PART 52

Hawaii

Hawaii

GENERAL

The major portion of the information on the population of Hawaii, compiled from the Censuses of Population and Housing of 1950, is presented in this volume. It contains three chapters previously published as separate bulletins. Chapter A recapitulates the statistics on the distribution of the total population within the Territory (originally published in the Series P–A bulletin and in Volume I); Chapter B presents statistics on the general characteristics of the population of the various political subdivisions of the Territory, such as counties, islands, Honolulu Standard Metropolitan Area, and places having 1,000 inhabitants or more (originally published in the Series P–B bulletin); and Chapter C presents data on the detailed characteristics of the population of the Territory, urban and rural, and the Honolulu Standard Metropolitan Area (originally published in the Series P–C bulletin).

The major part of this volume is devoted to the presentation of information on the characteristics of the population. Statistics on the general characteristics contained in Chapter B include data on urban-rural residence, age, sex, race, nativity, citizenship, country of birth, school enrollment, years of school completed, marital status, children ever born, residence on August 14, 1945 (V–J Day), employment status, occupation, industry, class of worker, and family income. In Chapter C, information on most of these characteristics is presented again but in greater detail. The characteristics in Chapter C include cross-classifications of age with race, nativity, citizenship, birthplace of parents, residence on August 14, 1945, marital status, relationship to household head, education, and employment status; the occupational and industrial attachments of the labor force; and personal income.

Statistics on the number of inhabitants as shown in Chapter A in this volume are all based on complete counts of the population. Similarly the statistics on the general characteristics of the population presented in Chapter B and also in Chapter C are based on complete counts except in the case of those characteristics, such as school enrollment and income, that were reported for only 20 percent of the population. Because of sampling variability, differences may be expected between figures obtained from a complete count and the corresponding figures based on the 20-percent sample. Furthermore, differences between figures for corresponding items in different tables may arise because they were prepared from separate tabulations. The resources available did not permit a full adjustment of small processing differences, whereas in earlier censuses such adjustments were made.

In the Series P–A, P–B, and P–C bulletins, the tables were numbered in such a way as to provide a continuous series for each area when bound together in this volume. Thus tables 1 to 7 for Hawaii present data on the number of inhabitants, tables 8 to 28 present the data on general characteristics of the population, and tables 29 to 69 present the data on detailed characteristics.

AVAILABILITY OF UNPUBLISHED DATA

Practically all of the statistics tabulated for the Territory, the Honolulu Standard Metropolitan Area, counties, islands, and places of 2,500 inhabitants or more, are published in Chapter B.

Some of the detailed statistics tabulated for larger areas in connection with the preparation of Chapter C are not being published; for example, separate data have been tabulated for Honolulu city and for the Honolulu Standard Metropolitan Area, and more detailed age statistics for certain characteristics for urban and rural parts. A complete description of these unpublished data can be obtained upon request.

The tabulated but unpublished statistics can be made available, upon request, for the cost of transcription or consolidation. If enumeration district data are desired, copies of maps showing enumeration districts can also be furnished, usually at nominal cost. Requests for such unpublished material should be addressed to the Director, Bureau of the Census, Washington 25, D. C.

POPULATION TRENDS

The Territory.—Hawaii, by voluntary action of its people, ceded its sovereignty to the United States in 1898 and was organized as a Territory on June 14, 1900. The population of Hawaii on April 1, 1950, according to the 1950 Census, was 499,794. The Territory has a land area of 6,407 square miles. In 1950 there was an average of 78.0 inhabitants per square mile, as compared with an average of 65.9 in 1940. Among the Territories and possessions of the United States, Hawaii ranked second in both population and area.

In 1850 Hawaii had a population of 84,165 (table 1). In 1950, 100 years later, the population was nearly six times as large. In each intercensal period between 1850 and 1872, Hawaii lost population. Since 1872, however, the population has been increasing. Both the largest numerical gain and the most rapid rate of growth between 1900 and 1950 came in the decade ending in 1930, when an increase of 112,424, or 43.9 percent, was recorded. The numerical gain of 76,464 between 1940 and 1950 was the second largest numerical increase in the history of Hawaii and represented a gain of 18.1 percent over the 1940 population of 423,330.

Urban definition.—The urban population of Hawaii comprises all persons living in places of 2,500 inhabitants or more. The remainder of the population is classified as rural. Although the urban-rural classification was used for the first time in the 1950 Census of Hawaii, data available for 1930 and 1940 permitted application of the urban-rural definition so that comparable data for those years might be included in tables 1, 2, and 4. Since not all places having a population of 2,500 or more were reported separately in censuses prior to 1930, it is not possible to present the urban-rural classification of the population for earlier censuses.

Urban and rural population.—The 1950 urban population of Hawaii comprised 344,869 persons, or 69.0 percent of the total population of the Territory (table 1). This population was living in the 17 urban places in Hawaii. Honolulu city accounted for 71.9 percent of the urban population, whereas 18.6 percent lived in the six other cities of 5,000 inhabitants or more. Only 9.5 percent lived in the 10 towns of 2,500 to 4,999 inhabitants.

The rural population of Hawaii comprised 154,925 persons, or 31.0 percent of the total population of the Territory (table 1).

One-third of the rural population—54,005 persons—were living in the 72 villages having a population of less than 2,500 inhabitants (table 2).

Trends in urban and rural population.—Between 1930 and 1950 the population of Hawaii classified as urban increased from 197,937 to 344,869 (table 1). Between 1940 and 1950 the urban population increased by 80,607, or 30.5 percent; in the previous decade the increase had been 66,325, or 33.5 percent. The proportion of the population of the Territory living in places of 2,500 inhabitants or more increased from 53.7 percent in 1930 to 69.0 percent in 1950.

All of the places classified as cities in 1950 shared in the growth of the urban population between 1940 and 1950 (table 3). The increase for Kahului, however, is entirely attributable to the addition of Puunene village and part of Wailuku district since 1940. The largest numerical increase was recorded for Honolulu, which had an increase of 68,708 persons. The gain for Honolulu accounted for 85.2 percent of the increase in the urban population.

In contrast to the increases in the urban population, the rural population declined in both decades from 1930 to 1950 (table 1). The numerical decline of 4,143 between 1940 and 1950 represented a decrease of 2.6 percent from the 1940 rural population of 159,068. In 1930, 46.3 percent of the population of Hawaii was living in rural territory; by 1950 this percentage had declined to 31.0 percent.

Counties.—Of the four counties recognized for census purposes in Hawaii, only Honolulu County increased in population between 1940 and 1950 (table 4). (The population of Kalawao County, which consists solely of the Kalaupapa Leper Settlement, is included with that of Maui County for census purposes.) The numerical increase of 94,764 for Honolulu County represented an increase of 36.7 percent over the 10-year period. The rates of decrease for the remaining three counties were 6.7 percent for Hawaii County, 16.5 percent for Kauai County, and 13.3 percent for Maui County. In the previous decade, Honolulu had had an increase of 27.3 percent and the other counties had had declines of from 0.1 to 0.3 percent. The 353,020 inhabitants of Honolulu County in 1950 accounted for seven-tenths of the population of the Territory.

The islands.—Of the islands constituting the Territory of Hawaii, only Oahu, which is the inhabited part of Honolulu County, and Niihau, which had only 222 inhabitants, increased in population between 1940 and 1950 (table 4). The islands which constitute each county are indicated in the footnotes to table 4.

Minor civil divisions.—To the primary political divisions into which counties are divided, the Bureau of the Census applies the general term "minor civil divisions." The counties in Hawaii are divided into judicial districts, which are the administrative units for judicial, educational, taxation, and election purposes. Table 5 shows statistics on the population of each county by minor civil divisions for the last three censuses. The population of each place, that is, city, town, or village, is shown in *italics* under the population of the judicial district in which it is located. Boundary changes between the 1940 Census and the 1950 Census are listed in the footnotes to table 5. For changes in boundaries prior to the 1940 Census, see reports of the Sixteenth Census (1940), *Population*, Vol. I, p. 1211, and reports of earlier censuses.

Cities, towns, and villages.—The places shown as "cities," "towns," and "villages" in Hawaii are unincorporated and have no local governmental functions. Honolulu city is coextensive with Honolulu district. (In the 1940 Census, Honolulu city was considered coextensive with that part of Honolulu district on Oahu Island.) For the remaining places, the Bureau of the Census recognized locally delineated boundaries. For the purposes of census classification, places with 5,000 inhabitants or more have been designated as cities; places with 2,500 to 4,999 inhabitants have been designated as towns; and places with fewer than 2,500 inhabitants have been designated as villages. In 1950 there were 7 places designated as cities, 10 as towns, and 72 as villages. In population these places ranged from Hookena village with 20 inhabitants to Honolulu city with 248,034 inhabitants (table 6).

In earlier censuses many places for which data are now shown were not reported separately. The large increase in the number of villages between 1930 and 1940 is primarily attributable to the delineation of such places in 1940.

Representative districts.—The Territory is divided into six representative districts for purposes of representation in the Territorial Legislature. Districts 4 and 5, which together form Honolulu County, were the only districts to increase in population between 1940 and 1950 (table 7). In population the districts ranged from District No. 2 with 17,594 inhabitants to District No. 5 with 188,849 inhabitants.

DEFINITIONS AND EXPLANATIONS

The definitions of the pertinent concepts used in the 1950 Census are given below. Several of these differ from those used in 1940. These changes were made after consultation with users of census data in order to improve the statistics, even though it was recognized that comparability would be adversely affected. In many cases the new definitions were tested in connection with the Current Population Survey; and, where feasible, measures of the impact of the change on the statistics were developed.

USUAL PLACE OF RESIDENCE

In accordance with Census practice, each person enumerated in the 1950 Census was counted as an inhabitant of his usual place of residence or usual place of abode, which is generally construed to mean the place where he lives and sleeps most of the time. This place is not necessarily the same as his legal residence, voting residence, or domicile, although, in the vast majority of cases, the use of these different bases of classification would produce identical results.

In the application of this rule, persons were not always counted as residents of the places in which they happened to be found by the census enumerators. Persons in places where guests usually pay for quarters (hotels, etc.) were enumerated on the night of April 11, and those whose usual place of residence was elsewhere were allocated to their homes. Visitors found staying in private homes, however, were not ordinarily interviewed there. Information on persons away from their usual place of residence was obtained from other members of their families, landladies, etc. If an entire family was expected to be away during the whole period of the enumeration, information on it was obtained from neighbors. A matching process was used to eliminate duplicate reports for persons who reported for themselves while away and were also reported by their families at home.

Persons in the armed forces quartered on military installations were enumerated as residents of the counties and judicial districts in which their installations were located. Members of their families were enumerated where they actually resided. In the 1950 Census, college students living away from home were considered residents of the communities in which they were residing while attending college, rather than as persons temporarily absent from their parental homes as was the practice in 1940. In 1950 the crews of vessels of the American Merchant Marine were counted as part of the population of the ports in which their vessels were berthed on April 1. In 1940 such persons were treated as part of the population of the port from which the vessels operated. Inmates of institutions, who ordinarily live there for long periods of time, were counted as inhabitants of the place in

which the institution was located; whereas patients in general hospitals, who ordinarily have short stays, were counted at, or allocated to, their homes. All persons without a usual place of residence were counted where they were enumerated.

COMPLETENESS OF ENUMERATION

The degree of completeness of enumeration has always been a matter of deep concern to the Bureau of the Census; and, in the course of its history, a number of devices have been developed to aid in securing adequate coverage. These devices include the special procedures for the enumeration of transients and infants, urging notifications from persons who believed that they may not have been enumerated, and the early announcement of population counts in local areas to make possible the thorough investigation of complaints as to the accuracy of the count. In the 1950 Census earlier procedures were strengthened and additional procedures were introduced.

URBAN AND RURAL RESIDENCE

The urban population of Hawaii comprises all persons living in places of 2,500 inhabitants or more. The remaining population is classified as rural. According to the new definition that was used in continental United States in 1950, the urban population comprises all persons living in (*a*) places of 2,500 inhabitants or more incorporated as cities, boroughs, and villages, (*b*) incorporated towns of 2,500 inhabitants or more except in New England, New York, and Wisconsin, where "towns" are simply minor civil divisions of counties, (*c*) the densely settled urban fringe, including both incorporated and unincorporated areas, around cities of 50,000 or more, and (*d*) unincorporated places of 2,500 inhabitants or more outside any urban fringe. Since all urban places in Hawaii are unincorporated and the boundaries used were those supplied locally immediately prior to the 1950 Census, most of the "urban fringe" around these places were included as part of the place. The only exception is Honolulu city, the boundaries of which are set by law although it is not incorporated. Hence, the urban definition for Hawaii is virtually comparable with that now used in the States.

STANDARD METROPOLITAN AREAS

Origin and Purpose

It has long been recognized that, for many types of social and economic analysis, it is necessary to consider as a unit the entire population in and around the city whose activities form an integrated social and economic system. Prior to the 1950 Census, areas of this type had been defined in somewhat different ways by various agencies. Leading examples were the metropolitan districts of the Census of Population, the industrial areas of the Census of Manufactures, and the labor market areas of the Bureau of Employment Security. The usefulness of data published for any of these areas was limited by this lack of comparability.

Accordingly, the Bureau of the Census in cooperation with a number of other Federal agencies, under the leadership of the Bureau of the Budget, established the "standard metropolitan area" so that a wide variety of statistical data might be presented on a uniform basis. Since counties instead of minor civil divisions are used as the basic component of standard metropolitan areas except in the New England States, it was felt that many more kinds of statistics could be compiled for them than for metropolitan districts.

Definitions

Except in New England, where towns and cities are the administrative units, a standard metropolitan area is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more. In addition to the county, or counties, containing such a city, or cities, contiguous counties are included in a standard metropolitan area if according to certain criteria they are essentially metropolitan in character and socially and economically integrated with the central city.

Criteria of metropolitan character.—These criteria relate primarily to the character of the county as a place of work or as a home for concentrations of nonagricultural workers and their dependents. Specifically, these criteria are:

1. The county must (*a*) contain 10,000 nonagricultural workers, or (*b*) contain 10 percent of the nonagricultural workers working in the standard metropolitan area, or (*c*) have at least one-half of its population residing in minor civil divisions with a population density of 150 or more per square mile and contiguous to the central city.

2. Nonagricultural workers must constitute at least two-thirds of the total number of employed persons of the county.

Criteria of integration.—The criteria of integration relate primarily to the extent of economic and social communication between the outlying counties and the central county, as indicated by such items as the following:

1. Fifteen percent or more of the workers residing in the contiguous county work in the county containing the largest city in the standard metropolitan area, or

2. Twenty-five percent or more of the persons working in the contiguous county reside in the county containing the largest city in the standard metropolitan area, or

3. An average of four or more telephone calls per subscriber per month from the contiguous county to the county containing the largest city in the standard metropolitan area.

Because of the insular character of the Territory, the criteria of integration could not be readily applied.

Central cities.—Although there may be several cities of 50,000 or more in a standard metropolitan area, not all are necessarily central cities. The largest city in a standard metropolitan area is the principal central city. Any other city of 25,000 or more within a standard metropolitan area and having a population amounting to one-third or more of the population of the principal city is also a central city. However, no more than three cities have been defined as central cities of any standard metropolitan area. The name of every central city is included in the name of the area, with the exception that in the case of the New York-Northeastern New Jersey Standard Metropolitan Area, "Jersey City" and "Newark" are not part of the name. Data for standard metropolitan areas located in two or more States are ordinarily presented in the bulletin for only the State containing the principal central city.

QUALITY OF DATA FOR SMALL AREAS

Users of data for the smaller areas should bear in mind that the data for such areas represent the work of a very small number of enumerators (often only one or two). The misinterpretation by an enumerator of the instructions for a particular item may, therefore, have an appreciable effect in the statistics for a very small community, even though it would have a negligible effect upon the figures for a large area.

MEDIANS

The median, a type of average, is presented in connection with the data on age, years of school completed, and personal income which appear in this volume. The median is the value which divides the distribution into two equal parts—one-half of the cases falling below this value and one-half of the cases exceeding this value. In the computation of the medians, cases for which information was not reported are omitted. The median income for persons is based on the distribution of those reporting $1 or more.

RACE

Definitions

The concept of race as it has been used by the Bureau of the Census is derived from that which is commonly accepted by the

general public. It does not, therefore, reflect clear-cut definitions of biological stock and most categories obviously refer to nationalities. Separate statistics are given in this volume for Hawaiians, Caucasians, Chinese, Filipinos, and Japanese.

Hawaiian.—This classification includes all persons who are part Hawaiian as well as full-blooded Hawaiians.

Other races.—This category includes Koreans, Negroes, other Polynesians, Puerto Ricans, etc.

Mixed Parentage

Mixtures of Caucasian and other races are classified according to the race of the nonwhite parent. Mixtures of nonwhite races, other than Hawaiian, are classified according to the race of the father.

The following table shows the complete classification of the population by race and sex:

TABLE A.—RACE BY SEX, FOR HAWAII: 1950 AND 1940

Race	Population			Percent distribution		
	Total	Male	Female	Total	Male	Female
1950						
Total population	499,769	273,871	225,898	100.0	100.0	100.0
Hawaiian	86,090	42,781	43,309	17.2	15.6	19.2
Caucasian	114,793	65,405	49,388	23.0	23.9	21.9
Chinese	32,376	17,043	15,333	6.5	6.2	6.8
Filipino	61,062	43,547	17,515	12.2	15.9	7.8
Japanese	184,598	93,246	91,352	36.9	34.0	40.4
Korean	7,030	3,849	3,181	1.4	1.4	1.4
Negro	2,651	2,033	618	0.5	0.7	0.3
Puerto Rican	9,551	5,007	4,544	1.9	1.8	2.0
All other races	1,618	960	658	0.3	0.4	0.3
1940						
Total population	423,330	245,135	178,195	100.0	100.0	100.0
Hawaiian	64,310	32,063	32,247	15.2	13.1	18.1
Caucasian	103,791	64,473	39,318	24.5	26.3	22.1
Chinese	28,774	16,131	12,643	6.8	6.6	7.1
Filipino	52,569	40,791	11,778	12.4	16.6	6.6
Japanese	157,905	82,820	75,085	37.3	33.8	42.1
Korean	6,851	3,965	2,886	1.6	1.6	1.6
Negro	255	172	83	0.1	0.1	-------
Puerto Rican	8,296	4,407	3,889	2.0	1.8	2.2
All other races	579	313	266	0.1	0.1	0.1

Race Mixture

Race mixture was obtained by asking the question, "Is this person of mixed race?" for every person enumerated. Since mixtures of Caucasian and any other race are classified according to the race of the nonwhite parent, no person classified as Caucasian can, by definition, be of mixed race.

AGE

Definitions

The age classification is based on the age of the person at his last birthday as of the date of his enumeration, that is, the age of the person in completed years. The enumerator was instructed to obtain the age of each person as of the date of his visit rather than as of April 1, 1950. In most cases the age reported would have been the same on either basis.

Assignment of Unknown Ages

When the age of a person was not reported, it was estimated on the basis of other available information such as marital status, school attendance, employment status, age of other members of the family, and type of household. Age was estimated by this procedure in the 1950 Census for less than 0.1 percent of the population of Hawaii. This method of assigning unknown ages on the basis of related information was used for the first time in the 1950 Census of Territories and possessions. In previous censuses, persons of unknown age were shown in a separate category. The summary totals for "14 years and over" and "25 years and over" for earlier censuses presented in this volume include all persons of "unknown age" since there is evidence that most of the persons for whom age was not reported were in the age classes above these limits.

Errors in Age Statistics

A considerable body of evidence exists which indicates that age is misreported in several characteristic ways and that certain age groups are less completely enumerated than others in censuses. A comparison of age distributions from the 1950 Census with age distributions based on figures from the 1940 Census and brought up to date from official records of births, deaths, and migration suggests that the 1950 Census is no exception to this generalization. This comparison shows that for Hawaii as a whole there appears to be an underenumeration of children under 5 and of males between the ages of 18 and 24 years. Likewise, there appears to be a deficit of persons in the age range 55 to 64 years, which, however, is more than offset by an excess over the number expected in the age group 65 years old and over.

In addition to errors in the statistics for broad age groups arising from underenumeration and the misstatement of age, there is a tendency to report age in multiples of 5. This tendency is apparent in statistics for single years of age in which the frequencies for single years ending in 0 and 5 are frequently greater than those for the two adjoining years. This type of misreporting presumably occurs in situations in which the respondent, in the absence of specific knowledge as to his exact age or the age of the person for whom he is reporting, gives an approximate figure. The returns also exaggerate the number of centenarians. In general, the degree of inaccuracy in reported ages is greater for adults than for children.

NATIVITY

In this volume, the population is classified according to place of birth into two basic groups, native and foreign born. A person born in the United States or any of its Territories or possessions is counted as native. Also included as native is the small group of persons who, although born in a foreign country or at sea, were American citizens by birth because their parents were American citizens. Since the Republic of the Philippines was established as an independent country in 1946, persons born in the Philippine Islands were classified as foreign born in the 1950 Census whereas in earlier censuses such persons had been classified as native. The small number of persons for whom place of birth was not reported were assumed to be native.

Because of the declining numerical importance of the foreign-born population, nativity has not been used so extensively for cross-classification in 1950 as in earlier censuses. The distribution of the native and foreign-born population by age and sex is presented in Chapter C for Hawaii.

CITIZENSHIP

The classification of the population by citizenship embraces two major categories, citizen and alien. Citizens are subdivided into native and naturalized. It is assumed that all natives are citizens of the United States. In addition to the citizen and alien categories, there is a third group, made up of foreign-born persons for whom no report on citizenship was obtained, designated "citizenship not reported." Since it is likely that most of these persons are aliens, they are often included with "alien" in summary figures for total aliens. Data on citizenship are shown here only for the population 21 years old and over.

TERRITORIAL CITIZENSHIP

United States citizens are also subdivided on the basis of Territorial citizenship. In general, citizens of the United States who have resided in Hawaii one year or more are Territorial citizens. Persons in the armed forces are not Territorial citizens however unless they had established residence in Hawaii prior to entering

the service. Wives and other members of the families of persons in the armed services are Territorial citizens if they are citizens of the United States and have lived in Hawaii one year or more and the family head is a Territorial citizen. Although infants under 1 year of age who were born in Hawaii do not meet the residence criterion, they were classified as Territorial citizens.

BIRTHPLACE OF PARENTS

Persons born in Hawaii are classified in five categories, each of which represents a combination of the birthplaces reported for each parent. The categories range from "Both parents born in Hawaii" to "Both parents foreign born." If the birthplace of either parent was not reported, it was assumed to have been the same as that of the person himself. This item was reported for a 20-percent sample of persons of all ages.

RESIDENCE ON AUGUST 14, 1945 (V-J DAY)

Residence on August 14, 1945, is defined here as the usual area of residence; and, thus, for members of the armed forces at that time should have referred to the area where they were stationed. Residence in 1945 was tabulated in conjunction with residence in 1950 to determine the number of persons who had changed residence since V-J Day. Persons who changed residence in this period were classified by the type of move, for example, "Different house, same island" and "Different island." The category "Same house as in April 1950" includes all persons who were living in the same house on the date of enumeration in 1950 as on August 14, 1945. Included in this group are persons who had not moved as well as persons who had moved but by April 1950 had returned to their 1945 residence.

The number of persons who were living in different houses on the two dates is somewhat less than the total number of moves during the period. Some persons in the same house at the two dates had moved during the period but by the time of enumeration had returned to their 1945 residence. Other persons made two or more progressive moves. Furthermore, persons in a different house on the same island may actually have moved between islands, but by 1950 had returned to the same island of residence as that on V-J Day.

This item was reported for a 20-percent sample of all persons born before V-J Day.

MARITAL STATUS

Definitions

In the 1950 Census, data on marital status are based on the replies to the question, "Is he now married, widowed, divorced, separated, or [has he] never [been] married?" The classification refers to the status at the time of enumeration. Persons classified as married comprise, therefore, both those who have been married only once and those who remarried after having been widowed or divorced. Persons reported in common-law marriages are classified as married. Those with annulled marriages are classified as single. Since it is probable that some divorced persons are reported as single, married, or widowed, the census returns doubtless understate somewhat the actual number of divorced persons who have not remarried.

The category "Married" is further divided into "married, spouse present" and "married, spouse absent." A person is classified as "married, spouse present" if the person's husband or wife was reported as a member of the household or quasi household in which the person was enumerated, even though he or she may have been temporarily absent on business or vacation, visiting, in a hospital, etc., at the time of the enumeration. The number of married men with wife present classified as heads of households is the same as the number of wives of heads of households shown in the tables on relationship to head of household, except for differences arising from methods used in processing the data. The number shown as not head of household is the same as the number of married couples without own household shown in Chapter B, except for differences arising from sampling variation or from methods used in processing the data.

Persons reported as separated are included in the larger group designated as "married, spouse absent." Separated persons include those with legal separations, those living apart with intentions of obtaining a divorce, and other married persons permanently or temporarily estranged from their spouse because of marital discord. The group "other married, spouse absent" includes married persons employed and living for several months at a considerable distance from their homes, those whose spouse was absent in the armed forces, in-migrants whose spouse remained in another area, husbands or wives of inmates of institutions, and all other married persons (except those reported as separated) whose place of residence was not the same as that of their spouse.

Differences between the number of married men and the number of married women arise from spouses having their usual residences in different areas, from the relative completeness of enumeration of men and women, and from errors of response and the processing methods used.

Married couple.—A married couple is defined as a husband and his wife enumerated as members of the same household or quasi household. This classification was made for a 20-percent sample of the data collected. Married couples are classified as "with own household" if the husband is head of the household. Other married couples, classified as "without own household," may be living in households as relatives of the head or as lodgers or employees, or they may be living in quasi households, such as large rooming houses or hotels.

Comparability

The category "Separated" was included in the question on marital status for the first time in 1950. Previously, the question included the categories "Single," "Married," "Widowed," and "Divorced." This change may have made the number of persons reported as divorced somewhat smaller in 1950 than it would have been under the earlier procedure.

In 1950, as in previous censuses, marital status was not reported for a small number of persons. For such persons marital status was estimated in 1950 on the basis of age and the presence of spouse or children. In 1940 such persons for whom the status was not apparent from other information on the schedule were classified as single.

HOUSEHOLD AND QUASI HOUSEHOLD

Definitions

Household.—A household includes all the persons who occupy a house, an apartment or other group of rooms, or a room that constitutes a dwelling unit. In general, a group of rooms occupied as separate living quarters is a dwelling unit if it has separate cooking equipment or a separate entrance; a single room occupied as separate living quarters is a dwelling unit if it has separate cooking equipment or if it constitutes the only living quarters in the structure. A household includes the related family members and also the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the dwelling unit. A person living alone in a dwelling unit, or a group of unrelated persons sharing a dwelling unit as partners, is counted as a household. The count of households excludes groups of persons living as quasi households (see below).

The average population per household is obtained by dividing the population in households by the number of households. It excludes persons living in quasi households.

Quasi household.—Quasi households include all persons living in quarters not classified as dwelling units, for example, in houses with at least five lodgers, or in hotels, institutions, labor camps, or military barracks.

Family.—A family, as defined in the 1950 Census, is a group of two or more persons related by blood, marriage, or adoption and living together; all such persons are regarded as members of one family. The number of families was determined from the number of persons classified as heads of families; this classification was made from a 20-percent sample of data collected. A family may comprise persons in either a household or a quasi household. If the son of the household head and the son's wife are members of the household they are treated as part of the head's family.

A lodger and his wife who are not related to the head of the household, or a resident employee and his wife living in, are considered as a separate family, however. Thus, a household may contain more than one family. A household head living alone or with nonrelatives only is not regarded as a family. Thus, some households do not contain a family.

Unrelated individual.—Unrelated individuals are persons (other than inmates of institutions) who are not living with any relatives. In the office processing, this classification was made for a 20-percent sample of the data collected.

An unrelated individual may be (*a*) a household head living alone or with nonrelatives only, (*b*) a lodger or resident employee with no relatives in the household, or (*c*) a quasi-household member who has no relatives living with him.

Institutional population.—The institutional population includes those persons living as inmates in such places as homes for delinquent or dependent children, homes and schools for the mentally or physically handicapped, places providing specialized medical care, homes for the aged, prisons, and jails. Staff members and their families are not included in the institutional population. Inmates of institutions are not counted as "unrelated individuals," largely because statistics on "unrelated individuals" are more useful to consumers of data on labor force, income, and housing statistics if they exclude inmates.

Family status.—In table 65, persons 14 years old and over are classified into the categories "Head of family," "Wife or other relative of family head," "Unrelated individual," and "Inmate of institution." A family is a group of two or more persons related by blood, marriage, or adoption, and living together; all such persons are regarded as members of one family. Unrelated individuals are persons (other than inmates of institutions) who are not living with any relatives.

Comparability

Earlier census data.—Minor changes in the instructions for identifying dwelling units in 1950 as compared with 1940 may have affected to a slight extent the increase in households between the two dates. For example, in the 1940 Census, the occupants of a lodginghouse were regarded as a quasi household if the place included 11 or more lodgers; in the 1950 Census the criterion was reduced to 5 or more lodgers. In general, however, the number of households and the number of occupied dwelling units in the 1950 Census may be regarded as comparable with the number of "families," "private households," and occupied dwelling units as shown in the census reports for 1930 and 1940.

In the 1950 Census, the number of households and the number of occupied dwelling units were identical by definition; small differences between these numbers appear in the published reports, however, because the data for the Population and the Housing reports were processed independently.

The term "family" as used in the 1950 Census is not comparable with that used by the Bureau of the Census before 1947. The new definition excludes the large number of household heads with no relatives in the household who would have been classified as families under the old definition; on the other hand, the new definition includes the small number of groups of mutually related lodgers or employees in households and of related persons in quasi households who would not have been classified as families under the old definition. The net effect has been to decrease the number of families reported.

In certain Population and Housing reports of the 1940 Census, the average population per household included persons living in quasi households. Such persons were excluded in calculating the average population per household shown in the present volume.

The coverage of the institutional population in the 1950 Census is somewhat more inclusive than that in the 1940 Census. For example, patients in tuberculosis sanitaria were included in 1950 but not in 1940. Furthermore, the identification of other types of institutions such as nursing, convalescent, and rest homes, was probably improved by the listing of the specific types in the *Enumerator's Reference Manual.*

RELATIONSHIP TO HEAD OF HOUSEHOLD

Definitions

Head of household.—One person in each household is designated as the "head." The number of heads, therefore, is equal to the number of households. The head is usually the person regarded as the head by the members of the household. Married women are not classified as heads if their husbands are living with them at the time of the census.

Wife.—The total number of females shown under the heading "wife" is ordinarily somewhat less than the total number of married women with husband present, since the category "Wife" in the relationship tables includes only wives of heads of households. As indicated in the section on "Marital status," the number of "wives" is directly comparable with data in the marital status tables on the number of married men with wife present who are heads of households. Either of these figures may be used to indicate the number of "husband-wife households."

Child.—This category includes sons and daughters, stepchildren, and adopted children of the head regardless of their age or marital status. It excludes sons-in-law and daughters-in-law and, of course, any children of the head no longer living in the household.

Grandchild.—This category comprises all persons living in the household who are sons, daughters, stepchildren, or adopted children of a child of the head.

Parent.—This classification comprises both parents and parents-in-law of the head if living in the household.

Other relative.—This class includes such relatives of the head as sons-in-law, sisters-in-law, nephews, brothers, aunts, grandparents, cousins, and great-grandchildren, if these are members of the household.

Lodger.—All persons in households who are not related to the head, except resident employees and their families, are counted as lodgers. Among these persons are lodgers, roomers, and boarders, and their relatives residing in the same household. Also included are partners, foster children, and wards.

Resident employee.—This category consists of all employees of the head of the household who usually reside in the household with their employer, and their relatives residing in the same household. The main types of such employees are cooks, maids, nurses, and hired farm hands.

SCHOOL ENROLLMENT

Definitions

The data on school enrollment were derived from answers to the question, "Has he attended school at any time since February 1?" This item was reported for a 20-percent sample of persons under 30 years of age.

"Regular" schools.—In the instructions to the enumerators, enrollment was defined as enrollment in "regular" schools only. Such schools are public, private, or parochial schools, colleges, universities, or professional schools, either day or night, that is, those schools where enrollment leads to an elementary or high school diploma, or to a college, university, or professional school degree. Enrollment could be full time or part time.

If a person was enrolled in such a school subsequent to February 1, 1950, he was classified as enrolled even if he had not actually attended school since that date. For example, he may not have attended because of illness.

If a person was receiving regular instruction at home from a tutor, and if the instruction was considered comparable to that of a regular school or college, the person was counted as enrolled. Enrollment in a correspondence course was counted only if the course was given by a regular school, such as a university, and the person received credit thereby in the regular school system.

Kindergarten.—Children enrolled in kindergarten were reported separately in 1950 and were not counted as enrolled in school. The statistics on kindergarten enrollment were tabulated only for children 5 and 6 years old. Nursery schools were not regarded as kindergartens or schools.

Schools excluded.—Persons enrolled in vocational, trade, or business schools were excluded from the enrollment figures unless such schools were graded and considered a part of a regular school system. Persons receiving on-the-job training in connection with their work were not counted as enrolled in school. Persons enrolled in correspondence courses other than those described above were not counted as enrolled in school.

Editing of 1950 Data

In 1950, as in prior censuses, persons for whom there was no report as to school enrollment are not shown separately. In both 1940 and 1950, the editing rules were determined largely on the basis of information on ages of compulsory attendance as compiled by the United States Office of Education. Additional information used included other items on the schedule. In general, persons 5 through 18 years of age not reporting on school enrollment were treated as enrolled, whereas those 18 through 29 years old were considered not enrolled.

Comparability With Earlier Census Data

The corresponding question in the Censuses of 1910, 1920, and 1930 applied to a somewhat longer period, the period since the preceding September 1. The census dates were April 15 in 1910, January 1 in 1920, and April 1 in 1930. Furthermore, in these censuses the question was not restricted as to the kind of school the person was attending. In 1940 the question referred to the period from March 1 to the date of the enumeration, which began on April 1.

In 1950, for the first time in a decennial census, kindergarten enrollment was separately identified. In earlier censuses no specific instructions were given about kindergarten; and, therefore, enrollment figures for children 5 and 6 years old undoubtedly included some children enrolled in kindergarten.

As mentioned in the section on "Usual place of residence," college students were enumerated in 1950 at their college residence whereas in previous years they were generally enumerated at their parental home.

Data from school systems.—Data on school enrollment are also collected and published by other governmental agencies. These data are obtained from reports of school systems and institutions of higher learning and are only roughly comparable with the enrollment data collected by the Bureau of the Census by household interviews. For comparable grades, the census enrollment figures tend to be lower, largely because they refer to shorter time periods and do not contain certain duplications that are found in reports from the various school systems.

YEAR OF SCHOOL IN WHICH ENROLLED AND YEARS OF SCHOOL COMPLETED

Definitions

The data on year of school in which enrolled were derived from the answers to the first of the following two questions, and those on years of school completed from the combination of answers to both questions: (*a*) "What is the highest grade of school that he has attended?" and (*b*) "Did he finish this grade?" These items were reported for a 20-percent sample of persons of all ages.

The questions on educational attainment applied only to progress in "regular" schools, as defined in the section on "School enrollment."

Highest grade of school attended.—The question called for the highest grade attended, regardless of "skipped" or "repeated" grades, rather than the number of full school years which the person had spent in school.

In some areas in the United States, the school system has, or used to have, 7 years of elementary school rather than the more conventional 8 years. For the sake of comparability, persons who had progressed beyond a 7-year elementary school system were treated as though they had progressed beyond the usual 8-year system.

In the case of persons whose highest grade of attendance was in a foreign school system, the enumerators were instructed to obtain the approximate equivalent grade in the American school system or, if that were too difficult to determine, the number of years the person had attended school. Persons whose highest level of attendance was in an ungraded school were treated in similar fashion. Junior high school grades were translated into their elementary or high school equivalents. Persons whose highest level of training was by a tutor and whose training was regarded as qualifying under the "regular" school definition were also given the approximate equivalent in the regular school system.

Completion of highest grade.—The second question on educational attainment was to be answered "Yes" if the person had completed the full grade. If the person was still attending school in that grade, had completed only a half grade, or had dropped out of, or failed to pass, the last grade attended, the required answer was "No." In the case of persons who failed to report on completion of the grade, those classified as enrolled were assumed not to have finished and the others were assumed to have finished.

Comparability

Year of school in which enrolled and years of school completed.—In the present volume, the year of school in which enrolled is shown for enrolled persons 5 to 29 years old, and the years of school completed are shown for all persons 5 years old and over.

For 1950, statistics on educational attainment for persons enrolled in school are shown in terms of the school year in which they were enrolled, whereas, in the 1940 report, statistics were shown in terms of the highest grade they had completed. The present procedure was adopted because it provides statistics in a form that should be generally more useful to those interested in school systems.

Generally, for persons enrolled in school, the grade in which they are enrolled is one grade higher than the highest grade completed. However, because the question on enrollment referred to "any time since February 1" whereas the completion question referred to the date of the enumeration, the highest grades of school completed for the enrolled population obtained by subtracting one grade from the grade in which enrolled must be considered only approximately correct.

Quality of 1940 and 1950 data.—In the 1940 Census, a single question was asked on highest grade of school completed. Analysis of data from the census returns and from surveys conducted by the Bureau of the Census using the 1940 type of question wording indicated that respondents frequently reported the year or grade in which they were enrolled, or had last been enrolled, instead of the one completed. The 1950 questions were designed to reduce this kind of error.

In the 1950 publications, each category of highest grade of school completed represents the combination of (*a*) persons who had gone only as far as the indicated grade in which they had finished, and (*b*) persons who had attended the next higher grade

but had not completed it. Data from a preliminary sample of the 1950 Census for persons of elementary and high school ages in continental United States show larger proportions in 1950 than in 1940 in both the modal grade and the next lower grade for a particular age, and smaller proportions in each of the first two grades above the mode. It seems reasonable to assume that, as a result of the change in questionnaire design, there was relatively less exaggeration in educational attainment in 1950 than in 1940, even for older persons. In the 1940 report, data on highest grade of school completed were published only for persons 25 years old and over.

Median School Years

Median educational attainment, either in terms of the median year of school in which enrolled or median school years completed, is expressed in terms of a continuous series of numbers. For example, the second year of high school is indicated by 10, and the third year of college by 15. For the sake of comparability, the first year of high school is uniformly represented by 9, although, as previously noted, there are some areas with only 7 years of elementary school.

The procedure used in both 1950 and 1940 for calculating the median years of school completed makes allowance for the fact that many persons reported as having completed a given full school year have also completed a part of the next higher grade. Specifically, it is assumed, for example, that persons who reported 6 full years of school completed had actually completed 6.5 grades. Actually, at the time of enumeration, persons enrolled in school had probably completed somewhat more than one-half grade beyond their last full year, on the average, whereas persons who had left school had probably completed less than one-half year beyond their last full year, on the average. A similar procedure was followed in the computation of the median school year in which enrolled.

NUMBER OF CHILDREN EVER BORN

In the 1950 Census of Hawaii, data were obtained for the first time on the number of children ever born to women who had ever been married. This item was reported for a 20-percent sample of ever-married women.

In the classification of women by number of children ever born, all children ever born alive to a woman during her lifetime were counted, including children by any former marriage. Although this question was not asked of women reported as single, it is likely that most of the single mothers with illegitimate children living in the household reported themselves as married, widowed, or divorced. Hence the statistics may not be limited strictly to legitimate fertility.

The distribution of women 45 years old and over who were or had ever been married by number of children ever born is presented, by race, in table 16. Practically all of these women had finished their childbearing period. This distribution represents the full frequency detail that was tabulated for the 1950 Census data. The terminal class was thus "10 or more"; and, in computing the total number of children ever born, mean values had to be estimated for this class.

EMPLOYMENT STATUS

Definitions

Census week.—The 1950 data on employment status pertain to the calendar week preceding the enumerator's visit. This week, defined as the "census week," is not the same for all respondents, because not all persons were enumerated during the same week. The majority of the population was enumerated by the end of April. The 1940 data refer to a fixed week for all persons, March 24 to 30, 1940, regardless of date of enumeration.

Employed.—Employed persons comprise all civilians 14 years old and over who, during the census week, were either (*a*) "at work"—those who did any work for pay or profit, or worked without pay for 15 hours or more on a family farm or in a family business; or (*b*) "with a job but not at work"—those who did not work and were not looking for work but had a job or business from which they were temporarily absent because of vacation, illness, industrial dispute, bad weather, or layoff with definite instructions to return to work within 30 days of layoff. Also included as "with a job" are persons who had new jobs to which they were scheduled to report within 30 days.

Unemployed.—Persons 14 years old and over are classified as unemployed if they were not at work during the census week but were either looking for work or would have been looking for work except that (*a*) they were temporarily ill, (*b*) they expected to return to a job from which they had been laid off for an indefinite period, or (*c*) they believed no work was available in their community or in their line of work. Since no specific questions identifying persons in these last three groups were included on the census schedule, it is likely that some persons in these groups were not returned by the census enumerators as unemployed. Unemployed persons are separated into new workers and experienced workers. When information on the schedule was insufficient for this distinction to be made, the unemployed person was classified as an experienced worker, since the great majority of persons seeking work have had previous work experience.

Labor force.—The labor force includes all persons classified as employed or unemployed, as described above, and also members of the armed forces (persons on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard). The "civilian labor force" comprises the employed and unemployed components of the labor force. The "experienced labor force" consists of the armed forces, employed workers, and experienced unemployed workers. The "experienced civilian labor force" comprises the two latter groups.

Not in labor force.—Persons not in the labor force comprise all civilians 14 years of age and over who are not classified as employed or unemployed, including persons doing only incidental unpaid family work (less than 15 hours). Persons not in the labor force are further classified in this report into the following categories:

1. *Keeping house.*—Persons primarily occupied with their own home housework.

2. *Unable to work.*—Persons who cannot work because of long-term physical or mental illness or disability. There is evidence, however, that some persons were reported as "unable to work" who were only temporarily ill or who, although elderly, were not permanently disabled.

3. *Inmates of institutions.*—Persons, other than employees and their families, living in institutions, such as homes for the mentally or physically handicapped, places providing specialized medical care, homes for the aged, prisons, and jails. Employees of institutions and their families are classified into employment status categories on the same basis as are persons living outside of institutions.

4. *Other and not reported.*—Persons in this general category include the following two groups:

   a. Persons not in the labor force other than those keeping house, unable to work, or in institutions. This group includes students, the retired, those too old to work, the voluntarily idle, and seasonal workers for whom the census week fell in an "off" season and who were not reported as unemployed.

   b. Persons for whom information on employment status was not reported. For the total continental United States population 14 years and over, it is estimated that employment status was not reported for about 1 percent and that about 45 percent of this group might have been added to the labor force had the necessary information been obtained. Comparable estimates for Hawaii are not available.

Basis for Classification

The employment status classification is based primarily on a series of interrelated "sorter" questions designed to identify, in this sequence: (*a*) Persons who worked at all during the census

week; (b) those who did not work but were looking for work; and (c) those who neither worked nor looked for work but had a job or business from which they were temporarily absent. The four questions used for this purpose are described below:

1. *"What was this person doing most of last week—working, keeping house, or something else?"* This question was designed to classify persons according to their major activity and to identify the large number of full-time workers. Persons unable to work at all because of physical or mental disabilities were also identified at this point.

2. *"Did this person do any work at all last week, not counting work around the house?"* This question was asked of all persons except those reported in the previous question as working or as unable to work. It was designed to identify persons working part time or intermittently in addition to their major activity.

3. *"Was this person looking for work?"* Asked of persons replying in the previous question that they did not work at all, this question served to obtain a count of the unemployed.

4. *"Even though he didn't work last week, does he have a job or business?"* Persons temporarily absent from their job or business were identified by means of this question, which was asked of persons neither working nor looking for work.

Problems in Classification

Classification of the population by employment status is always subject to error. Some of the concepts are difficult to apply but, more important for certain groups, the complete information needed is not always obtained. For example, housewives, students, and semiretired persons, who are in the labor force on only a part-time or intermittent basis, may fail to report that they are employed or looking for work unless carefully questioned. These are the groups for whom variability in response is relatively great in labor force surveys. The problem was probably more pronounced in the census since temporary and relatively inexperienced enumerators were used. In many cases, the enumerators may have assumed that such persons could not be in the labor force and omitted the necessary questions. As a result, they probably understated the size of the labor force and overstated the number of persons not in the labor force.

Comparability

Statistics on gainful workers.—The data on the labor force for 1940 and 1950 are not exactly comparable with the statistics for gainful workers presented in this report for 1920 and 1930 because of differences in definition. "Gainful workers" were persons reported as having a gainful occupation, that is, an occupation in which they earned money or a money equivalent, or in which they assisted in the production of marketable goods, regardless of whether they were working or seeking work at the time of the census. A person was not considered to have a gainful occupation if his work activity was of limited extent. In contrast, the labor force is defined on the basis of activity during the census week only and includes all persons who were employed, unemployed, or in the armed forces in that week. Certain classes of persons, such as retired workers, some inmates of institutions, recently incapacitated workers, and seasonal workers neither working nor seeking work at the time of the census, were frequently included among the gainful workers, but, in general, such persons are not included in the labor force. On the other hand, the census included in the labor force for 1940 and 1950 persons seeking work without previous work experience, that is, new workers. At the time of the 1920 and 1930 Censuses such new workers were probably for the most part not reported as gainful workers.

HOURS WORKED DURING CENSUS WEEK

The data on hours worked were derived from answers to the question, "How many hours did he work last week?" asked of persons who reported they had worked during the week prior to their enumeration. The statistics refer to the number usually worked or the scheduled number of hours. For persons working at more than one job, the figures relate to the combined number of hours worked at all jobs during the week. The data on hours worked presented in this report provide a broad classification of young employed persons into full-time and part-time workers. The proportion of persons who worked only a small number of hours is probably understated because such persons were omitted from the labor force count more frequently than were full-time workers.

WEEKS WORKED IN 1949

Definitions

The statistics on weeks worked are based on replies to the question, "Last year, in how many weeks did this person do any work at all, not counting work around the house?" This item was reported for a 20-percent sample of persons 14 years old and over. The data pertain to the number of different weeks during 1949 in which a person did any work for pay or profit (including paid vacations and sick leave) or worked without pay on a family farm or in a family business. Weeks of active service in the armed forces are also included. It is probable that the number of persons who worked in 1949 is understated, because there is some tendency for respondents to forget intermittent or short periods of employment.

Comparability

In 1950, no distinction was made between a part-time and a full-time workweek, whereas in 1940 the enumerator was instructed to convert part-time work to equivalent full-time weeks. A full-time week was defined as the number of hours locally regarded as full time for the given occupation and industry. Further differences are that in the 1940 report the data were shown for wage and salary workers only and were published in terms of months rather than weeks.

OCCUPATION, INDUSTRY, AND CLASS OF WORKER

In the 1950 Census of Population, information on occupation, industry, and class of worker was collected for persons in the experienced civilian labor force. All three items related to one specific job held by the person; for an employed person, the information referred to the job he held during the census week. If he was employed at two or more jobs, the job at which he worked the greatest number of hours during the census week was reported. For an experienced unemployed person, the information referred to the last job he had held.

The classification systems used for the occupation and industry data for Hawaii in the 1950 Census of Population are virtually the same as those used for continental United States and are described below. The changes resulted from the need to set up as separate categories those occupations and industries which include significant numbers of workers in Hawaii but which, in continental United States, are of small numerical importance. The continental United States systems were developed in consultation with many individuals, private organizations, and government agencies, and, in particular, the Joint Committee on Occupational Classification (sponsored by the American Statistical Association and the United States Bureau of the Budget). Information on these classification systems is given in the publication, United States Bureau of the Census, *1950 Census of Population, Classified Index of Occupations and Industries*, Washington, D. C., 1950. Information on the adaptation of these classification systems for Hawaii can be obtained by writing to the Director, Bureau of the Census, Washington 25, D. C.

Occupation

The occupation information presented here was derived from answers to the question, "What kind of work was he doing?"

Classification system.—The occupational classification system developed for the 1950 Census of Population of Hawaii is organized into 12 major groups. The system consists of 484 items, 272 of which are specific occupation categories; the remainder are subgroupings (mainly on the basis of industry) of 17 of the occupation categories. For the detailed occupation tables in Chapter C, cer-

tain of the occupation categories were combined, and the detailed occupation list used here consists of 458 items (tables 52 and 53). The composition of each of the detailed categories (except those specially established for Hawaii) is shown in the publication, United States Bureau of the Census, *1950 Census of Population, Classified Index of Occupations and Industries*, Washington, D. C., 1950.

In the cross-classification of occupation by age, class of worker, and income, intermediate occupational classifications of 131 items for males and 54 items for females have been used (tables 54 and 56). These intermediate classifications represent selections and combinations of the items in the detailed system. A listing of the relationships between the two levels of classification can be obtained by writing to the Director, Bureau of the Census, Washington 25, D. C.

In the separation of "Managers, officials, and proprietors (n. e. c.)" by class of worker into salaried and self-employed components, the small number of unpaid family workers in this occupation group is included in the self-employed component. Since the data presented in the occupation tables refer only to civilians, the category "Members of the armed forces" shown in table 54 is limited to veterans seeking work.

Relation to DOT classification.—The Population Census occupational classification is generally comparable with the system used in the *Dictionary of Occupational Titles* (DOT).[1] The two systems, however, are designed to meet different needs and to be used under different circumstances. The DOT system is much more detailed than the Bureau of the Census system, and it also calls for many types of distinctions which cannot be met by census information.

[1] See U. S. Department of Labor, Bureau of Employment Security, *Dictionary of Occupational Titles*, Second Edition, Vols. I and II, Washington, D. C., 1949.

Industry

The industry information presented here was derived from answers to the question, "What kind of business or industry was he working in?"

Classification system.—The industrial classification system developed for the 1950 Census of Population of Hawaii consists of 153 categories. For the detailed industry tables in Chapter C, a few categories were combined, and the detailed industry list used here consists of 151 categories (tables 57 and 58). The composition of each of the detailed categories (except those specially established for Hawaii) is shown in the publication, United States Bureau of the Census, *1950 Census of Population, Classified Index of Occupations and Industries*, Washington, D. C., 1950.

In Chapter B, the industry data are based on a condensed classification of 33 groups. In the cross-classifications of industry by age, class of worker, major occupation group, weeks worked, and income shown in Chapter C, an intermediate classification of 52 categories has been used (tables 59 to 62). Both the 33-item and 52-item classifications represent selections and combinations of the categories in the detailed system. The relationships among these three levels of classification are shown in list A.

List A.—RELATIONSHIPS AMONG CONDENSED, INTERMEDIATE, AND DETAILED INDUSTRIAL CLASSIFICATION SYSTEMS USED IN THE 1950 CENSUS OF POPULATION OF HAWAII

[Figures in parentheses in third column are code designations in the Standard Industrial Classification; see text for explanation]

Condensed classification—33 items	*Intermediate classification—52 items*	*Detailed classification—153 items*
Sugar farms	Sugar farms	Sugar farms (0111 [1]).
Pineapple farms	Pineapple farms	Pineapple farms (0112 [2]).
Coffee farms	Coffee farms	Coffee farms (0112 [2]).
Other agriculture	Other agriculture	Other agriculture (01 [1 2], 07 exc. 0713).
Forestry and fisheries	Forestry and fisheries	Forestry (08). Fisheries (09).
Mining	Mining	Metal mining (10). Coal mining (11, 12). Crude petroleum and natural gas extraction (13). Nonmetallic mining and quarrying, except fuel (14).
Construction	Construction	Construction (15-17).
Durable goods	Metal industries	Blast furnaces, steel works, and rolling mills (331). Other primary iron and steel industries (332, 339 [2]). *Primary nonferrous industries* (333-336, 3392 [2], 3399 [2]). Fabricated steel products (19 exc. 194, 341-343, 344 exc. 3444, 346 [4], 348 [4], 3491-3495). Fabricated nonferrous metal products (3444, 3463 [4], 347, 3489 [4], 3496, 3497, 3499). Not specified metal industries.[5]
	Transportation equipment	Motor vehicles and motor vehicle equipment (371). Aircraft and parts (372). Ship and boat building and repairing (373). Railroad and miscellaneous transportation equipment (374, 375, 379).
	All other durable goods	Logging (241). Sawmills, planing mills, and mill work (242, 243). Miscellaneous wood products (244, 249). Furniture and fixtures (25). Glass and glass products (321-323). Cement, and concrete, gypsum, and plaster products (324, 327). Structural clay products (325). Pottery and related products (326). Miscellaneous nonmetallic mineral and stone products (328, 329). Agricultural machinery and tractors (352). Office and store machines and devices (357). Miscellaneous machinery (351, 353-356, 358, 359). Electrical machinery, equipment, and supplies (36). Professional equipment and supplies (194, 381-385). Photographic equipment and supplies (386). Watches, clocks, and clockwork-operated devices (387). Miscellaneous manufacturing industries (39).
Sugar processing	Sugar processing	Sugar processing (206).
Pineapple canning	Pineapple canning	Pineapple canning (2033 [6]).
Other food industries	Other food industries	Meat products (201). Dairy products (202). Canning and preserving fruits, vegetables, and sea foods (exc. pineapple) (203 [6]). Grain-mill products (0713, 204). Bakery products (205). Confectionery and related products (207). Beverage industries (208). Miscellaneous food preparations and kindred products (209). Not specified food industries.[5]
Other nondurable goods Not specified manufacturing industries	Printing, publishing, and allied industries	Printing, publishing, and allied industries (27).
	All other nondurable goods (including not specified manufacturing industries).	Tobacco manufactures (21). Knitting mills (225). Dyeing and finishing textiles, except knit goods (226). Carpets, rugs, and other floor coverings (227). Yarn, thread, and fabric mills (221-224). Miscellaneous textile mill products (228, 229). Apparel and accessories (23 exc. 239). Miscellaneous fabricated textile products (239). Pulp, paper, and paperboard mills (261). Paperboard containers and boxes (267). Miscellaneous paper and pulp products (264-266, 269). Synthetic fibers (2825). Drugs and medicines (283). Paints, varnishes, and related products (285). Miscellaneous chemicals and allied products (281, 282 exc. 2825, 284, 286-289). Petroleum refining (291). Miscellaneous petroleum and coal products (29 exc. 291). Rubber products (30). Leather: tanned, curried, and finished (311). Footwear, except rubber (313, 314). Leather products, except footwear (312, 315-317, 319). Not specified manufacturing industries.[5]
Transportation	Trucking service and warehousing	Trucking service (421, 423). Warehousing and storage (422-425, 429).
	Taxicab service	Taxicab service (433).
	Water transportation	Water transportation (44).
	Air transportation	Air transportation (45).
	All other transportation	Railroads and railway express service (40). Street railways and bus lines (41, 43 exc. 433). Petroleum and gasoline pipe lines (46). Services incidental to transportation (47).
Telecommunications	Telecommunications	Telephone (wire and radio) (481). Telegraph (wire and radio) (48 exc. 481).
Utilities and sanitary services	Electric and gas utilities	Electric light and power [7] (491). Electric-gas utilities [7] (493). Gas and steam supply systems (492, 496).
	Water supply, sanitary services, and other utilities	Water supply (494). Sanitary services (495). Other and not specified utilities [5] (497).

For footnotes, see end of table.

List A.—RELATIONSHIPS AMONG CONDENSED, INTERMEDIATE, AND DETAILED INDUSTRIAL CLASSIFICATION SYSTEMS USED IN THE 1950 CENSUS OF POPULATION OF HAWAII—Con.

Condensed classification—33 items	Intermediate classification—52 items	Detailed classification—153 items
Wholesale trade	Wholesale trade	Motor vehicles and equipment (501, 5111). Drugs, chemicals, and allied products (502, 5112). Dry goods and apparel (503, 5113, 5132). Food and related products (504, 505, 5114, 5133, 5134, 514). Electrical goods, hardware, and plumbing equipment (506, 507, 5116). Machinery, equipment, and supplies (508, 5118, 5136). Petroleum products (512). Farm products—raw materials (5096, 5135). Miscellaneous wholesale trade (5091–5095, 5097–5099[8], 5115, 5117, 5119, 5137–5139[8]). Not specified wholesale trade.[5]
Food & dairy products stores, & milk retailing	Food and dairy products stores, and milk retailing	Food stores, except dairy products (54 exc. 545). Dairy products stores and milk retailing (545).
Eating and drinking places	Eating and drinking places	Eating and drinking places (58).
Other retail trade	General merchandise and five and ten cent stores	General merchandise stores (53 exc. 533). Five and ten cent stores (533).
	Apparel and accessories stores	Apparel and accessories stores, except shoe stores (56 exc. 566). Shoe stores (566).
	Furniture, home furnishings, and equipment stores	Furniture and housefurnishings stores (571). Household appliance and radio stores (572).
	Motor vehicles and accessories retailing	Motor vehicles and accessories retailing (55 exc. 554).
	Gasoline service stations	Gasoline service stations (554).
	Hardware, farm implement, and building material retailing.	Hardware and farm implement stores (525). Lumber and building material retailing (52 exc. 525).
	All other retail trade	Drug stores (591). Liquor stores (592). Retail florists (5992). Jewelry stores (597). Fuel and ice retailing (598). Miscellaneous retail stores (593–596, 599 exc. 5992). Not specified retail trade.[5]
Finance, insurance, and real estate	Banking and other finance	Banking and credit agencies (60, 61). Security and commodity brokerage, and investment companies (62, 67).
	Insurance and real estate	Insurance (63, 64). Real estate [9] (65). Real estate-insurance-law offices [9] (66).
Business and repair services	Business services	Advertising (731). Accounting, auditing, and bookkeeping services (737). Miscellaneous business services (732–736, 739).
	Automobile repair services and garages	Automobile repair services and garages (75).
	Miscellaneous repair services	Miscellaneous repair services (76).
Private households	Private households	Private households (88).
Personal services, except private households	Hotels and lodging places	Hotels and lodging places (70).
	Laundering, cleaning, and dyeing services	Laundering, cleaning, and dyeing services (721, 722, 727 [10]).
	All other personal services	Dressmaking shops (7271 [10]). Shoe repair shops (725). Miscellaneous personal services (723, 724, 726, 729).
Entertainment and recreation services	Entertainment and recreation services	Radio broadcasting and television (77). Theaters and motion pictures (78, 792). Bowling alleys, and billiard and pool parlors (793). Miscellaneous entertainment and recreation services (791, 794–796, 799).
Medical and other health services	Medical and other health services	Medical and other health services, except hospitals (80 exc. 806). Hospitals (806).
Educational services, government	Educational services, government	Educational services, government (82, 84).
Educational services, private	Educational services, private	Educational services, private (82, 84).
Other professional and related services	Welfare, religious, and membership organizations	Welfare and religious services (866, 867). Nonprofit membership organizations (861–865, 869).
	Legal, engineering, and miscellaneous professional services.	Legal services (81). Engineering and architectural services (891). Miscellaneous professional and related services (89 exc. 891).
Postal service	Postal service	Postal service (90 [11]).
Federal public administration	Federal public administration	Federal public administration (90 [11]).
Territorial and local public administration	Territorial and local public administration	Territorial public administration (90 [11]). Local public administration (90 [11]).
Industry not reported	Industry not reported	Industry not reported (99).

NOTE.—See Executive Office of the President, Bureau of the Budget, *Standard Industrial Classification Manual*, Vol. I, *Manufacturing Industries*, Part 1 (November 1945 edition); and Vol. II, *Nonmanufacturing Industries* (May 1949 edition), Washington, D. C.

[1] Sugar farms are shown separately from rest of SIC category 0111, which is included in "Other agriculture."
[2] Pineapple farms and coffee farms are shown separately from rest of SIC category 0112, which is included in "Other agriculture."
[3] Components of SIC categories 3392 and 3399 are allocated between "Other primary iron and steel industries" and "Primary nonferrous industries" on a ferrous-nonferrous basis.
[4] Components of SIC categories 3463 and 3489 are allocated between "Fabricated steel products" and "Fabricated nonferrous metal products" on a ferrous-nonferrous basis.
[5] In the Population Census system, "not specified" categories were set up within certain groups to take care of schedule returns which were not sufficiently precise for allocation to a specific category within the group.
[6] Pineapple canning is shown separately from rest of SIC category 2033, which is included in "Canning and preserving fruits, vegetables, and sea foods (exc. pineapple)."
[7] "Electric light and power" and "Electric-gas utilities" are combined into a single category in the Volume II tables on detailed industry.
[8] Components of SIC categories 5099 and 5139 are allocated by type of merchandise to the appropriate Population Census wholesale trade category, wherever possible.
[9] "Real estate" and "Real estate-insurance-law offices" are combined into a single category in the Volume II tables on detailed industry.
[10] Dressmaking shops are shown separately from the rest of SIC category 7271, which is included in "Laundering, cleaning, and dyeing services."
[11] See text for explanation of basic difference between SIC and Population Census in classification of government workers.

Relation to Standard Industrial Classification.—List A shows for each Population Census category the code designation of the similar category or categories in the Standard Industrial Classification (SIC). This relationship is presented here for general information purposes only and does not imply complete comparability. The SIC, which has developed under the sponsorship of the United States Bureau of the Budget, is designed for the classification of industry reports from establishments. These reports are, by their nature and degree of detail, considerably different from industry reports obtained from household enumerations such as the Population Census. As a result, many distinctions called for in the SIC cannot be observed in the Population Census. Furthermore, the needs which the Population Census data are designed to meet frequently differ from the needs which the establishment data meet. Perhaps the most basic difference between the two systems is in the allocation of government workers. The SIC classifies all government agencies in a single major group, whereas the Population Census industrial classification system allocates them among the various groups according to type of activity, as explained in the next paragraph.

Definition of "Public administration."—The major group "Public administration" includes only those activities which are uniquely governmental functions, such as legislative and judicial activities and most of the activities in the executive agencies. Government agencies engaged in educational and medical services and in activities commonly carried on also by private enterprises, such as transportation and manufacturing, are classified in the appropriate category. For example, persons employed by a hospital are classified in the "Hospitals" category, regardless of whether they are paid from private or public funds. The total number of government workers is presented here in the data on class of worker. Of particular significance in this connection is the cross-classification of industry by class of worker (table 59).

Relation to certain occupation groups.—In the Population Census classification systems, the industry category "Agriculture" is somewhat more inclusive than the total of the two major occupation groups, "Farmers and farm managers" and "Farm laborers and foremen." The industry category includes, in addition to all persons in these two major occupation groups, (*a*) other persons employed on farms, such as truck drivers, mechanics, and bookkeepers, and (*b*) persons engaged in agricultural activities other than strictly farm operation, such as crop dusting and landscape gardening. Similarly, the industry category "Private households" is somewhat more inclusive than the major occupation group "Private household workers." In addition to the housekeepers, laundresses, and miscellaneous types of domestic workers covered by the major occupation group, the industry category includes persons in occupations such as chauffeur and secretary, if they work for private households.

Class of Worker

The class-of-worker information, as noted above, refers to the same job as does the occupation and industry information. The allocation of a person to a particular class-of-worker category is basically independent, however, of the occupation or industry in which he worked. The classification by class of worker consists of four categories which are defined as follows:

1. *Private wage and salary workers.*—Persons who worked for a private employer for wages, salary, commission, tips, pay-in-kind, or at piece rates.

2. *Government workers.*—Persons who worked for any governmental unit (Federal, Territorial, or local), regardless of the activity which the particular agency carried on.

3. *Self-employed workers.*—Persons who worked for profit or fees in their own business, profession or trade, or who operated a farm either as an owner or tenant. Included here are the owner-operators of large stores and manufacturing establishments as well as small merchants, independent craftsmen and professional men, farmers, peddlers, and other persons who conducted enterprises of their own. Persons paid to manage businesses or farms owned by other persons or by corporations, on the other hand, are classified as private wage and salary workers (or, in some few cases, as government workers).

4. *Unpaid family workers.*—Persons who worked without pay on a farm or in a business operated by a member of the household to whom they are related by blood or marriage.

The relatively small number of employed persons for whom class of worker was not reported has been included among private wage and salary workers unless there was evidence on the census schedule that they should have been classified in one of the other class-of-worker categories.

Quality of Data

The omission from the labor force of some workers (mainly youths, women, and part-time workers), as explained in the section on "Employment status," has probably resulted in an understatement in many of the occupation, industry, and class-of-worker figures. Another factor to be considered in the interpretation of these data is that enumerators sometimes returned occupation and industry designations which were not sufficiently specific for precise allocation; in many such cases, however, satisfactory assignment was made through the use of supplementary information. The basic document used in the allocation of the schedule returns of occupation and industry to the appropriate categories of the classification systems is the publication, United States Bureau of the Census, *1950 Census of Population, Alphabetical Index of Occupations and Industries*, Washington, D. C.

It can be expected that the classification of workers by detailed occupational and industrial categories will be subject to some error. Although the number of misclassifications probably does not have any serious effect on the usefulness of most of the data, there are a few cases where relatively small numbers of erroneous returns may produce what might be regarded as a serious misstatement of the facts. These cases relate mainly to the number of women and children shown in occupations which are unusual for such persons, and to the government workers shown in industries that are ordinarily not carried on by government agencies. Some of the more obvious misclassifications have been adjusted, but it was not possible to perform a complete review of the data for small discrepancies.

Comparability

1940 Census.—The changes in schedule design and interviewing techniques for the labor force questions, as explained in the section on "Employment status," probably do not affect comparability between 1940 and 1950 for the several occupation, industry, and class-of-worker categories. Furthermore, the occupational and industrial classification systems used in 1940 are basically the same as those of 1950, although there are a number of differences in titles. The 1940 classification by class of worker is comparable with the 1950 classification, although, in the 1940 reports, wage and salary workers were not separated into private and government components.

The 1940 data on occupation, industry, and class of worker shown in this volume have been revised to eliminate members of the armed forces. The 1940 occupation and industry data shown here also include adjustments which take account of the differences between the 1940 and 1950 classification systems. Particular care should be exercised in the use of the separate 1940 estimates for the farm and processing segments of the sugar industry; the only available data from which these estimates could be developed were not entirely satisfactory for the purpose.

The 1940 major occupation group figures presented in Chapter C of this volume may differ in some cases from the corresponding figures presented in Chapter B. The revised figures shown in Chapter C were developed by a more detailed analysis of the 1940–1950 classification differences than were the figures in Chapter B.

1930 and earlier censuses.—For information on occupation and industry data from 1930 and earlier censuses, see the publication,

United States Bureau of the Census, Sixteenth Census Reports, Population, *Comparative Occupation Statistics for the United States, 1870 to 1940*, Washington, D. C., 1943.

Other data.—Comparability between the statistics presented in this volume and statistics from other sources is frequently affected by the use of different classification systems, as well as by many of the factors described in the section on "Employment status."

INCOME

Definitions

Components of income.—Income, as defined in the 1950 Census, is the sum of money received from wages or salaries, net income (or loss) from self-employment, and income other than earnings. The figures in this report represent the amount of income received before deductions for personal income taxes, social security, bond purchases, union dues, etc.

Receipts from the following sources were 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," such as food produced and consumed in the home or free living quarters; withdrawals of bank deposits; money borrowed; tax refunds; gifts and lump-sum inheritances or insurance payments.

This item was reported for a 20-percent sample of persons 14 years old and over on the following income categories: (*a*) The amount of money wages or salary received in 1949; (*b*) the amount of net money income received from self-employment in 1949; and (*c*) the amount of other money income received in 1949. Specific definitions of these three categories are as follows:

Wages or salary.—This is defined as the total money earnings received for work performed as an employee. It includes wages, salary, armed forces pay, commissions, tips, piece-rate payments, and cash bonuses earned.

Self-employment income.—This is defined as net money income (gross receipts minus operating expenses) from a business, farm, or professional enterprise in which the person was engaged on his own account or as an unincorporated employer. Gross receipts include the value of all goods sold and services rendered. Expenses include the cost of goods purchased, rent, heat, light, power, depreciation charges, wages and salaries paid, business taxes, etc.

Income other than earnings.—This includes money income received from sources other than wages or salary and self-employment, such as net income (or loss) from rents or receipts from roomers or boarders; royalties; interest, dividends, and periodic income from estates and trust funds; pensions; veterans' payments, armed forces allotments for dependents, and other governmental payments or assistance; and other income such as contributions for support from persons who are not members of the household, alimony, and periodic receipts from insurance policies or annuities.

Statistics on the income of families and unrelated individuals are presented in Chapter B. In Chapter C, data are presented for all persons 14 years of age and over, tabulated by the amount of their own income.

Quality of the Income Data

The figures in this census, as in all field surveys of income, are subject to errors of response and nonreporting. In most cases the schedule entries for income are based not on records but on memory, usually that of the housewife. The memory factor in data derived from field surveys of income probably produce underestimates, because the tendency is to forget minor or irregular sources of income. Other errors of reporting are due to misunderstanding of the income questions or misrepresentation.

Comparability

1940 Census.—In 1940 all persons 14 years of age and over were asked to report (*a*) the amount of money wages or salary received in 1939 and (*b*) whether income amounting to $50 or more was received in 1939 from sources other than money wages or salaries. Comparable wage or salary income distributions for 1939 and 1949 are presented in table 69 of this volume. All the other 1950 Census income data shown in this report relate to total money income and are not comparable with statistics from the 1940 Census.

Bureau of Old-Age and Survivors Insurance wage record data.—The wage or salary data shown in this report are not directly comparable with those which may be obtained from the wage records of the Bureau of Old-Age and Survivors Insurance for several reasons. The coverage of the wage record data for 1949 is less inclusive than the 1950 Census data because of the exclusion of the wages or salaries of such groups as domestic servants, farm laborers, governmental employees, and employees of nonprofit institutions. Furthermore, no wages or salaries received from any one employer in excess of $3,000 in 1949 are covered by the wage record data. Finally, because the Bureau of the Census data are obtained by household interviews, they will differ from the Old-Age and Survivors Insurance wage record data which are based upon employers' reports.

Income tax data.—For several resaons, the income data shown in this volume are not directly comparable with those which may be obtained from statistical summaries of income tax returns. Income as defined for tax purposes differs somewhat from the Bureau of the Census concept. Moreover, the coverage of income tax statistics is less inclusive because of the exemptions of persons having small amounts of income. Furthermore, some of the income tax returns are filed as separate returns and others as joint returns; and, consequently, the income reporting unit is not consistently either a family or a person.

Office of Business Economics State income payments series.—The Office of Business Economics of the Department of Commerce plans to publish data on the aggregate income received by the population in Hawaii. If the aggregate income were estimated from the income distributions shown in this report, it would be smaller than that shown in the income payments series for several reasons. The Bureau of the Census data are obtained by household interview, whereas the income payments series is estimated largely on the basis of data derived from business and governmental sources. Moreover, the definitions of income are different. The data published by the Office of Business Economics will include some items not included in the income data shown in this report, such as income in kind and the income of inmates of institutions. On the other hand, the Bureau of the Census income data include contributions for support received from persons not residing in the same living quarters.

RELIABILITY OF SAMPLE DATA

SAMPLE DESIGN

Some of the data in the tables which follow are indicated by headnotes as being based on information asked of a representative 20-percent sample of the population. On the population schedules, a separate line was filled out for each person enumerated, with every fifth line designated as a sample line. Within each enumeration district, the schedules were divided approximately equally among five versions. On each version the sample constituted a different set of lines so that each line on the schedule was in the sample on one of the five versions. The persons falling on these sample lines were asked all the pertinent sample questions.

Since lines on the census schedules were sometimes left blank or contained enumerators' notes, this procedure did not automatically insure an exact 20-percent sample of persons. In addition, small biases arose when the enumerator failed to follow his instructions exactly. These biases are small and have relatively little effect on uses of the data. They were usually in the direction of a slight underrepresentation of adult males, with the result that the sample was very slightly under 20 percent. In the whole of Hawaii, the proportion of the total population included in the sample was 19.91 percent. The proportion of household heads in the sample was 19.76 percent, whereas the proportion of all other persons was 19.95 percent. Among males 25 years of age and over, 19.61 percent were enumerated in the sample; among females of comparable age, the proportion in the sample was 20.17 percent.

Estimates of the number of persons with specified characteristics based on sample data have in all cases been obtained by multiplying the number of persons in the sample containing these characteristics by five. Estimates of percentages have been obtained in each case by using the sample values for both the numerator and denominator.

SAMPLING VARIABILITY

The figures based on the 20-percent sample are subject to sampling variability which can be estimated from the standard errors shown in tables B and C. These tables do not reflect the effects of the biases mentioned above. Table B presents the approximate standard errors of 1950 sample estimates of selected sizes. Table C shows the approximate standard errors of 1950 percentages when computed by using sample data from this report for both numerator and denominator. Linear interpolation can be used for estimates not shown in the tables.

The standard error is a measure of sampling variability. The chances are about 2 out of 3 that the difference due to sampling variability between an estimate and the figure that would have been obtained from a complete count of the population is less than the standard error. The amount by which the standard error must be multiplied to obtain other odds deemed more appropriate can be found in most statistical textbooks. For example, the chances are about 19 out of 20 that the difference is less than twice the standard error, and 99 out of 100 that it is less than 2½ times the standard error.

Illustration: Table 39 shows that in the whole Territory there were an estimated 9,965 persons 7 years of age who were enrolled in school in April 1950 (96.9 percent of the 10,280 in this age group). From table B it is found that the standard error for an estimate of 9,965 in the Territory is about 200. Consequently, the chances are about 2 out of 3 that the figure which would have been obtained from a complete count of the number of persons 7 years old who are enrolled in school in the Territory differs by less than 200 from the sample estimate. It also follows that there is only about 1 chance in 100 that a complete census result would differ by as much as 500, that is, by about 2½ times the number given in the table. Table C indicates that the standard error of the 96.9 percent on a base of 10,280 is about 0.4 percent.

The standard errors shown in tables B and C are not directly applicable to differences between two sample estimates. These tables are to be applied differently in the three following types of differences:

1. The difference may be one between a sample figure and one based on a complete count, e. g., arising from comparisons between 1950 data and those for 1940 or earlier years. The standard error of a difference of this type is identical with the variability of the 1950 estimate.

2. The difference may be one between two sample estimates, one of which represents a subclass of the other. This case will usually occur when a residual of a distribution is needed. For example, an estimate of the number of persons 7 years of age not enrolled in school can be obtained by subtracting the estimate of the number enrolled as shown in table 39 from the sample estimate of the total number in that age group. Tables B and C can be used directly for a difference of this type, with the difference considered as a sample estimate.

3. The standard error of any other type of difference will be approximately the square root of the sum of the squares of the standard error of each estimate considered separately. This formula will represent the actual standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. If, however, there is a high positive correlation between the two characteristics, the formula will overestimate the true standard error.

Some of the tables present estimates of medians (e. g., median age, median years of school completed, etc.) as well as the corresponding distributions. *Tables B and C are not directly applicable* to medians computed from the sample data. The sampling variability of estimates of medians depends on the distribution upon which the medians are based.[2]

RATIO ESTIMATES

It is possible to make an improved estimate of an absolute number (improved in the sense that the standard error is smaller) whenever the class in question forms a part of a larger group for which both a sample estimate and a complete count are available. This alternative estimate is particularly useful when the characteristic being estimated is a substantial part of the larger group; when the proportion is small, the improvement will be relatively minor. The improved estimate (usually referred to as a "ratio estimate") may be obtained by multiplying a percentage based on

TABLE B.—STANDARD ERROR OF ESTIMATED NUMBER

[Range of 2 chances out of 3]

Estimated number	The Territory	Urban	Rural	Honolulu Standard Metropolitan Area	Honolulu city
50	10	10	10	10	10
100	20	20	20	20	20
250	30	30	30	30	30
500	50	50	50	50	50
1,000	70	70	70	70	70
2,500	100	100	100	100	100
5,000	150	140	140	150	140
10,000	200	200	200	200	200
15,000	250	250	240	250	250
25,000	320	320	300	320	310
50,000	440	430	390	430	420
75,000	530	510	420	510	480
100,000	590	560	420	560	520
125,000	640	600	370	600	530
150,000	680	620	260	620	530
175,000	710	630	----------	640	510
250,000	760	590	----------	610	270
300,000	750	500	----------	530	----------
350,000	730	310	----------	360	----------
500,000	400	----------	----------	----------	----------

[2] The standard error of a median based on sample data may be estimated as follows: If the estimated total number reporting the characteristics is N, compute the number $N/2-\sqrt{N}$. Cumulate the frequencies in the table until the class interval which contains this number is located. By linear interpolation, obtain the value below which $N/2-\sqrt{N}$ cases lie. In a similar manner, obtain the value below which $N/2-\sqrt{N}$ cases lie. If information on the characteristics had been obtained from the total population, the chances are about 2 out of 3 that the median would lie between these two values. The chances will be about 19 out of 20 that the median will be in the interval computed similarly but using $\frac{N}{2}\pm 2\sqrt{N}$ and about 99 in 100 that it will be in the interval obtained by using $\frac{N}{2}\pm 2.5\sqrt{N}$.

sample data by the figure which represents the complete count of the base of the percentage. The headnotes of several of the tables in this report indicate the corresponding tables which contain complete counts. These complete counts may be used to construct ratio estimates.

The effect of using ratio estimates of this type is, in general, to reduce the relative sampling variability from that shown for an estimate of a given size in table B to that shown for the corresponding percentage in table C. Estimates of these types are not being published by the Bureau of the Census because of the much higher cost necessary for their preparation than for the estimates derived by multiplying the same result by five.

TABLE C.—STANDARD ERROR OF ESTIMATED PERCENTAGE

[Range of 2 chances out of 3]

Estimated percentage	Base of percentage							
	500	1,000	2,500	5,000	10,000	25,000	100,000	500,000
2 or 98	1.3	0.9	0.6	0.4	0.3	0.2	0.1	------
5 or 95	2.0	1.4	0.9	0.6	0.5	0.3	0.1	0.1
10 or 90	2.8	2.0	1.2	0.9	0.6	0.4	0.2	0.1
25 or 75	4.0	2.8	1.8	1.3	0.9	0.6	0.3	0.1
50	4.0	3.3	2.1	1.5	1.0	0.7	0.3	0.1