuses and surveys, developments in services to users, and upcoming conferences and training courses. Subscriptions are sold by the Superintendent of Documents, U.S. Government Printing Office.

- **Monthly Product Announcement.** A free monthly listing of all new Census Bureau publications; microfiche; maps; data files on tape, diskettes, or CD-ROM; and technical documentation. To subscribe, contact Customer Services.
- **Census Catalog and Guide.** A comprehensive annual description of data products, statistical programs, and services of the Census Bureau. It provides abstracts of the publications, data files, microfiche, maps, and items online. In addition, the Catalog/Guide offers such features as information about censuses and surveys and telephone contact lists of data specialists at the Census Bureau, the State Data Centers, and other data processing service centers. It is sold by the Superintendent of Documents, U.S. Government Printing Office.

Users also can get listings of new Census Bureau products, updated daily, by subscribing to the *Daily List*. This information and selected statistics are available online through CENDATA™, the Census Bureau's online information service. For more information, contact Customer Services.

## SOURCES OF ASSISTANCE

### U.S. Bureau of the Census

The Census Bureau's Customer Services sells most of the machine-readable data products, microfiche, and maps described earlier. (The 1990 census printed reports are sold by the Superintendent of Documents.) Also, users may consult with specialists at the Census Bureau's Washington headquarters and the New York regional office, which serves Puerto Rico. From time to time, the specialists also conduct workshops, seminars, and training courses.

**Washington, DC Contacts**—To order products, for a telephone contacts list of Census Bureau specialists, and for general information: Customer Services, U.S. Bureau of the Census, Washington, DC 20233, telephone 301-763-4100 (FAX number, 301-763-4794).

For User-Defined Areas Program (UDAP) information: UDAP Staff, Decennial Management Division, U.S. Bureau of the Census, Washington, DC 20233, telephone 301-763-4282.

For special tabulation information: Population—Rosemarie Cowan, Population Division, U.S. Bureau of the Census, Washington, DC 20233, telephone 301-763-5476; Housing—William Downs, Housing and Household Economic Statistics Division, U.S. Bureau of the Census, Washington, DC 20233, telephone 301-763-8553.

### Regional Office Contact—

New York, NY                      212-264-4730

DATA PRODUCTS AND USER ASSISTANCE

## Superintendent of Documents, U.S. Government Printing Office

The Superintendent of Documents handles the sale of most of the Federal Government's publications, including 1990 census reports. To order reports and for information: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, telephone 202-783-3238.

## Other Sources of Products and Services

**State Data Centers**—The Census Bureau furnishes data products, training in data access and use, technical assistance, and consultation to Puerto Rico, all States, the District of Columbia, Guam, and the Virgin Islands. Data centers, in turn, offer publications for reference, printouts from computer tape, specially prepared reports, maps, and other products and assistance to data users. The lead agency of the Puerto Rico data center program is the Junta de Planificación, Centro Gubernamental Minillas, P.O. Box 41119, San Juan, PR 00940-9985, telephone 809-728-4430. For a list of all State Data Centers, see the *Census Catalog and Guide* or contact Customer Services.

**Census Information Center (CIC)**—The CIC program provides data-related services for nationally based nonprofit organizations that represent minorities or other segments of the population who have been historically undercounted in decennial censuses. The participants include social service, business, professional, civil rights, educational, and religious groups. Through the project, five nonprofit groups now offer their clientele reports, computer tape printouts, and other information from the Census Bureau. To learn more about the program, write to the Data User Services Division, Bureau of the Census, Washington, DC 20233, or call 301-763-1384.

**National Clearinghouse**—The National Clearinghouse for Census Data Services is a listing of private companies and other organizations that offer assistance in obtaining and using data released by the Census Bureau. For a list of participants in the National Clearinghouse, see the *Census Catalog and Guide* or contact Customer Services.

**Depository Libraries**—There are 1,400 libraries in the United States, Puerto Rico, and other areas that receive (from the Government Printing Office) Federal publications that they think their patrons will need. Often some of these publications are Census Bureau reports. The Census Bureau provides free reports to an additional 120 census depository libraries. Also, many libraries purchase census reports and maps for their areas. The *Census Catalog and Guide* includes a list of all depository libraries.

compiles and issues (in reports, computer tape, and other media) data for the United States and sometimes Puerto Rico, the Virgin Islands, and the Pacific territories on subjects as diverse as appliance sales, neighborhood conditions, and exports to other countries. Here are examples of the information published about—

- **People:** Age, race, sex, income, poverty, child care, child support, fertility, noncash benefits, education, commuting habits, pension coverage, unemployment, ancestry.
- **Business and industry:** Number of employees, total payroll, sales and receipts, products manufactured or sold.
- **Housing and construction:** Value of new construction, numbers of owners and renters, property value or rent paid, housing starts, fuels used, mortgage costs.
- **Farms:** Number, acreage, livestock, crop sales.
- **Governments:** Revenues and expenditures, taxes, employment, pension funds.
- **Foreign trade:** Exports and imports, origin and destination, units shipped.
- **Other nations:** Population, birth rates, death rates, literacy, fertility.

The other censuses, such as agriculture, retail trade, manufactures, and governments, are collected for years ending in "2" and "7." Surveys and estimates programs generate results as often as every month.

Many of the monthly "economic indicators" that measure how the Nation is doing come directly or indirectly from the Census Bureau. Examples: employment and unemployment; housing starts; wholesale and retail trade; manufacturers' shipments, inventories, and orders; export and import trade; and sales of single-family homes.

Statistical activities of the Census Bureau relevant to Puerto Rico are described below. Data users will find more information about them and descriptions of their data products in the annual *Census Catalog and Guide*. Also, special guides and brochures are prepared for most of them. Contact the Census Bureau's Customer Services for more information.

### Economic Censuses and Surveys

The economic censuses provide statistics about business establishments once every 5 years, covering years ending in "2" and "7." The 1987 Economic Censuses

output (sales or receipts, and value of shipments or of work done). Other items vary from sector to sector.

The County Business Patterns program offers annual statistics on payroll and number of establishments by employment-size class for municipios.

### Agriculture Census

The agriculture census is conducted concurrently with the economic censuses. It is the only source of uniform agriculture data at the municipio level. It provides data on such subjects as the number and size of farms; land use and ownership; livestock, poultry, and crops; and value of products sold.

### Foreign Trade Statistics

Monthly U.S. merchandise trade data compiled by the Census Bureau summarize export and import transactions and are based on the official documents filed by shippers and receivers. These figures reflect the flow of merchandise but not intangibles like services and financial commitments. The trade figures trace commodity movements out of and into the U.S. Customs jurisdiction, which includes Puerto Rico and the Virgin Islands as well as the 50 States and the District of Columbia. Data are published separately on trade between the United States and Puerto Rico, the Virgin Islands, and other U.S. territories.

### Other Statistical Activities

The Census Bureau also offers international data. It maintains an international data base, which is available to the public on computer tape and is used to produce the biennial *World Population Profile* report. It prepares studies dealing with the demographic and economic characteristics of other countries and world regions.

Statistical compendia are another important data product. These publications (sometimes also offered in machine-readable form) draw data from many sources and reorganize them for convenient use. The most widely used compendia are the annual *Statistical Abstract of the United States*, the *County and City Data Book* (published every 5 years), and the *State and Metropolitan Area Data Book* (published approximately every 4 years).

Figure 1. Content of the 1990 Census of Puerto Rico

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**100-PERCENT COMPONENT**

**Population**

Household relationship  
Sex  
Age  
Marital status

**Housing**

Number of units in structure  
Number of rooms in unit  
Plumbing facilities  
Condominium status  
Tenure—owned or rented  
Value of owned unit or rent paid  
Vacancy characteristics

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**SAMPLE COMPONENT**

**Population**

*Social characteristics:*

Place of birth, citizenship, and year of entry  
Education—enrollment and attainment  
Birthplace of parents  
Migration (residence in 1985)  
U.S. residency and activity during last 10 years  
Ability to read and write  
Ability to speak Spanish and English  
Veteran status  
Disability  
Fertility  
Vocational training

*Economic characteristics:*

Employment and unemployment  
Place of work and commuting to work  
Occupation, industry, and class of worker  
Work experience and income in 1989

**Housing**

Farm residence  
Year householder moved into residence  
Year structure built  
Type of construction  
Source of water and method of sewage disposal  
Number of bedrooms and number of bathrooms  
Type of water heater  
Cooking fuel  
Complete kitchen facilities  
Air conditioning  
Telephone in unit  
Vehicles available  
Shelter costs, including utilities  
Condition of housing unit

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NOTE: Questions dealing with the subjects covered in the 100-percent component were asked of all persons and housing units. Those covered by the sample component were asked of a sample of the population and housing units.

Figure 2. 1990 Census Printed Reports for Puerto Rico

Series	Title	Report(s) issued for	Description	Geographic areas
<b>1990 CENSUS OF POPULATION AND HOUSING (1990 CPH)</b>				
<b>100-Percent Data</b>				
1990 CPH-1-53	<b>Summary Population and Housing Characteristics</b>	Puerto Rico	Population and housing unit counts, and summary statistics on age, sex, household relationship, units in structure, number of rooms, plumbing facilities, tenure, value of home or monthly rent, and vacancy characteristics	Puerto Rico, its municipios, barrios-pueblos and barrios, subbarrios, and places
1990 CPH-2-53	<b>Population and Housing Unit Counts</b>	Puerto Rico	Total population and housing unit counts for 1990 and previous censuses	Puerto Rico, its municipios, barrios-pueblos and barrios, subbarrios, places, metropolitan areas (MSA's/ PMSA's and CMSA), urbanized areas (UA's), and summary geographic areas (for example, urban and rural, and metropolitan and nonmetropolitan residence)
<b>100-Percent and Sample Data</b>				
1990 CPH-3	<b>Population and Housing Characteristics for Census Tracts and Block Numbering Areas</b>	For Puerto Rico, one report will be published for each MSA/ PMSA, and one for the non-metropolitan balance	Statistics on 100-percent and sample population and housing subjects	Statistics presented in a geographic hierarchy of MSA/ PMSA- municipio-place of 10,000 or more inhabitants-census tract/block numbering area (BNA)
<b>Sample Data</b>				
1990 CPH-5-53	<b>Summary Social, Economic, and Housing Characteristics</b>	Puerto Rico	Statistics generally on sample population and housing subjects	Puerto Rico, its municipios, barrios-pueblos and barrios, subbarrios, and places
<b>1990 CENSUS OF POPULATION (1990 CP)</b>				
<b>100-Percent Data</b>				
1990 CP-1-53	<b>General Population Characteristics</b>	Puerto Rico	Detailed statistics on age, sex, marital status, and household relationship characteristics	Puerto Rico; its municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; barrios-pueblos and barrios, subbarrios, and places of 1,000 or more inhabitants; and summary geographic areas
<b>Sample Data</b>				
1990 CP-2-53	<b>Social and Economic Characteristics</b>	Puerto Rico	Statistics generally on sample population subjects	Puerto Rico (including summaries such as urban and rural); municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; and barrios-pueblos and barrios, subbarrios, and places of 2,500 or more inhabitants

Figure 2. 1990 Census Printed Reports for Puerto Rico—Con.

Series	Title	Report(s) issued for	Description	Geographic areas
<b>1990 CENSUS OF HOUSING (1990 CH)</b>				
<b>100-Percent Data</b>				
1990 CH-1-53	<b>General Housing Characteristics</b>	Puerto Rico	Detailed statistics on units in structure, plumbing facilities, value and rent, number of rooms, tenure, and vacancy characteristics	Puerto Rico, its municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; barrios-pueblos and barrios, subbarrios, and places of 1,000 or more inhabitants; and summary geographic areas
<b>Sample Data</b>				
1990 CH-2-53	<b>Detailed Housing Characteristics</b>	Puerto Rico	Statistics generally on sample housing subjects	Puerto Rico; municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; barrios-pueblos and barrios, subbarrios, and places of 2,500 or more inhabitants; and summary geographic areas

Figure 3. 1990 Census Summary Tape Files for Puerto Rico

Summary Tape File (STF 1A, 1B, etc.) and data type (100 percent or sample) <sup>1</sup>	Geographic areas	Description
STF 1 (100 percent)	A <sup>2</sup>	Puerto Rico and its component areas in hierarchical sequence down to the block group level. Summaries also tabulated for whole barrios-pueblos and barrios, whole subbarrios, whole places, whole census tracts/ block numbering areas (BNA's), and whole block groups
	B <sup>2</sup>	Puerto Rico and its component areas in hierarchical sequence down to the block level. Data also provided for metropolitan areas (MSA's/ PMSA's and CMSA), UA's, and summary geographic areas (for example, urban and rural)
STF 2 (100 percent)	A	Data for census tracts/ BNA's in metropolitan areas and in the remainder of Puerto Rico in a geographic hierarchy of municipios—places of 10,000 or more inhabitants—census tract/ BNA. It also presents census tract/ BNA summaries for split tracts/ BNA's
	B	Puerto Rico; municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; barrios-pueblos and barrios, subbarrios, and places of 1,000 or more inhabitants; and summary geographic areas (for example, urban and rural)
STF 3 (Sample)	A <sup>2 3</sup>	Puerto Rico and its subareas in hierarchical sequence down to the block group level. Separate summaries provided for metropolitan areas (MSA's/ PMSA's and a CMSA), UA's, whole barrios-pueblos and barrios, whole subbarrios, whole places, whole census tracts/ BNA's, and whole block groups
STF 4 (Sample)	A	Data for census tracts/ BNA's in metropolitan areas and in the remainder of Puerto Rico in a geographic hierarchy of municipios—places of 10,000 or more inhabitants—census tract/ BNA. It also presents census tract/ BNA summaries for split tracts/ BNA's
	B	Puerto Rico; municipios; metropolitan areas (MSA's/ PMSA's and CMSA); UA's; barrios-pueblos and barrios, subbarrios, and places of 2,500 or more inhabitants; and summary geographic areas

**Note:** STF 420 Place of Work 20 Destinations File for Puerto Rico. This is a new file for 1990. Comparable data were included as part of STF 4 in 1980, but for 1990 this is a separate file and must be ordered and purchased separately from STF 4. The file contains 20 place of work destinations for each municipio, barrio-pueblo or barrio, place of 10,000 or more persons, and census tract or block numbering area. The geographic level of the destinations varies. A destination may be a place, municipio, balance of municipio, metropolitan area, or balance of metropolitan area.

<sup>1</sup>Similar STF's will be prepared for States, the District of Columbia, and the U.S. Virgin Islands.

<sup>2</sup>Also available on laser disc (CD-ROM). STF 1B CD-ROM presents an extract of STF 1B.

<sup>3</sup>Also available on microfiche.

**Figure 4. Other 1990 Census Data Products for Puerto Rico**

<b>Title</b>	<b>Description</b>	<b>Geographic areas</b>
<b>Special Supplementary Report—Detailed Population and Housing Characteristics</b>	A series of cross-tabulations of detailed population and housing data	Puerto Rico
<b>Puerto Rico Redistricting Data Project</b>	Counts for the total population and population 18 years old and over, and counts of housing units (total, occupied, and vacant). Available on tape, CD-ROM, and paper listings	Puerto Rico, municipios, barrios-pueblos and barrios, subbarrios, places, census tracts/block numbering areas, block groups, blocks, and voting districts
<b>Census/Equal Employment Opportunity (EEO) File</b>	This special computer tape file will provide sample census data to support affirmative action planning for equal employment opportunity. The file will contain tabulations showing detailed occupations and educational attainment data by age. These data also will be cross-tabulated by sex	Municipios, MA's, places of 50,000 or more inhabitants
<b>County-to-County Migration File</b>	This file will provide summary statistics for Puerto Rico migration streams. Each record will include codes for the geographic area of origin, codes for the geographic area of destination, and selected characteristics of the persons who made up the migration stream	Municipios
<b>Public Use Microdata Sample (PUMS) Files</b>	Machine-readable files containing a sample of individual long-form census records showing most population and housing characteristics but with identifying information removed	
<b>5 Percent—PUMS Municipio Groups</b>		Municipio groups or smaller areas with 100,000 or more inhabitants
<b>1 Percent—Metropolitan Areas (1990)</b>		MA's that will be used in the 1990 census
<b>User-Defined Areas Tabulations</b>	A set of standard tabulations provided on printouts, tapes, or other products with maps and narrative (if requested)	User-defined areas created by aggregating census blocks
<b>Special Tabulations</b>	User-defined tabulations for specified geographic areas provided on printouts, tapes, or other products	User-defined areas or standard areas

# APPENDIX G. Maps

## CONTENTS

<b>Census Tract/Block Numbering Area</b>	
Outline Map Sample _____	G-4
County Block Map Sample _____	G-3
County Subdivision Map Sample _____	G-5
Legend _____	G-2
Map Descriptions _____	G-1
Terminology _____	G-1

There are three map series that relate to the geographic entities for which the Census Bureau provides statistics in the STF 3 (Puerto Rico) CD-ROM. Copies of these maps will be reproduced on electrostatic plotters in response to orders received by Customer Services, Data User Services Division, Bureau of the Census, Washington, DC 20233 (301) 763-4100. Census tract/block numbering area outline maps may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

## MAP DESCRIPTIONS

**County Block Maps**—These maps depict each municipio on one or more map sheets at various scales, depending on the municipio's areal size and the density of the block pattern. (Most municipios include multiple map sheets, including inset maps for densely settled areas.) The maps display block numbers and feature identifiers as well as the boundaries, names, and codes for the legal and statistical entities in the municipio. Each municipio includes an index map sheet that shows the locations of the map sheets comprising the municipio set.

**Census Tract/Block Numbering Area Outline Maps**—These municipio-based maps depict the boundaries and codes of census tracts or block numbering areas, the features and feature names underlying the boundaries, and the boundaries and names of municipios, municipio subdivisions, and places. Map scales vary to minimize the number of sheets. The maps may include one or more insets for densely settled areas.

**County Subdivision Map**—This map of Puerto Rico depicts the boundaries and names of all municipios and statistically equivalent areas, municipio subdivisions, and places. (The Census Bureau also will publish sectionalized versions of these maps in most 1990 census reports.)

## TERMINOLOGY

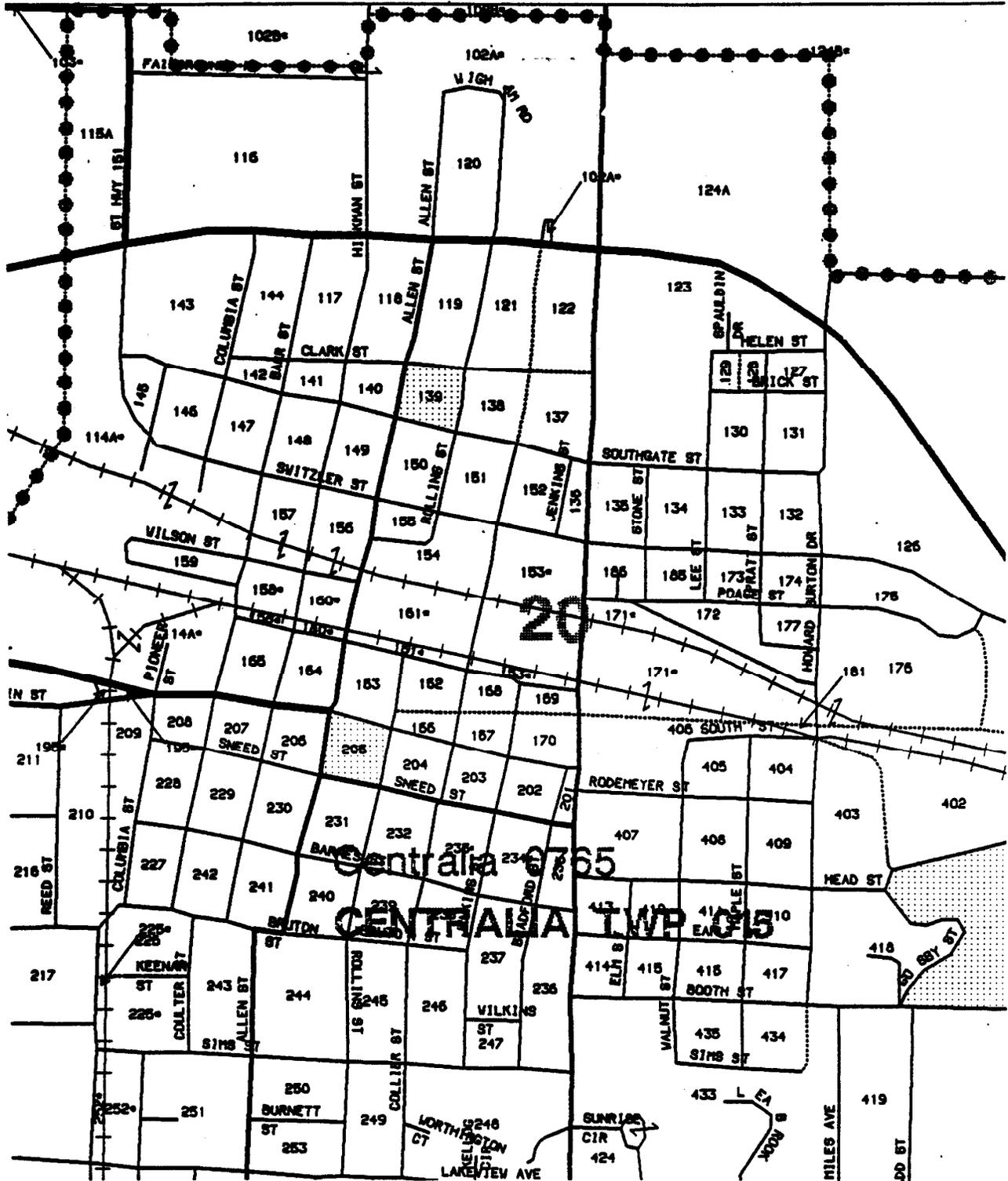
Refer to appendix A for an explanation of the types of areas. Two terms used in the legend require explanation:

**Asterisk(\*)**—A symbol following a block number to indicate the block number is repeated elsewhere in the block or is shown partially on an adjacent map sheet or on an inset map.

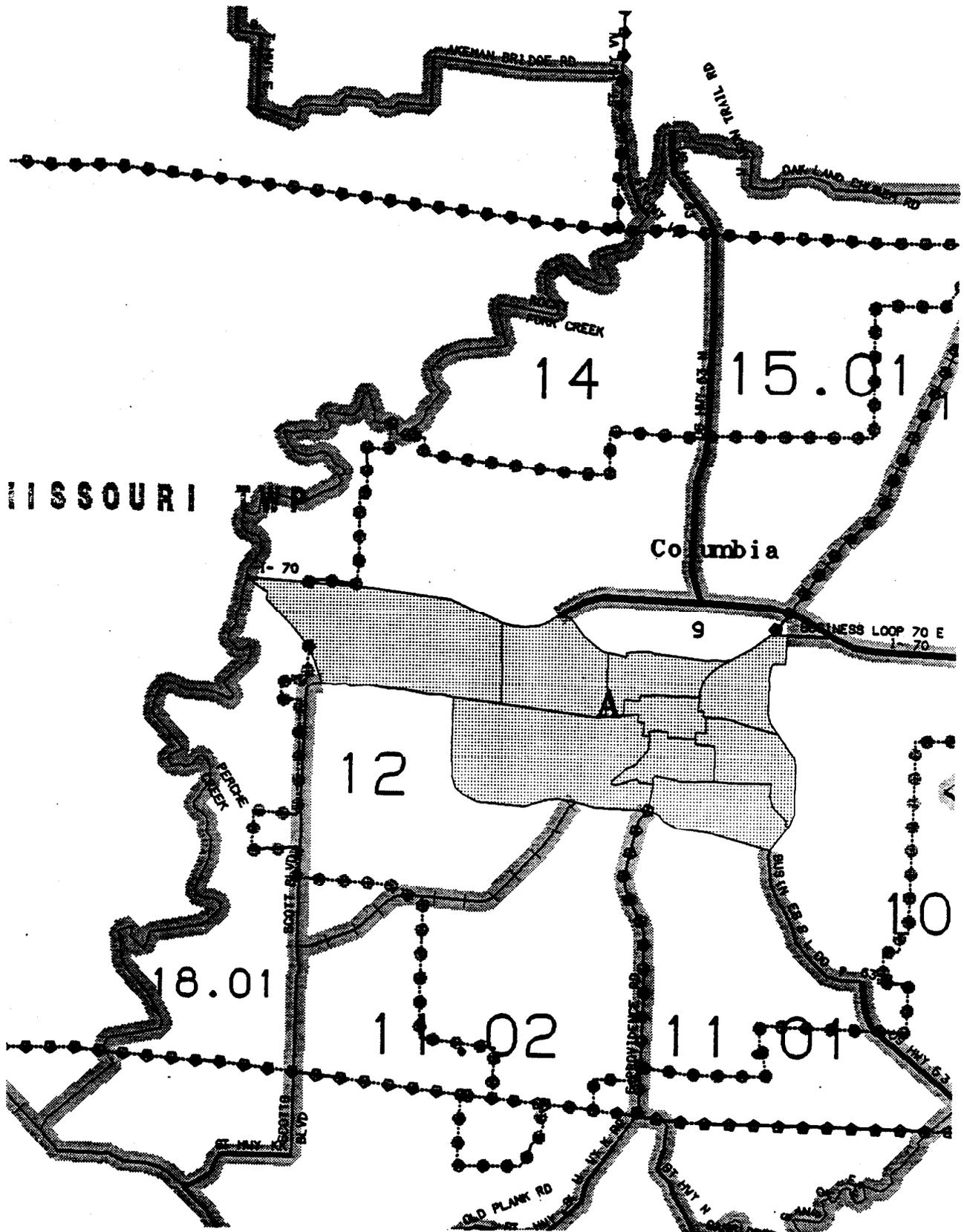
**Fishhook(↔)**—A map symbol drawn across a physical feature (creek, brook, etc.) or boundary on census maps to show that the areas on both sides of the feature or boundary belong to the same census block.



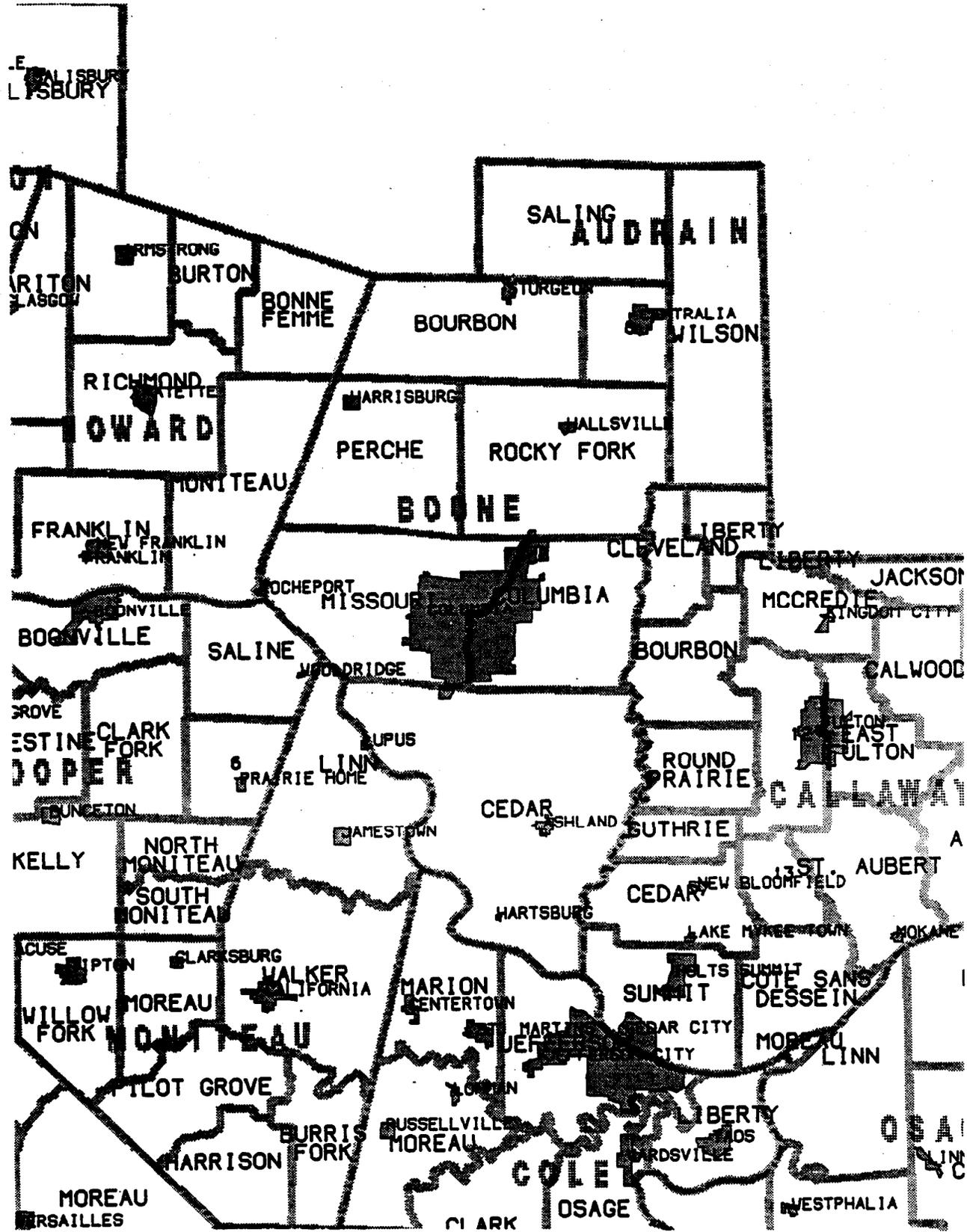
# County Block Map Sample



# Census Tract/Block Numbering Area Outline Map Sample



# County Subdivision Map Sample



# APPENDIX H. Code Lists

## CONTENTS

<b>Group Quarters</b> _____	H-1
<b>Industry</b> _____	H-6
<b>Occupation</b> _____	H-12
<b>Place of Birth</b> _____	H-25

## GROUP QUARTERS

This section contains the alphabetical code list for group quarters. The group quarters code list was used by special place prelist enumerators to classify each type of group quarters. Each group quarters code is a two-digit number followed by either an "I" (Institutional) or "N" (noninstitutional) suffix. The group quarters codes listed in the second column are for staff residing in group quarters.

GQ codes	Staff residents GQ codes	
87-N	-	<b>A. College Quarters Off Campus</b> (Code only if occupied by 10 or more unrelated persons. If less than 10, these are classified as a housing unit.)
		<b>B. Correctional Institutions</b>
22-I	22-N	1. <i>Federal Detention Centers</i> : Including Park Police, Bureau of Indian Affairs, Immigration and Naturalization Service (INS) centers, INS detention centers operated within local jails, and State and Federal prisons. INS detention centers also include INS Federal Alien Detention Facilities, INS Service Processing Centers, and INS Contract Detention Centers used to detain aliens under exclusion or deportation proceedings and aliens who require custodial departures.
21-I	21-N	2. <i>Federal Prisons</i> : Including criminally insane wards operated by a Federal prison within a mental or general hospital. If ward is not operated by a prison, code according to paragraph H4. For detention centers within Federal prisons, see B1 above.
23-I	23-N	3. <i>Halfway Houses</i> : Operated for correctional purposes, including probation and restitution centers, prerelease centers, and community-residential treatment centers.
27-I	27-N	4. <i>Local (County/City) Jails and Other Local Confinement Facilities</i> : Including work farms used to hold persons awaiting trial or serving time on relatively short sentences (usually of a year or less), and jails run by private businesses under contract.
95-I	95-N	5. <i>Military Stockades, Jails</i>
28-I	28-N	6. <i>Police Lockups</i> : Temporary-holding facilities or other facilities that hold persons only if they have not been formally charged in court (usually detained less than 48 hours).
24-I	24-N	7. <i>State Prisons</i> : Prisons run by private businesses (under contract); including criminally insane wards operated by a State prison within a mental or general hospital. If ward is not operated by a prison, code according to paragraph H4.
20-I	20-N	8. <i>Other Types of Correctional Institutions</i> : Including private correctional facilities and correctional facilities specifically for alcohol/drug abuse. (Use only as a last resort if no other type code applies.)
91-N	-	<b>C. Crews of Civilian Vessels</b>
		<b>D. Dormitories</b>
92-N	-	1. <i>Agriculture Workers' Dormitories on Farms</i> : Including migratory farm workers' camps on farms, bunkhouses for ranch hands, and other dormitories on farms including those on "tree farms."



GQ codes      Staff residents  
GQ codes

**G. Group Homes:** Including those providing community-based care and supportive services such as halfway houses for the groups listed below. (Code only if occupied by 10 or more unrelated persons. If less than 10, these are classified as a housing unit.)

- |      |   |  |
|------|---|--|
| 76-N | - | 1. <i>Drug/Alcohol Abuse:</i> Including group homes, detoxification centers, quarterway houses such as residential treatment facilities that work closely with an accredited hospital, halfway houses, recovery homes for ambulatory, and mentally competent recovering alcoholics who may be re-entering the work force. (Ask usual home elsewhere in these places. Include as living there only persons who have no usual home elsewhere.) |
| 29-N | - | 2. <i>Maternity</i> (Homes for unwed mothers) (Ask usual home elsewhere in these places. Include as living there only persons who have no usual home elsewhere.)   |
| 16-N | - | 3. <i>Mentally Ill</i>   |
| 17-N | - | a. Federal   |
| 18-N | - | b. State   |
| 19-N | - | c. Private   |
|      |   | d. Don't know if public/private ownership (Use only as a last resort if no other type code applies.)   |
| 56-N | - | 4. <i>Mentally Retarded</i>  |
| 57-N | - | a. Federal   |
| 58-N | - | b. State   |
| 59-N | - | c. Private   |
|      |   | d. Don't know if public/private ownership (Use only as a last resort if no other type code applies.)   |
|      |   | 5. <i>Physically Handicapped</i>   |
| 72-N | - | a. Public ownership  |
| 73-N | - | b. Private ownership   |
| 74-N | - | c. Don't know if public/private ownership (Use only as a last resort if no other type code applies.)   |
|      |   | 6. <i>Runaway, Neglected, and Homeless Children:</i> Including emergency shelters/group homes which provide temporary sleeping facilities for juveniles, see paragraph F2.   |
| 79-N | - | 7. <i>Other Group Homes:</i> Including communes, foster care homes and job corps centers with 10 or more unrelated children. Do not include emergency housing for persons with no other home. See paragraph F1. (Use only as a last resort if no other type code applies.)   |

**H. Hospitals/Schools for the Handicapped**

- |      |      |  |
|------|------|--|
| 86-N | -    | 1. <i>Dormitories for Nurses and Interns in General and Military Hospitals</i>   |
| 70-I | 70-N | 2. <i>Drug/Alcohol Abuse:</i> Including hospitals, and hospital wards in psychiatric and general hospitals. These facilities/wards are in a medical setting equipped and designed for the diagnosis and treatment of medical or psychiatric illnesses associated with alcohol or drug abuse. Patients receive supervised medical/nursing care from a formally trained staff. For group homes, see paragraph G.   |
|      |      | 3. <i>Hospitals for Chronically Ill</i>  |
| 54-I | 86-N | a. Military hospitals or wards for chronically ill   |
| 55-I | 86-N | b. Other hospitals or wards for chronically ill: Including tuberculosis hospitals or wards, wards in general and Veterans' Administration hospitals for the chronically ill, neurological wards, hospices; wards for patients with Hansen's Disease (leprosy) and other incurable diseases; and other unspecified wards for the chronically ill. Do not include mental or alcohol/drug abuse hospitals or wards.   |
|      |      | 4. <i>Mentally Ill (Psychiatric):</i> Hospitals or wards, including wards for the criminally insane not operated by a prison and psychiatric wards of general hospitals and veterans' hospitals. This is a medical setting designed for the treatment of mental illness. Patients receive supervised and medical/nursing care from a formally trained staff. Code wards for the mentally retarded according to paragraph H5. Do not include hospitals or wards for alcohol/drug abuse; see paragraph H2. |

GQ codes      Staff residents  
GQ codes

**H. Hospitals/Schools for the Handicapped—Con.**

- |      |      |   |
|------|------|---|
| 46-I | 46-N | a. Federal ownership  |
| 47-I | 47-N | b. State or local ownership   |
| 48-I | 48-N | c. Private ownership  |
| 45-I | 45-N | d. Don't know if Federal, State, local, or private ownership (Use only as a last resort if no other type code applies.) |
5. *Mentally Retarded*: Schools, hospitals, wards, including wards in hospitals for the mentally ill, and intermediate care facilities for the mentally retarded. This is in a suitably-equipped setting and with supervised and medical/nursing care from a formally trained staff.
- |      |      |   |
|------|------|---|
| 41-I | 41-N | a. Federal ownership  |
| 43-I | 43-N | b. State or local ownership   |
| 42-I | 42-N | c. Private ownership  |
| 40-I | 40-N | d. Don't know if Federal, State, local, or private ownership (Use only as a last resort if no other type code applies.) |
6. *Physically Handicapped*: Including schools, hospitals, or wards in a suitably-equipped medical setting and designed primarily for the physically handicapped who receive supervised care and medical/nursing care from a formally trained staff.
- |      |      |  |
|------|------|--|
| 38-I | 38-N | a. Institutions for the deaf   |
|      |      | (1) Public ownership   |
| 39-I | 39-N | (2) Private ownership  |
| 37-I | 37-N | (3) Don't know if public/private ownership (Use only as a last resort if no other type code applies.)  |
|      |      | b. Institutions for the blind  |
| 35-I | 35-N | (1) Public ownership   |
| 36-I | 36-N | (2) Private ownership  |
| 34-I | 34-N | (3) Don't know if public/private ownership (Use only as a last resort if no other type code applies.)  |
|      |      | c. Orthopedic wards and institutions for physically handicapped: Including accident victims, and persons with polio, cerebral palsy, and muscular dystrophy. |
| 32-I | 32-N | (1) Public ownership   |
| 33-I | 33-N | (2) Private ownership  |
| 31-I | 31-N | (3) Don't know if public/private ownership (Use only as a last resort if no other type code applies.)  |
7. *Wards in General and Military Hospitals for Patients Who Have No Usual Home Elsewhere*: Including maternity, neonatal, pediatric (including wards for boarder babies), military, surgical wards, and other purpose wards of hospitals and wards for infectious diseases.
- Note: Do not include long-term care rooms for the elderly in wards or buildings on the grounds of hospitals, see paragraph E.
- I. **Hotels/Motels**: "S-Night" locations, see paragraph F.
- J. **Juvenile Institutions**: Including homes, schools, and hospitals.
- |      |      |   |
|------|------|---|
|      |      | 1. <i>Long-Term Care</i> (length of stay usually more than 30 days)                             |
|      |      | a. Neglected, abused, and dependent children: Including orphanages, homes, or residential care. |
| 03-I | 03-N | (1) Public ownership  |
| 04-I | 04-N | (2) Private ownership   |

GQ codes      Staff residents GQ codes

**J. Juvenile Institutions: Including homes, schools, and hospitals—Con.**

- |      |      |   |
|------|------|---|
| 02-I | 02-N | (3) Don't know if public/private ownership (Use only as a last resort if no other type code applies.)   |
| 05-I | 05-N | b. Emotionally disturbed children: Including residential treatment centers (psychiatric care provided).   |
|      |      | c. Delinquent children: Placed by court, parents, or social service agency, in residential training school or home, including industrial schools, camps, or farms.  |
| 12-I | 12-N | (1) Public ownership: Committed by courts.  |
| 15-I | 15-N | (2) Private ownership: Some are committed by courts, others are referred by parents or social service agencies because of delinquent behavior.                      |
| 11-I | 11-N | (3) Don't know if public/private ownership (Use only as a last resort if no other type code applies.)   |
|      |      | 2. Short-term (length of stay usually 30 days or less)  |
| 10-I | 10-N | a. Delinquent children: Including those receiving temporary care in detention or diagnostic centers pending court disposition of case.                              |
|      |      | b. Runaway, neglected, and homeless children: Including emergency shelters/group homes which provide temporary sleeping facilities for juveniles, see paragraph F2. |
| 01-I | 01-N | 3. Don't Know Type of Juvenile Institution: Including homes, schools, hospitals, or wards for children. (Use only as a last resort if no other type code applies.)  |

**K. Military Quarters**

1. On Base

- |      |      |   |
|------|------|---|
| 97-N | --   | a. Barracks, bachelor officers quarters, unaccompanied officer personnel housing, unaccompanied enlisted personnel housing, and similar noninstitutional group living quarters for military personnel |
| 96-N | --   | b. Transient quarters (noninstitutional) for temporary residents (military or civilian)   |
| 86-N | --   | c. Dormitories for nurses and interns in general military hospitals   |
| 54-I | 86-N | d. Hospitals or wards for chronically ill   |
| 95-I | 95-N | e. Stockades and jails  |

2. Military Ships

- |      |    |   |
|------|----|---|
| 90-N | -- | L. Natural Disaster: Including those temporarily displaced by a natural disaster, such as "Hurricane Hugo."   |
| 89-N | -- | M. Religious Group Quarters: Including convents, monasteries, and rectories. Members of religious orders who live in a dormitory at a hospital or college were classified according to the type of place where they live, such as 86-N if at a general hospital, or 87-N if at a college. (Code only if occupied by 10 or more unrelated persons. If less than 10, these are classified as a housing unit.) |
| 80-N | -- | N. Rooming and Boarding Houses<br>(Code only if occupied by 10 or more unrelated persons. If less than 10, these are classified as a housing unit.)   |
|      |    | O. Schools for the Handicapped: See paragraphs H5 and H6.   |
|      |    | P. Shelter/Street Night Enumeration ("S-Night"): See paragraph F.   |
| 94-N | -- | Q. Other Nonhousehold Living Situations: Including places not covered by other GQ codes shown herein, such as commercial or public campgrounds, campgrounds at racetracks, fairs, and carnivals, hostels, and similar transient sites. (Ask usual home elsewhere in these places. Include as living there only persons who have no usual home elsewhere.)   |
|      |    | R. Staff of Institutions: Including staff personnel residing in group quarters. Code according to the appropriate type of group quarters shown under the column "Staff residents GQ codes." Staff residents are coded with an "N" suffix.   |

Note: Do not assign GQ codes to staff residents in group quarters where a "--" is shown.

## INDUSTRY

The list presents the industrial classification developed for the 1990 Census of Population and Housing. There are 235 categories for the employed, with 1 additional category for the experienced unemployed, and 7 additional categories for the Armed Forces. These categories are aggregated into 13 major groups. The classification is developed from the 1987 Standard Industrial Classification. "n.e.c." is the abbreviation for not elsewhere classified.

<b>000-039</b>	<b>AGRICULTURE, FORESTRY, AND FISHERIES</b>
000-010	Agricultural production, crops (01)
011	Agricultural production, livestock (02)
012	Veterinary services (074)
013-020	Landscape and horticultural services (078)
021-030	Agricultural services, n.e.c. (071, 072, 075, 076)
031	Forestry (08)
032-039	Fishing, hunting, and trapping (09)
<b>040-059</b>	<b>MINING</b>
040	Metal mining (10)
041	Coal mining (12)
042	Oil and gas extraction (13)
043-059	Nonmetallic mining and quarrying, except fuel (14)
<b>060-099</b>	<b>CONSTRUCTION (15, 16, 17)</b>
<b>100-399</b>	<b>MANUFACTURING</b>
100-229	Nondurable Goods
100-129	Food and kindred products
100	Meat products (201)
101	Dairy products (202)
102-109	Canned, frozen and preserved fruits and vegetables (203)
110	Grain mill products (204)
111	Bakery products (205)
112-119	Sugar and confectionery products (206)
120	Beverage industries (208)
121	Miscellaneous food preparations and kindred products (207, 209)
122-129	Not specified food industries
130-131	Tobacco manufactures (21)
132-150	Textile mill products
132-139	Knitting mills (225)
140	Dyeing and finishing textiles, except wool and knit goods (226)
141	Carpets and rugs (227)
142-149	Yarn, thread, and fabric mills (221-224, 228)
150	Miscellaneous textile mill products (229)
151-159	Apparel and other finished textile products
151	Apparel and accessories, except knit (231-238)
152-159	Miscellaneous fabricated textile products (239)
160-170	Paper and allied products
160	Pulp, paper, and paperboard mills (261-263)
161	Miscellaneous paper and pulp products (267)
162-170	Paperboard containers and boxes (265)

<b>100-399</b>	<b>MANUFACTURING—Con.</b>
171-179	Printing, publishing, and allied industries
171	Newspaper publishing and printing (271)
172-179	Printing, publishing, and allied industries, except newspapers (272-279)
180-199	Chemicals and allied products
180	Plastics, synthetics, and resins (282)
181	Drugs (283)
182-189	Soaps and cosmetics (284)
190	Paints, varnishes, and related products (285)
191	Agricultural chemicals (287)
192-199	Industrial and miscellaneous chemicals (281, 286, 289)
200-209	Petroleum and coal products
200	Petroleum refining (291)
201-209	Miscellaneous petroleum and coal products (295, 299)
210-219	Rubber and miscellaneous plastics products
210	Tires and inner tubes (301)
211	Other rubber products, and plastics footwear and belting (302-306)
212-219	Miscellaneous plastics products (308)
220-229	Leather and leather products
220	Leather tanning and finishing (311)
221	Footwear, except rubber and plastic (313, 314)
222-229	Leather products, except footwear (315-317, 319)
230-399	Durable Goods
230-241	Lumber and wood products, except furniture
230	Logging (241)
231	Sawmills, planing mills, and millwork (242, 243)
232-240	Wood buildings and mobile homes (245)
241	Miscellaneous wood products (244, 249)
242-249	Furniture and fixtures (25)
250-269	Stone, clay, glass, and concrete products
250	Glass and glass products (321-323)
251	Cement, concrete, gypsum, and plaster products (324, 327)
252-260	Structural clay products (325)
261	Pottery and related products (326)
262-269	Miscellaneous nonmetallic mineral and stone products (328, 329)
270-309	Metal industries
270	Blast furnaces, steelworks, rolling and finishing mills (331)
271	Iron and steel foundries (332)
272-279	Primary aluminum industries (3334, part 334, 3353-3355, 3363, 3365)
280	Other primary metal industries (3331, 3339, part 334, 3351, 3356, 3357, 3364, 3366, 3369, 339)
281	Cutlery, handtools, and general hardware (342)
282-289	Fabricated structural metal products (344)
290	Screw machine products (345)
291	Metal forgings and stampings (346)
292-299	Ordnance (348)
300	Miscellaneous fabricated metal products (341, 343, 347, 349)
301-309	Not specified metal industries

**100-399****MANUFACTURING—Con.****310-339****Machinery and computing equipment**

310

Engines and turbines (351)

311

Farm machinery and equipment (352)

312-319

Construction and material handling machines (353)

320

Metalworking machinery (354)

321

Office and accounting machines (3578, 3579)

322-330

Computers and related equipment (3571-3577)

331

Machinery, except electrical, n.e.c. (355, 356, 358, 359)

332-339

Not specified machinery

**340-350****Electrical machinery, equipment, and supplies**

340

Household appliances (363)

341

Radio, TV, and communication equipment (365, 366)

342-349

Electrical machinery, equipment, and supplies, n.e.c. (361, 362, 364, 367, 369)

350

Not specified electrical machinery, equipment, and supplies

**351-370****Transportation equipment**

351

Motor vehicles and motor vehicle equipment (371)

352-359

Aircraft and parts (372)

360

Ship and boat building and repairing (373)

361

Railroad locomotives and equipment (374)

362-369

Guided missiles, space vehicles, and parts (376)

370

Cycles and miscellaneous transportation equipment (375, 379)

**371-389****Professional and photographic equipment, and watches**

371

Scientific and controlling instruments (381, 382 except 3827)

372-379

Medical, dental, and optical instruments and supplies (3827, 384, 385)

380

Photographic equipment and supplies (386)

381-389

Watches, clocks, and clockwork operated devices (387)

390

Toys, amusement, and sporting goods (394)

391

Miscellaneous manufacturing industries (39 except 394)

392-399

Not specified manufacturing industries

**400-499****TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES****400-439****Transportation**

400

Railroads (40)

401

Bus service and urban transit (41, except 412)

402-409

Taxicab service (412)

410

Trucking service (421, 423)

411

Warehousing and storage (422)

412-419

U.S. Postal Service (43)

420

Water transportation (44)

421

Air transportation (45)

422-431

Pipe lines, except natural gas (46)

432-439

Services incidental to transportation (47)

**440-449****Communications**

440

Radio and television broadcasting and cable (483, 484)

441

Telephone communications (481)

442-449

Telegraph and miscellaneous communications services (482, 489)

**450-499****Utilities and sanitary services**

450

Electric light and power (491)

**400-499      TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES—Con.**

- 451              Gas and steam supply systems (492, 496)
- 452-469        Electric and gas, and other combinations (493)
- 470              Water supply and irrigation (494, 497)
- 471              Sanitary services (495)
- 472-499        Not specified utilities

**500-579      WHOLESALE TRADE**

- 500-539      Durable Goods**
- 500              Motor vehicles and equipment (501)
- 501              Furniture and home furnishings (502)
- 502-509        Lumber and construction materials (503)
- 510              Professional and commercial equipment and supplies (504)
- 511              Metals and minerals, except petroleum (505)
- 512-520        Electrical goods (506)
- 521-529        Hardware, plumbing and heating supplies (507)
- 530              Machinery, equipment, and supplies (508)
- 531              Scrap and waste materials (5093)
- 532-539        Miscellaneous wholesale, durable goods (509 except 5093)

- 540-579      Nondurable Goods**
- 540              Paper and paper products (511)
- 541              Drugs, chemicals and allied products (512, 516)
- 542-549        Apparel, fabrics, and notions (513)
- 550              Groceries and related products (514)
- 551              Farm-product raw materials (515)
- 552-559        Petroleum products (517)
- 560              Alcoholic beverages (518)
- 561              Farm supplies (5191)
- 562-570        Miscellaneous wholesale, nondurable goods (5192-5199)
- 571-579        Not specified wholesale trade

**580-699      RETAIL TRADE**

- 580              Lumber and building material retailing (521, 523)
- 581              Hardware stores (525)
- 582-589        Retail nurseries and garden stores (526)
- 590              Mobile home dealers (527)
- 591              Department stores (531)
- 592-599        Variety stores (533)
- 600              Miscellaneous general merchandise stores (539)
- 601              Grocery stores (541)
- 602-609        Dairy products stores (545)
- 610              Retail bakeries (546)
- 611              Food stores, n.e.c. (542, 543, 544, 549)
- 612-619        Motor vehicle dealers (551, 552)
- 620              Auto and home supply stores (553)
- 621              Gasoline service stations (554)
- 622              Miscellaneous vehicle dealers (555, 556, 557, 559)
- 623-629        Apparel and accessory stores, except shoe (56, except 566)
- 630              Shoe stores (566)
- 631              Furniture and home furnishings stores (571)
- 632              Household appliance stores (572)
- 633-639        Radio, TV, and computer stores (5731, 5734)
- 640              Music stores (5735, 5736)
- 641              Eating and drinking places (58)
- 642-649        Drug stores (591)
- 650              Liquor stores (592)

- 580-699 RETAIL TRADE—Con.**
- 651 Sporting goods, bicycles, and hobby stores (5941, 5945, 5946)
  - 652-659 Book and stationery stores (5942, 5943)
  - 660 Jewelry stores (5944)
  - 661 Gift, novelty, and souvenir shops (5947)
  - 662 Sewing, needlework and piece goods stores (5949)
  - 663-669 Catalog and mail order houses (5961)
  - 670 Vending machine operators (5962)
  - 671 Direct selling establishments (5963)
  - 672-680 Fuel dealers (598)
  - 681 Retail florists (5992)
  - 682-690 Miscellaneous retail stores (593, 5948, 5993-5995, 5999)
  - 691-699 Not specified retail trade
- 700-720 FINANCE, INSURANCE, AND REAL ESTATE**
- 700 Banking (60 except 603 and 606)
  - 701 Savings institutions, including credit unions (603, 606)
  - 702-709 Credit agencies, n.e.c. (61)
  - 710 Security, commodity brokerage, and investment companies (62, 67)
  - 711 Insurance (63, 64)
  - 712-720 Real estate, including real estate-insurance offices (65)
- 721-760 BUSINESS AND REPAIR SERVICES**
- 721 Advertising (731)
  - 722-730 Services to dwellings and other buildings (734)
  - 731 Personnel supply services (736)
  - 732-739 Computer and data processing services (737)
  - 740 Detective and protective services (7381, 7382)
  - 741 Business services, n.e.c. (732, 733, 735, 7383-7389)
  - 742-749 Automotive rental and leasing, without drivers (751)
  - 750 Automotive parking and carwashes (752, 7542)
  - 751 Automotive repair and related services (753, 7549)
  - 752-759 Electrical repair shops (762, 7694)
  - 760 Miscellaneous repair services (763, 764, 7692, 7699)
- 761-799 PERSONAL SERVICES**
- 761 Private households (88)
  - 762-769 Hotels and motels (701)
  - 770 Lodging places, except hotels and motels (702, 703, 704)
  - 771 Laundry, cleaning, and garment services (721 except part 7219)
  - 772-779 Beauty shops (723)
  - 780 Barber shops (724)
  - 781 Funeral service and crematories (726)
  - 782-789 Shoe repair shops (725)
  - 790 Dressmaking shops (part 7219)
  - 791-799 Miscellaneous personal services (722, 729)
- 800-811 ENTERTAINMENT AND RECREATION SERVICES**
- 800 Theaters and motion pictures (781-783, 792)
  - 801 Video tape rental (784)
  - 802-809 Bowling centers (793)
  - 810-811 Miscellaneous entertainment and recreation services (791, 794, 799)

**812-899****PROFESSIONAL AND RELATED SERVICES**

- 812-819 Offices and clinics of physicians (801, 803)
- 820 Offices and clinics of dentists (802)
- 821 Offices and clinics of chiropractors (8041)
- 822-829 Offices and clinics of optometrists (8042)
- 830 Offices and clinics of health practitioners, n.e.c. (8043, 8049)
- 831 Hospitals (806)
- 832-839 Nursing and personal care facilities (805)
- 840 Health services, n.e.c. (807, 808, 809)
- 841 Legal services (81)
- 842-849 Elementary and secondary schools (821)
- 850 Colleges and universities (822)
- 851 Vocational schools (824)
- 852-859 Libraries (823)
- 860 Educational services, n.e.c. (829)
- 861 Job training and vocational rehabilitation services (833)
- 862 Child day care services (part 835)
- 863-869 Family child care homes (part 835)
- 870 Residential care facilities, without nursing (836)
- 871 Social services, n.e.c. (832, 839)
- 872 Museums, art galleries, and zoos (84)
- 873-879 Labor unions (863)
- 880 Religious organizations (866)
- 881 Membership organizations, n.e.c. (861, 862, 864, 865, 869)
- 882-889 Engineering, architectural, and surveying services (871)
- 890 Accounting, auditing, and bookkeeping services (872)
- 891 Research, development, and testing services (873)
- 892 Management and public relations services (874)
- 893-899 Miscellaneous professional and related services (899)

**900-939****PUBLIC ADMINISTRATION**

- 900 Executive and legislative offices (911-913)
- 901-909 General government, n.e.c. (919)
- 910-920 Justice, public order, and safety (92)
- 921 Public finance, taxation, and monetary policy (93)
- 922-929 Administration of human resources programs (94)
- 930 Administration of environmental quality and housing programs (95)
- 931 Administration of economic programs (96)
- 932-939 National security and international affairs (97)

**940-991****ACTIVE DUTY MILITARY**

- 940-959 Armed Forces
- 940 Army
- 941 Air Force
- 942-949 Navy
- 950 Marines
- 951 Coast Guard
- 952-959 Armed Forces, Branch not specified
- 960-991 Military Reserves or National Guard

**992-999****EXPERIENCED UNEMPLOYED NOT CLASSIFIED BY INDUSTRY**

- 992-999 Unemployed, last worked 1984 or earlier

## OCCUPATION

The list presents the occupational classification developed for the 1990 Census of Population and Housing. There are 500 categories for the employed with 1 additional category for the experienced unemployed and 3 additional categories for the Armed Forces. These categories are grouped into 6 summary groups and 13 major groups. The classification is developed from the 1980 Standard Occupational Classification. "n.e.c." is the abbreviation for not elsewhere classified.

### 000-202      **MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS**

#### 000-042      Executive, Administrative, and Managerial Occupations

- 000-003      Legislators (111)
- 004      Chief executives and general administrators, public administration (112)
- 005      Administrators and officials, public administration (1132-1139)
- 006      Administrators, protective services (1131)
- 007      Financial managers (122)
- 008      Personnel and labor relations managers (123)
- 009-012      Purchasing managers (124)
- 013      Managers, marketing, advertising, and public relations (125)
- 014      Administrators, education and related fields (128)
- 015      Managers, medicine and health (131)
- 016      Postmasters and mail superintendents (1344)
- 017      Managers, food serving and lodging establishments (1351)
- 018      Managers, properties and real estate (1353)
- 019-020      Funeral directors (part 1359)
- 021      Managers, service organizations, n.e.c. (127, 1352, 1354, part 1359)
- 022      Managers and administrators, n.e.c. (121, 126, 132-1343, 136-139)

#### 023-042      Management Related Occupations

- 023      Accountants and auditors (1412)
- 024      Underwriters (1414)
- 025      Other financial officers (1415, 1419)
- 026      Management analysts (142)
- 027      Personnel, training, and labor relations specialists (143)
- 028      Purchasing agents and buyers, farm products (1443)
- 029-032      Buyers, wholesale and retail trade except farm products (1442)
- 033      Purchasing agents and buyers, n.e.c. (1449)
- 034      Business and promotion agents (145)
- 035      Construction inspectors (1472)
- 036      Inspectors and compliance officers, except construction (1473)
- 037-042      Management related occupations, n.e.c. (149)

#### 043-202      Professional Specialty Occupations

- 043-063      Engineers, Architects, and Surveyors
- 043      Architects (161)
- 044-062      Engineers
- 044      Aerospace (1622)
- 045      Metallurgical and materials (1623)
- 046      Mining (1624)
- 047      Petroleum (1625)
- 048      Chemical (1626)
- 049-052      Nuclear (1627)
- 053      Civil (1628)
- 054      Agricultural (1632)
- 055      Electrical and electronic (1633, 1636)
- 056      Industrial (1634)
- 057      Mechanical (1635)

## 000-202

**MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.**

058  
059-062  
063

Marine and naval architects (1637)  
Engineers, n.e.c. (1639)  
Surveyors and mapping scientists (164)

## 064-068

064  
065  
066  
067  
068

**Mathematical and Computer Scientists**  
Computer systems analysts and scientists (171)  
Operations and systems researchers and analysts (172)  
Actuaries (1732)  
Statisticians (1733)  
Mathematical scientists, n.e.c. (1739)

## 069-083

069-072  
073  
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079-082  
083

**Natural Scientists**  
Physicists and astronomers (1842, 1843)  
Chemists, except biochemists (1845)  
Atmospheric and space scientists (1846)  
Geologists and geodesists (1847)  
Physical scientists, n.e.c. (1849)  
Agricultural and food scientists (1853)  
Biological and life scientists (1854)  
Forestry and conservation scientists (1852)  
Medical scientists (1855)

## 084-094

084  
085  
086  
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088  
089-094

**Health Diagnosing Occupations**  
Physicians (261)  
Dentists (262)  
Veterinarians (27)  
Optometrists (281)  
Podiatrists (283)  
Health diagnosing practitioners, n.e.c. (289)

## 095-112

095  
096  
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098-105  
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099-102  
103  
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106-112

**Health Assessment and Treating Occupations**  
Registered nurses (29)  
Pharmacists (301)  
Dietitians (302)  
**Therapists**  
Respiratory therapists (3031)  
Occupational therapists (3032)  
Physical therapists (3033)  
Speech therapists (3034)  
Therapists, n.e.c. (3039)  
Physicians' assistants (304)

## 113-154

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119-122  
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128

**Teachers, Postsecondary**  
Earth, environmental, and marine science teachers (2212)  
Biological science teachers (2213)  
Chemistry teachers (2214)  
Physics teachers (2215)  
Natural science teachers, n.e.c. (2216)  
Psychology teachers (2217)  
Economics teachers (2218)  
History teachers (2222)  
Political science teachers (2223)  
Sociology teachers (2224)  
Social science teachers, n.e.c. (2225)  
Engineering teachers (2226)  
Mathematical science teachers (2227)

## 000-202

## MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.

129-132	Computer science teachers (2228)
133	Medical science teachers (2231)
134	Health specialties teachers (2232)
135	Business, commerce, and marketing teachers (2233)
136	Agriculture and forestry teachers (2234)
137	Art, drama, and music teachers (2235)
138	Physical education teachers (2236)
139-142	Education teachers (2237)
143	English teachers (2238)
144	Foreign language teachers (2242)
145	Law teachers (2243)
146	Social work teachers (2244)
147	Theology teachers (2245)
148	Trade and industrial teachers (2246)
149-152	Home economics teachers (2247)
153	Teachers, postsecondary, n.e.c. (2249)
154	Postsecondary teachers, subject not specified
155-162	Teachers, Except Postsecondary
155	Teachers, prekindergarten and kindergarten (231)
156	Teachers, elementary school (232)
157	Teachers, secondary school (233)
158	Teachers, special education (235)
159-162	Teachers, n.e.c. (236, 239)
163	Counselors, Educational and Vocational (24)
164-165	Librarians, Archivists, and Curators
164	Librarians (251)
165	Archivists and curators (252)
166-173	Social Scientists and Urban Planners
166	Economists (1912)
167	Psychologists (1915)
168	Sociologists (1916)
169-172	Social scientists, n.e.c. (1913, 1914, 1919)
173	Urban planners (192)
174-177	Social, Recreation, and Religious Workers
174	Social workers (2032)
175	Recreation workers (2033)
176	Clergy (2042)
177	Religious workers, n.e.c. (2049)
178-182	Lawyers and Judges
178	Lawyers (211)
179-182	Judges (212)
183-202	Writers, Artists, Entertainers, and Athletes
183	Authors (321)
184	Technical writers (398)
185	Designers (322)
186	Musicians and composers (323)
187	Actors and directors (324)
188	Painters, sculptors, craft-artists, and artist printmakers (325)
189-192	Photographers (326)

**000-202      MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.**

193                  Dancers (327)  
194                  Artists, performers, and related workers, n.e.c. (328, 329)  
195-196              Editors and reporters (331)  
197                  Public relations specialists (332)  
198                  Announcers (333)  
199-202              Athletes (34)

**203-402      TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS**

**203-242      Technicians and Related Support Occupations**

**203-212      Health Technologists and Technicians**  
203                  Clinical laboratory technologists and technicians (362)  
204                  Dental hygienists (363)  
205                  Health record technologists and technicians (364)  
206                  Radiologic technicians (365)  
207                  Licensed practical nurses (366)  
208-212              Health technologists and technicians, n.e.c. (369)

**213-242      Technologists and Technicians, Except Health**  
**213-222      Engineering and Related Technologists and Technicians**  
213                  Electrical and electronic technicians (3711)  
214                  Industrial engineering technicians (3712)  
215                  Mechanical engineering technicians (3713)  
216                  Engineering technicians, n.e.c. (3719)  
217                  Drafting occupations (372)  
218-222              Surveying and mapping technicians (373)

**223-225      Science Technicians**  
223                  Biological technicians (382)  
224                  Chemical technicians (3831)  
225                  Science technicians, n.e.c. (3832, 3833, 384, 389)

**226-242      Technicians, Except Health, Engineering, and Science**  
226                  Airplane pilots and navigators (825)  
227                  Air traffic controllers (392)  
228                  Broadcast equipment operators (393)  
229-232              Computer programmers (3971, 3972)  
233                  Tool programmers, numerical control (3974)  
234                  Legal assistants (396)  
235-242              Technicians, n.e.c. (399)

**243-302      Sales Occupations**

**243-252      Supervisors and Proprietors, Sales Occupations (40)**  
**253-257      Sales Representatives, Finance and Business Services**  
253                  Insurance sales occupations (4122)  
254                  Real estate sales occupations (4123)  
255                  Securities and financial services sales occupations (4124)  
256                  Advertising and related sales occupations (4153)  
257                  Sales occupations, other business services (4152)

**258-262      Sales Representatives, Commodities, Except Retail**  
258                  Sales engineers (421)  
259-262              Sales representatives, mining, manufacturing, and wholesale (423, 424)

**203-402****TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.****263-282****Sales Workers, Retail and Personal Services****263****Sales workers, motor vehicles and boats (4342, 4344)****264****Sales workers, apparel (4346)****265****Sales workers, shoes (4351)****266****Sales workers, furniture and home furnishings (4348)****267****Sales workers, radio, TV, hi-fi, and appliances (4343, 4352)****268****Sales workers, hardware and building supplies (4353)****269-273****Sales workers, parts (4367)****274****Sales workers, other commodities (4345, 4347, 4354, 4356, 4359, 4362, 4369)****275****Sales counter clerks (4363)****276****Cashiers (4364)****277****Street and door-to-door sales workers (4366)****278-282****News vendors (4365)****283-302****Sales Related Occupations****283****Demonstrators, promoters and models, sales (445)****284****Auctioneers (447)****285-302****Sales support occupations, n.e.c. (444, 446, 449)****303-402****Administrative Support Occupations, Including Clerical****303-307****Supervisors, Administrative Support Occupations****303****Supervisors, general office (4511, 4513, 4514, 4516, 4519, 4529)****304****Supervisors, computer equipment operators (4512)****305****Supervisors, financial records processing (4521)****306****Chief communications operators (4523)****307****Supervisors, distribution, scheduling, and adjusting clerks (4522, 4524-4528)****308-312****Computer Equipment Operators****308****Computer operators (4612)****309-312****Peripheral equipment operators (4613)****313-315****Secretaries, Stenographers, and Typists****313****Secretaries (4622)****314****Stenographers (4623)****315****Typists (4624)****316-324****Information Clerks****316****Interviewers (4642)****317****Hotel clerks (4643)****318****Transportation ticket and reservation agents (4644)****319-322****Receptionists (4645)****323-324****Information clerks, n.e.c. (4649)****325-336****Records Processing Occupations, Except Financial****325****Classified-ad clerks (4662)****326****Correspondence clerks (4663)****327****Order clerks (4664)****328****Personnel clerks, except payroll and timekeeping (4692)****329-334****Library clerks (4694)****335****File clerks (4696)****336****Records clerks (4699)****337-344****Financial Records Processing Occupations****337****Bookkeepers, accounting, and auditing clerks (4712)****338****Payroll and timekeeping clerks (4713)**

**203-402****TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.**

339-342

Billing clerks (4715)

343

Cost and rate clerks (4716)

344

Billing, posting, and calculating machine operators (4718)

345-347

Duplicating, Mail and Other Office Machine Operators

345

Duplicating machine operators (4722)

346

Mail preparing and paper handling machine operators (4723)

347

Office machine operators, n.e.c. (4729)

348-353

Communications Equipment Operators

348-352

Telephone operators (4732)

353

Communications equipment operators, n.e.c. (4733, 4739)

354-358

Mail and Message Distributing Occupations

354

Postal clerks, except mail carriers (4742)

355

Mail carriers, postal service (4743)

356

Mail clerks, except postal service (4744)

357-358

Messengers (4745)

359-374

Material Recording, Scheduling, and Distributing Clerks

359-362

Dispatchers (4751)

363

Production coordinators (4752)

364

Traffic, shipping, and receiving clerks (4753)

365

Stock and inventory clerks (4754)

366

Meter readers (4755)

368-372

Weighers, measurers, checkers, and samplers (4756, 4757)

373

Expeditors (4758)

374

Material recording, scheduling, and distributing clerks, n.e.c. (4759)

375-378

Adjusters and Investigators

375

Insurance adjusters, examiners, and investigators (4782)

376

Investigators and adjusters, except insurance (4783)

377

Eligibility clerks, social welfare (4784)

378

Bill and account collectors (4786)

379-402

Miscellaneous Administrative Support Occupations

379-382

General office clerks (463)

383

Bank tellers (4791)

384

Proofreaders (4792)

385

Data-entry keyers (4793)

386

Statistical clerks (4794)

387-388

Teachers' aides (4795)

389-402

Administrative support occupations, n.e.c. (4787, 4799)

**403-472****SERVICE OCCUPATIONS**

403-412

Private Household Occupations

403

Launderers and ironers (503)

404

Cooks, private household (504)

405

Housekeepers and butlers (505)

406

Child care workers, private household (506)

407-412

Private household cleaners and servants (502, 507, 509)

413-432

Protective Service Occupations

413-415

Supervisors, Protective Service Occupations

413

Supervisors, firefighting and fire prevention occupations (5111)

**403-472****SERVICE OCCUPATIONS—Con.**

- 414 Supervisors, police and detectives (5112)
- 415 Supervisors, guards (5113)
- 416-417 Firefighting and Fire Prevention Occupations
- 416 Fire inspection and fire prevention occupations (5122)
- 417 Firefighting occupations (5123)
- 418-424 Police and Detectives
- 418-422 Police and detectives, public service (5132)
- 423 Sheriffs, bailiffs, and other law enforcement officers (5134)
- 424 Correctional institution officers (5133)
- 425-432 Guards
- 425 Crossing guards (5142)
- 426 Guards and police, except public service (5144)
- 427-432 Protective service occupations, n.e.c. (5149)

**433-472****Service Occupations, Except Protective and Household**

- 433-444 Food Preparation and Service Occupations
- 433 Supervisors, food preparation and service occupations (5211)
- 434 Bartenders (5212)
- 435 Waiters and waitresses (5213)
- 436-437 Cooks (5214, 5215)
- 438 Food counter, fountain and related occupations (5216)
- 439-442 Kitchen workers, food preparation (5217)
- 443 Waiters' /waitresses' assistants (5218)
- 444 Miscellaneous food preparation occupations (5219)

**445-447****Health Service Occupations**

- 445 Dental assistants (5232)
- 446 Health aides, except nursing (5233)
- 447 Nursing aides, orderlies, and attendants (5236)

**448-455****Cleaning and Building Service Occupations, Except Household**

- 448 Supervisors, cleaning and building service workers (5241)
- 449-452 Maids and housemen (5242, 5249)
- 453 Janitors and cleaners (5244)
- 454 Elevator operators (5245)
- 455 Pest control occupations (5246)

**456-472****Personal Service Occupations**

- 456 Supervisors, personal service occupations (5251)
- 457 Barbers (5252)
- 458 Hairdressers and cosmetologists (5253)
- 459-460 Attendants, amusement and recreation facilities (5254)
- 461 Guides (5255)
- 462 Ushers (5256)
- 463 Public transportation attendants (5257)
- 464 Baggage porters and bellhops (5262)
- 465 Welfare service aides (5263)
- 466 Family child care providers (part 5264)
- 467 Early childhood teacher's assistants (part 5264)
- 468 Child care workers, n.e.c. (part 5264)
- 469-472 Personal service occupations, n.e.c. (5258, 5269)

**473-502****FARMING, FORESTRY, AND FISHING OCCUPATIONS****473-476****Farm Operators and Managers****473**

Farmers, except horticultural (5512-5514)

**474**

Horticultural specialty farmers (5515)

**475**

Managers, farms, except horticultural (5522-5524)

**476**

Managers, horticultural specialty farms (5525)

**477-493****Other Agricultural and Related Occupations****477-484****Farm Occupations, Except Managerial****477-478**

Supervisors, farm workers (5611)

**479-482**

Farm workers (5612-5617)

**483**

Marine life cultivation workers (5618)

**484**

Nursery workers (5619)

**485-493****Related Agricultural Occupations****485**

Supervisors, related agricultural occupations (5621)

**486**

Groundskeepers and gardeners, except farm (5622)

**487**

Animal caretakers, except farm (5624)

**488**

Graders and sorters, agricultural products (5625)

**489-493**

Inspectors, agricultural products (5627)

**494-496****Forestry and Logging Occupations****494**

Supervisors, forestry and logging workers (571)

**495**

Forestry workers, except logging (572)

**496**

Timber cutting and logging occupations (573, 579)

**497-502****Fishers, Hunters, and Trappers****497**

Captains and other officers, fishing vessels (part 8241)

**498**

Fishers (583)

**499-502**

Hunters and trappers (584)

**503-702****PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS****503-552****Mechanics and Repairers****503-504**

Supervisors, mechanics and repairers (60)

**505-552****Mechanics and Repairers, Except Supervisors****505-517****Vehicle and Mobile Equipment Mechanics and Repairers****505-506**

Automobile mechanics (part 6111)

**506**

Automobile mechanic apprentices (part 6111)

**507**

Bus, truck, and stationary engine mechanics (6112)

**508**

Aircraft engine mechanics (6113)

**509-513**

Small engine repairers (6114)

**514**

Automobile body and related repairers (6115)

**515**

Aircraft mechanics, except engine (6116)

**516**

Heavy equipment mechanics (6117)

**517**

Farm equipment mechanics (6118)

**518**

Industrial machinery repairers (613)

**519-522**

Machinery maintenance occupations (614)

**523-533****Electrical and Electronic Equipment Repairers****523-524**

Electronic repairers, communications and industrial equipment (6151, 6153, 6155)

**525**

Data processing equipment repairers (6154)

**526**

Household appliance and power tool repairers (6156)

**527-528**

Telephone line installers and repairers (6157)

**529-532**

Telephone installers and repairers (6158)

**533**

Miscellaneous electrical and electronic equipment repairers (6152, 6159)

**534**

Heating, air conditioning, and refrigeration mechanics (616)

503-702

**PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.**

535-552

**Miscellaneous Mechanics and Repairers**

535

Camera, watch, and musical instrument repairers (6171, 6172)

536-537

Locksmiths and safe repairers (6173)

538

Office machine repairers (6174)

539-542

Mechanical controls and valve repairers (6175)

543

Elevator installers and repairers (6176)

544-546

Millwrights (6178)

547-548

Specified mechanics and repairers, n.e.c. (6177, 6179)

549-552

Not specified mechanics and repairers

553-612

**Construction Trades**

553-562

**Supervisors, Construction Occupations**

553

Supervisors, brickmasons, stonemasons, and tile setters (6312)

554

Supervisors, carpenters and related workers (6313)

555

Supervisors, electricians and power transmission installers (6314)

556

Supervisors, painters, paperhangers, and plasterers (6315)

557

Supervisors, plumbers, pipefitters, and steamfitters (6316)

558-562

Supervisors, construction, n.e.c. (6311, 6318)

563-612

**Construction Trades, Except Supervisors**

563-564

Brickmasons and stonemasons (part 6412, part 6413)

564

Brickmason and stonemason apprentices (part 6412, part 6413)

565

Tile setters, hard and soft (part 6414, part 6462)

566

Carpet installers (part 6462)

567-572

Carpenters (part 6422)

569-572

Carpenter apprentices (part 6422)

573-574

Drywall installers (6424)

575-576

Electricians (part 6432)

576

Electrician apprentices (part 6432)

577-578

Electrical power installers and repairers (6433)

579-582

Painters, construction and maintenance (6442)

583

Paperhangers (6443)

584

Plasterers (6444)

585-587

Plumbers, pipefitters, and steamfitters (part 645)

587

Plumber, pipefitter, and steamfitter apprentices (part 645)

588

Concrete and terrazzo finishers (6463)

589-592

Glaziers (6464)

593

Insulation workers (6465)

594

Paving, surfacing, and tamping equipment operators (6466)

595

Roofers (6468)

596

Sheetmetal duct installers (6472)

597

Structural metal workers (6473)

598

Drillers, earth (6474)

599-612

Construction trades, n.e.c. (6467, 6475, 6476, 6479)

613-627

**Extractive Occupations**

613

Supervisors, extractive occupations (632)

614

Drillers, oil well (652)

615

Explosives workers (653)

616

Mining machine operators (654)

617-627

Mining occupations, n.e.c. (656)

628-702

**Precision Production Occupations**

628-633

Supervisors, production occupations (67, 71)

634-655

Precision Metal Working Occupations

503-702

**PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.**

634-635  
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637-642  
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689-692  
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694-702  
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696-698  
699-702

Tool and die makers (part 6811)  
Tool and die maker apprentices (part 6811)  
Precision assemblers, metal (6812)  
Machinists (part 6813)  
Machinist apprentices (part 6813)  
Boilermakers (6814)  
Precision grinders, filers, and tool sharpeners (6816)  
Patternmakers and model makers, metal (6817)  
Lay-out workers (6821)  
Precious stones and metals workers (Jewelers) (6822, 6866)  
Engravers, metal (6823)  
Sheet metal workers (part 6824)  
Sheet metal worker apprentices (part 6824)  
Miscellaneous precision metal workers (6829)  
Precision Woodworking Occupations  
Patternmakers and model makers, wood (6831)  
Cabinet makers and bench carpenters (6832)  
Furniture and wood finishers (6835)  
Miscellaneous precision woodworkers (6839)  
Precision Textile, Apparel, and Furnishings Machine Workers  
Dressmakers (part 6852, part 7752)  
Tailors (part 6852)  
Upholsterers (6853)  
Shoe repairers (6854)  
Miscellaneous precision apparel and fabric workers (6856, 6859, part 7752)  
Precision Workers, Assorted Materials  
Hand molders and shapers, except jewelers (6861)  
Patternmakers, lay-out workers, and cutters (6862)  
Optical goods workers (6864, part 7477, part 7677)  
Dental laboratory and medical appliance technicians (6865)  
Bookbinders (6844)  
Electrical and electronic equipment assemblers (6867)  
Miscellaneous precision workers, n.e.c. (6869)  
Precision Food Production Occupations  
Butchers and meat cutters (6871)  
Bakers (6872)  
Food batchmakers (6873, 6879)  
Precision Inspectors, Testers, and Related Workers  
Inspectors, testers, and graders (6881, 828)  
Adjusters and calibrators (6882)  
Plant and System Operators  
Water and sewage treatment plant operators (691)  
Power plant operators (part 693)  
Stationary engineers (part 693, 7668)  
Miscellaneous plant and system operators (692, 694, 695, 696)

703-902

**OPERATORS, FABRICATORS, AND LABORERS**

703-802

Machine Operators, Assemblers, and Inspectors

703-782

Machine Operators and Tenders, Except Precision

703-716

Metal Working and Plastic Working Machine Operators

703

Lathe and turning machine set-up operators (7312)

704

Lathe and turning machine operators (7512)

705

Milling and planing machine operators (7313, 7513)

706

Punching and stamping press machine operators (7314, 7317, 7514, 7517)

CODE LISTS

H-21

703-902

**OPERATORS, FABRICATORS, AND LABORERS—Con.**

707

Rolling machine operators (7316, 7516)

708

Drilling and boring machine operators (7318, 7518)

709-712

Grinding, abrading, buffing, and polishing machine operators (7322, 7324, 7522)

713

Forging machine operators (7319, 7519)

714

Numerical control machine operators (7326)

715-716

Miscellaneous metal, plastic, stone, and glass working machine operators (7329, 7529)

717-718

Fabricating machine operators, n.e.c. (7339, 7539)

719-725

**Metal and Plastic Processing Machine Operators**

719-722

Molding and casting machine operators (7315, 7342, 7515, 7542)

723

Metal plating machine operators (7343, 7543)

724

Heat treating equipment operators (7344, 7544)

725

Miscellaneous metal and plastic processing machine operators (7349, 7549)

726-733

**Woodworking Machine Operators**

726

Wood lathe, routing, and planing machine operators (7431, 7432, 7631, 7632)

727

Sawing machine operators (7433, 7633)

728

Shaping and joining machine operators (7435, 7635)

729-732

Nailing and tacking machine operators (7636)

733

Miscellaneous woodworking machine operators (7434, 7439, 7634, 7639)

734-737

**Printing Machine Operators**

734

Printing press operators (7443, 7643)

735

Photoengravers and lithographers (6842, 7444, 7644)

736

Typesetters and compositors (6841, 7642)

737

Miscellaneous printing machine operators (6849, 7449, 7649)

738-752

**Textile, Apparel, and Furnishings Machine Operators**

738

Winding and twisting machine operators (7451, 7651)

739-742

Knitting, looping, taping, and weaving machine operators (7452, 7652)

743

Textile cutting machine operators (7654)

744

Textile sewing machine operators (7655)

745-746

Shoe machine operators (7656)

747

Pressing machine operators (7657)

748

Laundering and dry cleaning machine operators (6855, 7658)

749-752

Miscellaneous textile machine operators (7459, 7659)

753-782

**Machine Operators, Assorted Materials**

753

Cementing and gluing machine operators (7661)

754

Packaging and filling machine operators (7462, 7662)

755

Extruding and forming machine operators (7463, 7663)

756

Mixing and blending machine operators (7664)

757

Separating, filtering, and clarifying machine operators (7476, 7666, 7676)

758

Compressing and compacting machine operators (7467, 7667)

759-762

Painting and paint spraying machine operators (7669)

763

Roasting and baking machine operators, food (7472, 7672)

764

Washing, cleaning, and pickling machine operators (7673)

765

Folding machine operators (7474, 7674)

766-767

Furnace, kiln, and oven operators, except food (7675)

768

Crushing and grinding machine operators (part 7477, part 7677)

769-772

Slicing and cutting machine operators (7478, 7678)

773

Motion picture projectionists (part 7479)

774-776

Photographic process machine operators (6863, 6868, 7671)

777-778

Miscellaneous machine operators, n.e.c. (part 7479, 7665, 7679)

779-782

Machine operators, not specified

**703-902****OPERATORS, FABRICATORS, AND LABORERS—Con.**

783-795

**Fabricators, Assemblers, and Hand Working Occupations**

783

Welders and cutters (7332, 7532, 7714)

784

Solderers and brazers (7333, 7533, 7717)

785

Assemblers (772, 774)

786

Hand cutting and trimming occupations (7753)

787-788

Hand molding, casting, and forming occupations (7754, 7755)

789-792

Hand painting, coating, and decorating occupations (7756)

793-794

Hand engraving and printing occupations (7757)

795

Miscellaneous hand working occupations (7758, 7759)

796-802

**Production Inspectors, Testers, Samplers, and Weighers**

796

Production inspectors, checkers, and examiners (782, 787)

797

Production testers (783)

798

Production samplers and weighers (784)

799-802

Graders and sorters, except agricultural (785)

**803-863****Transportation and Material Moving Occupations**

803-822

**Motor Vehicle Operators**

803

Supervisors, motor vehicle operators (8111)

804-805

Truck drivers (8212-8214)

806-807

Driver-sales workers (8218)

808

Bus drivers (8215)

809-812

Taxicab drivers and chauffeurs (8216)

813

Parking lot attendants (874)

814-822

Motor transportation occupations, n.e.c. (8219)

823-842

**Transportation Occupations, Except Motor Vehicles**

823-827

**Rail Transportation Occupations**

823

Railroad conductors and yardmasters (8113)

824

Locomotive operating occupations (8232)

825

Railroad brake, signal, and switch operators (8233)

826-827

Rail vehicle operators, n.e.c. (8239)

828-842

**Water Transportation Occupations**

828

Ship captains and mates, except fishing boats (part 8241, 8242)

829-832

Sailors and deckhands (8243)

833

Marine engineers (8244)

834-842

Bridge, lock, and lighthouse tenders (8245)

843-863

**Material Moving Equipment Operators**

843

Supervisors, material moving equipment operators (812)

844

Operating engineers (8312)

845-847

Longshore equipment operators (8313)

848

Hoist and winch operators (8314)

849-852

Crane and tower operators (8315)

853-854

Excavating and loading machine operators (8316)

855

Grader, dozer, and scraper operators (8317)

856-858

Industrial truck and tractor equipment operators (8318)

859-863

Miscellaneous material moving equipment operators (8319)

**864-902****Handlers, Equipment Cleaners, Helpers, and Laborers**

864

Supervisors, handlers, equipment cleaners, and laborers, n.e.c. (85)

865

Helpers, mechanics, and repairers (863)

866-868

**Helpers, Construction, and Extractive Occupations**

866

Helpers, construction trades (8641-8645, 8648)

867

Helpers, surveyor (8646)

**703-902**

**OPERATORS, FABRICATORS, AND LABORERS—Con.**

868                   Helpers, extractive occupations (865)  
869-873             Construction laborers (871)  
874                   Production helpers (861, 862)  
875-884             Freight, Stock, and Material Handlers  
875                   Garbage collectors (8722)  
876                   Stevedores (8723)  
877                   Stock handlers and baggers (8724)  
878-882             Machine feeders and offbearers (8725)  
883-884             Freight, stock, and material handlers, n.e.c. (8726)  
885-886             Garage and service station related occupations (873)  
887                   Vehicle washers and equipment cleaners (875)  
888                   Hand packers and packagers (8761)  
889-902             Laborers, except construction (8769)

**903-908**

**MILITARY OCCUPATIONS (Includes only uniquely military occupations.  
Other Armed Forces members are coded to civilian occupations.)**

903                   Commissioned officers and warrant officers  
904                   Non-commissioned officers and other enlisted personnel  
905-908             Military occupation, rank not specified

**909-999**

**EXPERIENCED UNEMPLOYED NOT CLASSIFIED BY OCCUPATION**

909-999             Unemployed, last worked 1984 or earlier

## PLACE OF BIRTH

This section contains the code list for place of birth. An alphabetical list of U.S. States and territories, foreign countries, and other areas was used to assign a three-digit code to the birthplace reported by each person. The alphabetical list used in coding included abbreviations and alternate names, including some historical names for countries and names of States, provinces, counties, or other subdivisions of countries.

The following list does not include any of these alternate names, but does include continent and area names used as defaults if a specific country was not named but a broader region or area of birth was reported. The names for foreign countries shown on this list and in the publications reflect the most commonly used names in this country, not their official or legal names. Each entry shown on the following list has a unique code.

The U.S. States and territories were assigned their Federal Information Processing Standards (FIPS) code preceded by a zero. For foreign countries, codes were generally assigned by listing the countries or areas in alphabetical order (followed by default codes) within eight broad continent or regional areas: (1) Europe, (2) Asia, (3) North America, (4) Central America, (5) Caribbean, (6) South America, (7) Africa, and (8) Oceania. The entries for the USSR and the Baltic States are listed following the other entries for Europe for convenience in combining with either Europe or Asia. The entries for Germany also do not follow strict alphabetical order; codes 110-114 can be combined to tabulate an overall figure including Germany (not specified), East Germany, West Germany, and Berlin. The entries for the United Kingdom also do not follow strict alphabetical order; codes 138-145 can be combined to tabulate an overall figure including United Kingdom (not specified), England, Scotland, Wales, Northern Ireland, Guernsey, Jersey, and the Isle of Man. The codes for Asia also include a code for Korea (not specified) since it is often reported in that fashion.

001-059	United States	001-059	United States—Con.
001	Alabama	041	Oregon
002-003	Alaska	042-043	Pennsylvania
004	Arizona	044	Rhode Island
005	Arkansas	045	South Carolina
006-007	California	046	South Dakota
008	Colorado	047	Tennessee
009	Connecticut	048	Texas
010	Delaware	049	Utah
011	District of Columbia	050	Vermont
012	Florida	051-052	Virginia
013-014	Georgia	053	Washington
015	Hawaii	054	West Virginia
016	Idaho	055	Wisconsin
017	Illinois	056-059	Wyoming
018	Indiana		
019	Iowa	060-099	U.S. Outlying Areas and Puerto Rico
020	Kansas	060-065	American Samoa
021	Kentucky	066	Guam
022	Louisiana	067-068	Johnston Atoll
023	Maine	069-070	Northern Mariana Islands
024	Maryland	071	Midway Islands
025	Massachusetts	072-075	Puerto Rico
026	Michigan	076-077	Navassa Island
027	Minnesota	078	U.S. Virgin Islands
028	Mississippi	079-080	Wake Island
029	Missouri	081-083	Baker Island
030	Montana	084-085	Howland Island
031	Nebraska	086-088	Jarvis Island
032	Nevada	089-090	Kingman Reef
033	New Hampshire	091	St. Croix
034	New Jersey	092	St. John
035	New Mexico	093-094	St. Thomas
036	New York	095	Palmyra Atoll
037	North Carolina	096-099	U.S. territory, not specified
038	North Dakota		
039	Ohio		
040	Oklahoma		

**100-199 Europe**

100 Albania  
 101 Andorra  
 102 Austria  
 103 Belgium  
 104 Bulgaria  
 105 Czechoslovakia  
 106 Denmark  
 107 Faroe Islands  
 108 Finland  
 109 France  
 110 Germany, not specified  
 111 West Germany  
 112 West Berlin  
 113 East Berlin  
 114 East Germany  
 115 Gibraltar  
 116 Greece  
 117 Hungary  
 118 Iceland  
 119 Ireland  
 120 Italy  
 121 Jan Mayen  
 122 Liechtenstein  
 123 Luxembourg  
 124 Malta  
 125 Monaco  
 126 Netherlands  
 127 Norway  
 128 Poland  
 129 Portugal  
 130 Azores Islands  
 131 Madeira Islands  
 132 Romania  
 133 San Marino  
 134 Spain  
 135 Svalbard  
 136 Sweden  
 137 Switzerland  
 138 United Kingdom, not specified  
 139 England  
 140 Scotland  
 141 Wales  
 142 Northern Ireland  
 143 Guernsey  
 144 Jersey  
 145 Isle of Man  
 146 Vatican City  
 147 Yugoslavia  
 148 Europe, not specified  
 149 Central Europe, not specified  
 150 Eastern Europe, not specified  
 151 Lapland, not specified  
 152 Northern Europe, not specified  
 153 Southern Europe, not specified  
 154-179 Western Europe, not specified

**100-199 Europe—Con.**

180 Union of Soviet Socialist Republics (USSR)  
 181 Baltic States, not specified  
 182 Estonia  
 183 Latvia  
 184-199 Lithuania

**200-299 Asia**

200 Afghanistan  
 201 Bahrain  
 202 Bangladesh  
 203 Bhutan  
 204 Brunei  
 205 Burma  
 206 Cambodia  
 207 China  
 208 Cyprus  
 209 Hong Kong  
 210 India  
 211 Indonesia  
 212 Iran  
 213 Iraq  
 214 Israel  
 215 Japan  
 216 Jordan  
 217 Korea, not specified  
 218 South Korea  
 219 North Korea  
 220 Kuwait  
 221 Laos  
 222 Lebanon  
 223 Macau  
 224 Malaysia  
 225 Maldives  
 226 Mongolia  
 227 Nepal  
 228 Oman  
 229 Pakistan  
 230 Paracel Islands  
 231 Philippines  
 232 Qatar  
 233 Saudi Arabia  
 234 Singapore  
 235 Spratley Islands  
 236 Sri Lanka  
 237 Syria  
 238 Taiwan  
 239 Thailand  
 240 Turkey  
 241 United Arab Emirates  
 242 Vietnam  
 243 Yemen, People's Democratic Republic  
 244 Yemen Arab Republic  
 245 Asia, not specified  
 246 Asia Minor, not specified  
 247 East Asia, not specified

**200-299**

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256-299

**Asia—Con.**

Gaza Strip  
Indochina, not specified  
Iraq-Saudi Arabia Neutral Zone  
Mesopotamia, not specified  
Middle East, not specified  
Palestine, not specified  
Persian Gulf States, not specified  
Southeast Asia, not specified  
West Bank

**300-399****America****300-309****North America**

300  
301  
302  
303  
304-309

Bermuda  
Canada  
Greenland  
St. Pierre and Miquelon  
North America, not specified

**310-329****Central America**

310  
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318-329

Belize  
Costa Rica  
El Salvador  
Guatemala  
Honduras  
Mexico  
Nicaragua  
Panama  
Central America, not specified

**330-374****Caribbean**

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Anguilla  
Antigua and Barbuda  
Aruba  
Bahamas  
Barbados  
British Virgin Islands  
Cayman Islands  
Cuba  
Dominica  
Dominican Republic  
Grenada  
Guadeloupe  
Haiti  
Jamaica  
Martinique  
Montserrat  
Netherlands Antilles  
St. Barthelemy  
St. Kitts-Nevis  
St. Lucia  
St. Vincent and the Grenadines  
Trinidad and Tobago  
Turks and Caicos Islands  
Caribbean, not specified  
Antilles, not specified

**330-374**

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359-374

**375-399**

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389-399

**Caribbean—Con.**

British West Indies, not specified  
Latin America, not specified  
Leeward Islands, not specified  
West Indies, not specified  
Windward Islands, not specified

**South America**

Argentina  
Bolivia  
Brazil  
Chile  
Colombia  
Ecuador  
Falkland Islands  
French Guiana  
Guyana  
Paraguay  
Peru  
Suriname  
Uruguay  
Venezuela  
South America, not specified

**400-499****Africa**

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Algeria  
Angola  
Bassas da India  
Benin  
Botswana  
British Indian Ocean Territory  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Central African Republic  
Chad  
Comoros  
Congo  
Djibouti  
Egypt  
Equatorial Guinea  
Ethiopia  
Europa Island  
Gabon  
Gambia  
Ghana  
Glorioso Islands  
Guinea  
Guinea-Bissau  
Ivory Coast  
Juan de Nova Island  
Kenya  
Lesotho  
Liberia  
Libya  
Madagascar

<b>400-499</b>	<b>Africa—Con.</b>	<b>500-553</b>	<b>Oceania</b>
432	Malawi	500	Ashmore and Cartier Islands
433	Mali	501	Australia
434	Mauritania	502	Christmas Island, Indian Ocean
435	Mayotte	503	Clipperton Island
436	Morocco	504	Cocos Islands
437	Mozambique	505	Cook Islands
438	Namibia	506	Coral Sea Islands
439	Niger	507	Fiji
440	Nigeria	508	French Polynesia
441	Reunion	509	Kiribati
442	Rwanda	510	Marshall Islands
443	Sao Tome and Principe	511	Micronesia
444	Senegal	512	Nauru
445	Mauritius	513	New Caledonia
446	Seychelles	514	New Zealand
447	Sierra Leone	515	Niue
448	Somalia	516	Norfolk Island
449	South Africa	517	Palau
450	St. Helena	518	Papua New Guinea
451	Sudan	519	Pitcairn Islands
452	Swaziland	520	Solomon Islands
453	Tanzania	521	Tokelau
454	Togo	522	Tonga
455	Tromelin Island	523	Tuvalu
456	Tunisia	524	Vanuatu
457	Uganda	525	Wallis and Futuna Islands
458	Western Sahara	526	Western Samoa
459	Zaire	527	Oceania, not specified
460	Zambia	528	Polynesia, not specified
461	Zimbabwe	529-549	Melanesia, not specified
462	Africa, not specified	550	Antarctica
463	Central Africa, not specified	551	Bouvet Island
464	Eastern Africa, not specified	552	French Southern and Antarctic Lands
465	Equatorial Africa, not specified	553	Heard and McDonald Islands
466	French Equatorial Africa, not specified	<b>554-999</b>	<b>At Sea/Abroad, Not Specified</b>
467	French West Africa, not specified	554	At sea
468	North Africa, not specified	555-999	Abroad, not specified
469	Western Africa, not specified		
470-499	Southern Africa, not specified		

# APPENDIX I.

## CD-ROM Technical Information<sup>1</sup>

### CONTENTS

Converting to ASCII Files	I-2
Equipment	I-1
Software	I-1
Technical Documentation	I-2

### EQUIPMENT

The two basic pieces of equipment needed to use CD-ROM's are a microcomputer and a CD-ROM drive. A printer is very useful but not essential. Your microcomputer should be equipped with at least 640K random access memory (RAM). While a hard disk is not required on your microcomputer, it is very useful.

### SOFTWARE

Software is needed for accessing the CD-ROM as well as for accessing the data.

MS-DOS 3.3 or higher is needed as your operating system if you have a CD-ROM reader. You will also need DOS file manager software such as Microsoft's CD-ROM Extensions. CD-ROM extensions is a collection of programs that enables the microcomputer to communicate with the attached CD-ROM drives. You must have version 2.0 or higher of the Microsoft Extensions.

If you already have a CD-ROM drive, you may not know whether it is equipped with file manager software like the CD-ROM extensions. To find out, try signing on to your CD-ROM drive just as though it is a magnetic disk drive, and perform simple file management tasks, like listing the directory. (For example, from the DOS prompt, type the command DIR and the letter used to designate the CD-ROM drive followed by a colon [e.g., C>DIR L:] and press enter.) If you get an error message, it may mean that you need to obtain and install CD-ROM extensions.

### CD-ROM Extensions

The CD-ROM is in the ISO 9660 format which requires the use of Microsoft CD-ROM Extensions Version 2.0 or higher. Although all versions of CD-ROM extensions work basically the same way,

Installation procedures may vary slightly from one supplier to another. Many versions contain a program that will automatically install the software for you, after you have answered a few questions about the type of equipment that you plan to use. *Be sure to follow the instructions for installing CD-ROM Extensions that are provided with the software.*

The first step, if you are installing extensions without the aid of an automatic set-up program, is usually installing the device driver program and MSCDEX.EXE on your bootable disk. For computers containing a hard drive, this usually means drive C. The name of the device driver program varies from one version of extensions to another; one common practice of software developers is to name it after the brand of CD-ROM drive that it supports, e.g., HITACHI.SYS. The device driver program and MSCDEX are frequently set up in separate subdirectories; however, this practice is not universal.

The next step is to add a line to the CONFIG.SYS file to identify the device driver program. This line typically looks something like this:

```
DEVICE=\path\driver name/D:\driver alias/N:#  
For example: device = \dev\HITACHI.SYS/D:MSCD001/N:1
```

The driver name (e.g., HITACHI.SYS) and the driver alias should be provided by the set-up program or in the instructions that accompany the floppy disk containing the extensions software. The symbol # at the end of the line should be replaced with the number of CD-ROM drives (up to 4) that will be hooked up to the microcomputer.

The third step is to add a line to the AUTOEXEC.BAT file for running MSCDEX.EXE and assigning a letter to your CD-ROM drive. Depending on your system configuration you may opt to set up one or more batch files to accomplish the same purpose. If you add a line to the AUTOEXEC.BAT file, it will probably look something like this:

```
\path\MSCDEX.EXE/D:driver alias/M:8/L:L  
For example: \BIN\MSCDEX.EXE/D:MSCD001/M:12/L:L
```

The driver alias, which is really the name that your system will use to identify the device driver, should be the same one that is named in your CONFIG.SYS file.

<sup>1</sup>Portions of this appendix are adapted from Administrative Notes, the Newsletter of the Federal Depository Library Program (May 22, 1989).

The number following M: is the number of memory buffers allocated (usually 8, but sometimes more). The last letter, following the L:, designates the letter assigned to the CD-ROM drive.

Though the final step is simple, it's also easy to overlook. You must reboot the system in order to activate the changes that you've made to your CON-

glossary, you will find definitions for geographic entities and other terms. Refer to appendix A and B (on the CD-ROM in the DOCUMENT directory), or the technical documentation for the complete text of definitions.

GO's "Print" command allows you to print the tables you need. The "Copy File" command lets you

DOS commands such as DIR are possible. If the computer reports that the CD-ROM is "not High Sierra," you must first upgrade your Microsoft CD-ROM Extensions software to version 2.0 or later.

### Data Retrieval Software<sup>2</sup>

This CD-ROM contains data retrieval software. This software was developed and tested on a COMPAQ Deskpro 286 with 640K RAM operating under MS-DOS 3.31. The software was compiled with Clipper. There are no special display requirements. Please note that the retrieval software will only run on IBM-compatibles operating under MS-DOS.

The Census Bureau CD-ROM's containing 1990 census data (STF's 1 and 3) includes a simple "point and shoot" retrieval software. It has been nicknamed "GO." This menu-driven software is on the disc and requires no installation. The menus and tables are customized for the data on the disc.

The GO software is included on other Census products and is customized according to the data on the disc. The following is a description of the GO software.

Using GO, you first select a specific level (e.g., State, county, place, census tract). Available features are displayed on a command bar, and most data can be accessed using the Return, PgUp/PgDn, and Up and Down arrow keys.

Every STF disc also contains a "general profile" feature that gives you the basic population and housing information for the geographic entities shown on the disc. This is helpful when you need just the basics.

Once you've identified the geographic entity you want, select specific data items. They generally are the same as the tables listed in the technical documentation.

Another helpful feature is the "Key-words" option. After choosing a specific geographic entity, you can specify key words (such as race or ancestry groups) by hitting the letter "K" on your computer's keyboard. This option gets you to specific tables more quickly.

GO also contains a "Glossary" option (hit the letter "G" on your keyboard). Note that this feature is available within data tables. Again, features are available when shown on the command bar. In the

CD-ROM's with issue dates of October 1992 and later have updated software which also provides the option for direct output to files in the WK1 spreadsheet format. This updated software also requires less memory than previous versions.

The data on the CD-ROM are in dBase III+™ format. Data in dBase III+ format are recognized by many software packages including dBase IV™, Foxbase™, Clipper™, Supercalc V™, Quattro Pro™, and VP-Planner™.

Users of other types of systems, such as the Apple Macintosh, have access to the files through support for ISO 9660 CD-ROM's.

### CONVERTING TO ASCII FILES

Users without database management software who wish to convert the files to ASCII can follow the code found in the README file on the CD-ROM.

### TECHNICAL DOCUMENTATION

The DOCUMENT directory on the CD-ROM contains sections of the STF 3 (Puerto Rico) File technical documentation in a series of ASCII text files. These are as follows:

ROSTER_P.ASC	Roster Page
ACKNOW.ASC	Acknowledgments
CONTENTS.ASC	Contents
ABST_S3.ASC	Abstract
HOWTOUSE.ASC	How to Use the File
SUB_LOC.ASC	Subject Locator
LIST_TBL.ASC	List of Tables
TBL_OUT.ASC	Table Outlines
SUM_LEV.ASC	Summary Level Sequence Chart
USERNOTE.ASC	User Notes Explanation and Notes
IDEN_FTN.ASC	Identification Section of the Data Dictionary
TBL_MTX.ASC	Table (Matrix) Section of the Data Dictionary
APPEND_A.ASC	Appendix A Area Classifications
APPEND_B.ASC	Appendix B Subject Characteristics
APPEND_C.ASC	Appendix C Accuracy of the Data
APPEND_D.ASC	Appendix D Procedures
APPEND_E.ASC	Appendix E Facsimiles of Instructions
APPEND_F.ASC	Appendix F Data Products
APPEND_G.ASC	Appendix G Maps (Text only)
APPEND_H.ASC	Appendix H Code Lists
APPEND_I.ASC	Appendix I CD-ROM Technical Information

<sup>2</sup>Portions of this section are adapted from Census and You, November 1992, p.3.

**Figure 4. Reference Files**

**STF300PR.DBF** This file describes the structure of the 67 identification fields in the STF300 segment. This is in the format of a dBASE III *extended structure* which has been expanded to include brief field descriptions.

Structure for database: stf300.dbf  
 Number of data records: 67

Field	Field Name	Type	Width	Dec
1	FIELD_NAME	Character	10	
2	FIELD_TYPE	Character	1	
3	FIELD_LEN	Numeric	3	
4	FIELD_DEC	Numeric	3	
5	FIELD_TEXT	Character	60	
** Total **			78	

**TABLES.DBF** This file describes the numeric data tables.

Structure for database: tables.dbf  
 Number of data records: 2,990

Field	Field Name	Type	Width	Dec
1	TABLE	Character	6	
2	FIELD	Character	10	
3	TEXT	Character	68	
4	SEGMENT	Character	6	
** Total **			91	

**CNAMEspr.DBF** This file contains a list of county names and FIPS county codes for Puerto Rico.

Structure for database

Field	Field Name	Type	Width	Dec
1	CNTY	Character	3	
2	ANPSADPI	Character	66	
** Total **			91	

**\DOCUMENT** Directory of technical documentation files in ASCII text format.

**Figure 5. Index Files**

**TABLES.NDX** This is a dBASE III index file for TABLES.DBF. The key field is TABLE.

The following dBASE index files are for STF3??PR.DBF.

**STF3AMP.R.NDX** The key fields are SUMLEV + CNTY + COUSUBFP + PLACEFP + TRACTBNA + BLCKGR.

**STF3APP.R.NDX** The key fields are SUMLEV + PLACEFP.

**STF3ATP.R.NDX** The key fields are SUMLEV + CNTY + TRACTBNA + BLCKGR.

**STF3ALP.R.NDX** The key fields are SUMLEV + left(ANPSADPI,1).



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## CENSUS OF POPULATION AND HOUSING, 1990: SUMMARY TAPE FILE 3 ON CD-ROM (PUERTO RICO) DATA

### TECHNICAL NOTE 1

The following geographic names appear incorrectly in the summary tape files for Puerto Rico. Bold type identifies the correct entry.

In the records for **Aguirre (Rural) subbarrio, Salinas Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Aguirre (rural) subbarrio**.

In the records for **Alto del Cabro subbarrio, San Juan Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Alto Del Cabro subbarrio**.

In the records for **Baldorioty de Castro subbarrio, Ponce Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Baldorioty De Castro subbarrio**.

In the records for **Fulg comunidad**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Fulg comunidad**.

In the records for **Higüey subbarrio, Aguadilla Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Higüey subbarrio**.

In the records for **Imbery comunidad**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Imbery comunidad**.

In the records for **Indiera Fria barrio, Maricao Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Indiera Fna barrio**.

In the records for **Luyando comunidad**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Luyando comunidad**.

In the records for **Maizales barrio, Naguabo Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Maizales barrio**.

In the records for **Pozo del Hato subbarrio, San Juan Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Pozo Del Hato subbarrio**.

In the records for **Puerta de Tierra subbarrio, San Juan Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **Puerta De Tierra subbarrio**.

In the records for **San Cristobal subbarrio, San Juan Municipio**, the name (beginning in position 192 in the identification section of the data dictionary) is shown incorrectly as **San Cristobal subbarrio**.

October 1993



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**CENSUS OF POPULATION AND HOUSING, 1990:  
SUMMARY TAPE FILE 3 ON CD-ROM (PUERTO RICO) DATA**

**TECHNICAL NOTE 2**

The following areas should have been assigned to selected subbarrios: **Bold type** identifies the correct entry.

The unassigned portion of **Aguadilla Municipio, Aguadilla barrio** should be attributed to Higuey subbarrio.

The unassigned portion of **Salinas Municipio, Aguirre barrio** should be attributed to Coqui subbarrio.

The unassigned portion of **San Juan Municipio, Santurce barrio** should be attributed to Merhoff subbarrio.

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