

Nativity and Parentage

GENERAL

This report, based on the 1960 Census of Population, presents 25-percent sample data on the social and economic characteristics of the population by nativity, parentage, and country of origin. Data are shown separately for native persons of native parentage, native persons of foreign or mixed parentage, and foreign-born persons. This information includes statistics on age, sex, color, years of school completed, marital status, and occupation of the employed for the United States and regions. Age data are shown by country of origin and metropolitan status for the foreign born and native of foreign or mixed parentage, for the United States and regions. Age of the foreign stock by nativity and sex, and by color, is shown for the United States and States.

RELATED MATERIALS

1960 Census reports.--Statistics on nativity and parentage of the population and on the country of origin of the foreign stock are presented for States and their urban and rural parts, and for selected standard metropolitan statistical areas (SMSA's), urbanized areas, urban places of 10,000 or more, and counties in chapter C of 1960 Census of Population, Volume I, Characteristics of the Population. Similar statistics are presented for each census tract in tracted areas in 1960 Census of Population and Housing, Series PHC(1), Census Tracts. In chapter D of Volume I, statistics on nativity are shown by single years of age for States and by age groups for selected standard metropolitan statistical areas and cities, and statistics on the country of origin by nativity are shown for the State and for selected standard metropolitan statistical areas.

Several other reports in Series PC(2) and PC(3) contain additional information on nativity, parentage, and country of origin of the population. Subjects covered in these reports are mother tongue of the foreign born, nonwhite population by race, persons of Spanish surname, mobility, school enrollment, educa-

tional attainment, marital status, families, fertility, and occupational characteristics.

1950 Census reports.--Data on the characteristics of the white population by nativity, parentage, and country of origin, based on tabulations of the 1950 Census data, are presented in 1950 Census of Population, Volume IV, Special Reports, Part 3A, Nativity and Parentage. The characteristics for which statistics are presented in the 1950 report include age, sex, marital status, years of school completed, employment status, occupation, and income. In addition, data on the foreign-born white and their countries of birth appear in Volume II, Characteristics of the Population, for States, counties, standard metropolitan areas, urbanized areas, places of 10,000 or more, and selected smaller places. Similar data were presented for census tracts in Volume III, Census Tract Statistics. Statistics on the country of birth and other characteristics of the foreign-born nonwhite appear in the 1950 special report Nonwhite Population by Race. Additional information on nativity and country of origin of the white population appear in the special reports of Volume IV, Education and Employment and Personal Characteristics.

AVAILABILITY OF UNPUBLISHED DATA

Photocopies of unpublished tabulations containing data on the foreign stock by country of origin, similar to table 40 of the State reports of Volume I, 1960 Census of Population, are available at cost for areas outside tracted areas as follows: Wards in cities of 25,000 or more, urban places, and remainder of minor civil divisions.

Data shown in this report for the United States and regions are also available for States and four cities--Chicago, Los Angeles, New York, and Philadelphia. Photocopies of these unpublished tabulations may be obtained at cost. Request for unpublished data, giving a specific description of the figures desired, may be made in writing to the Chief, Population Division, Bureau of the Census, Washington, D.C., 20233.

DEFINITIONS AND EXPLANATIONS

Some of the definitions used in 1960 differ from those used in 1950. 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 affected. The definitions and explanations should be interpreted in the context of the 1960 Censuses, in which data were collected by

a combination of self-enumeration, direct interview, and observation by the enumerator.

The definitions below are consistent with the instructions given to the enumerator. As in all surveys, there were some failures to execute the instructions exactly. Through the forms distributed to households, the respondents were given explanations of some of the

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questions more uniformly than would have been given in direct interviews. Nevertheless, it was not feasible to give the full instructions to the respondents, and some erroneous replies have undoubtedly gone undetected.

More complete discussions of the definitions of population items are given in 1960 Census of Population, Volume I, Characteristics of the Population, Part 1, United States Summary, and in each of the State parts.

NATIVITY, PARENTAGE, AND COUNTRY OF ORIGIN

This report presents data on the nativity and parentage of the total population and the country of origin of the foreign stock. These data were derived from answers to the questions on the Household Questionnaire shown in the next column.

Nativity

The information on place of birth is used to classify the population into two major groups: Native and foreign born.

Native.--This category comprises persons born in the United States, the Commonwealth of Puerto Rico, or a possession of the United States. Also included in this category is the small number of persons who, although they were born in a foreign country or at sea, have at least one native American parent. Persons whose place of birth was not reported are assumed to be native unless their census report contains contradictory information, such as an entry of a language spoken prior to coming to the United States.

P8. Where was this person born?
(If born in hospital, give residence of mother, not location of hospital)

If born in the United States, write name of State.
 If born outside the United States, write name of country, U.S. possession, etc. Use international boundaries as now recognized by the U.S. Distinguish Northern Ireland from Ireland (Eire).

.....
 (State, foreign country, U.S. possession, etc.)

P10. What country was his father born in?

United States OR

(Name of foreign country, or Puerto Rico, Guam, etc.)

P11. What country was his mother born in?

United States OR

(Name of foreign country, or Puerto Rico, Guam, etc.)

The native population is further classified on the basis of the country of origin of parents into the two groups, native of native parentage and native of foreign or mixed parentage, described below.

Information on place of birth of the native population is published in the 1960 report PC(2)-2A, State of Birth.

Foreign born.--This category comprises all persons not classified as native. Therefore, this group includes persons who reported a foreign country as

Table A.—CHARACTERISTICS OF THE POPULATION, BY NATIVITY: 1960

Subject	Native						Foreign born	
	Native parentage				Foreign or mixed parentage			
	Total		White		Male	Female	Male	Female
	Male	Female	Male	Female				
Total, all ages.....	71,707,086	73,568,147	62,271,351	63,487,912	11,835,630	12,476,657	4,760,464	4,977,691
Median age.....	23.5	25.1	23.7	25.3	42.2	43.2	57.7	56.6
14 years old and over.....	46,266,627	48,996,641	40,410,877	42,482,370	10,520,534	11,213,020	4,528,201	4,751,528
Median years of school completed.....	10.6	11.1	10.9	11.5	10.9	11.1	8.4	8.5
Percent employed.....	69.9	32.7	70.9	31.9	78.4	34.4	63.4	27.0
MARITAL STATUS								
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single.....	27.5	20.7	27.1	20.5	18.3	15.3	14.3	9.6
Married.....	67.4	65.7	68.1	66.5	76.4	69.3	74.8	62.4
Widowed.....	2.8	10.7	2.6	10.2	3.3	12.7	9.0	25.8
Divorced.....	2.2	3.0	2.1	2.9	2.0	2.6	1.9	2.2
OCCUPATION GROUP								
Employed, total.....	32,346,602	16,033,043	28,652,001	13,564,292	8,250,438	3,854,796	2,869,915	1,284,462
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White-collar workers.....	33.2	53.4	36.1	60.0	41.4	61.7	33.2	41.9
Blue-collar workers.....	52.3	38.3	50.2	32.3	50.9	34.1	58.2	53.0
Farm workers.....	9.1	1.8	8.8	1.5	5.7	1.3	6.2	1.3
Occupation not reported.....	5.4	6.5	5.0	6.1	2.0	2.9	2.4	3.8

their place of birth (with the exception stated above) and those persons with place of birth not reported who answered the question on language spoken prior to coming to the United States.

Parentage

Native of native parentage.--This category comprises native persons both of whose parents are also natives of the United States. Data for this group are shown for the total and white population.

Native of foreign or mixed parentage.--This group consists of native persons, one or both of whose parents are foreign born. The rules for determining the nativity of parents are substantially the same as those for determining the nativity of the persons enumerated. A limited amount of data is presented separately for the three groups comprising this category; namely, native of foreign parentage (that is, native with both father and mother foreign born), native of mixed parentage--father (but not mother) foreign born, and native of mixed parentage--mother (but not father) foreign born.

Foreign Stock

The foreign-born population is combined with the native population of foreign or mixed parentage in a single category termed the "foreign stock." This category comprises all first and second generation Americans. Third and subsequent generations are described as "native of native parentage." Age data for the total foreign stock are presented in this report in table 14; all other data for the foreign stock are classified by nativity.

Country of Origin

In this report, persons of foreign stock are classified according to their country of origin, with separate distributions shown for the country of birth of the foreign born and the parents' country of birth for the native of foreign or mixed parentage. Native persons of foreign parentage whose parents were born in different countries are classified according to the country of birth of the father.

The question on place of birth and parents' birth-place specified that country of birth be reported according to international boundaries as recognized by the United States at the time of the census. (See excerpt from questionnaire above.) Because of the many changes in boundaries that have occurred over the past hundred years in the areas from which the major segment of the foreign stock have emigrated, it is reasonable to expect that these instructions may not have been followed in all instances. Some misreporting of place of birth by persons ignorant of boundary changes, as well as by persons of illegal immigration status, most likely exists. Although no specific evidence can be cited for 1960, on the basis of data from the Post Enumeration Survey for 1950, it was estimated that the same country of birth was obtained in the census and the survey for approximately 90 percent of the foreign-born persons properly included in the 1950 Census.

Table B.--MEDIAN AGE OF THE FOREIGN BORN, FOR THE UNITED STATES, 1960, AND OF THE FOREIGN-BORN WHITE, FOR CONTERMINOUS UNITED STATES, 1950 AND 1940, BY SELECTED COUNTRY OF ORIGIN

Country of birth	Total foreign born, 1960		Foreign-born white	
	Median age	Percent white	1950	1940 ¹
Total.....	257.2	95.4	56.1	50.9
United Kingdom.....	56.8	99.7	³ 56.9	53.9
Ireland.....	59.3	99.9	58.3	54.7
Norway.....	64.8	100.0	61.8	56.3
Sweden.....	67.5	99.9	63.6	58.0
Germany.....	52.8	99.7	57.3	56.6
Austria.....	63.5	99.9	58.4	51.1
Poland.....	62.2	99.9	57.5	49.9
Czechoslovakia.....	62.6	99.9	58.5	52.2
Hungary.....	60.4	99.9	(⁴)	50.9
Yugoslavia.....	58.7	99.9	(⁴)	50.0
Lithuania.....	65.6	99.9	(⁴)	51.8
Finland.....	66.5	99.9	(⁴)	53.2
U.S.S.R.....	62.9	99.8	⁵ 57.5	49.4
Italy.....	60.8	99.9	56.5	48.8
Canada.....	50.4	98.9	49.6	69.5
Mexico.....	42.8	99.4	44.0	40.3

¹ Based on 5-percent sample.

² Median age of the foreign-born white was 57.6; not available by country of origin.

³ England and Wales.

⁴ Not available.

⁵ Excludes persons reported as of Ukrainian origin.

Comparability of the Data

In this century, nativity and parentage data have been available for the total population from the 1900 and 1960 Censuses only; for intervening censuses, tabulations were made for only the white population. In order to permit historical comparisons, a number of tables in this report are shown for both the total and the white population.

Historically most of the immigrants to the United States were from European countries, and, therefore, only a small proportion of the immigrants were nonwhite. With the decline in immigration this situation has been changing, as is reflected in the increasing proportion of nonwhites in the foreign-born population (table C).

Table C.--FOREIGN-BORN POPULATION, TOTAL AND NONWHITE, FOR CONTERMINOUS UNITED STATES: 1900 TO 1960

Census year	Total	Nonwhite	
		Number	Percent
1960.....	9,661,028	381,709	4.0
1950.....	10,347,395	251,980	2.4
1940.....	11,594,896	175,758	1.5
1930.....	14,204,149	220,744	1.6
1920.....	13,920,692	207,938	1.5
1910.....	13,515,886	170,341	1.3
1900.....	10,341,276	127,459	1.2

Besides the inclusion of the foreign nonwhite stock, there are other inconsistencies between 1960 and earlier censuses. The general method of processing the returns for country of origin was the same for the 1950 and 1960 Censuses; however, a slight variation

was introduced in the handling of entries of Austria-Hungary. In 1950, the technique of assigning a specific country for entries of Austria-Hungary depended on the surname. In 1960, a question on mother tongue was asked of all foreign-born persons and the allocation to a specific country was made on the basis of the language reported. For example, persons reporting Rumanian were classified as born in Rumania. For blanks on mother tongue, a system was devised to allocate the entries of Austria-Hungary in the coding operation on the basis of the distribution of nationalities of migrants from the Austro-Hungarian Empire as reported in the 1920 Census report, Volume II, Population. It appears that, as a result of these revisions in the coding procedures, the apparent understatement in the number of persons of Yugoslavian origin, which was evident in the data for 1950, does not exist in the published 1960 statistics. The change in the method of processing entries of Austria-Hungary combined with the improvements resulting from self-enumeration may have been responsible for the better coverage. (For additional information on these data see the text in Volume I, Characteristics of the Population, Part 1, United States Summary, page XLV.)

The distinction between Canada-French and Canada-Other was not maintained in the collection and publication of 1960 data on country of origin. Data for 1960 for persons of Canadian origin are comparable with the sum of the categories Canada-Other and Canada-French from earlier censuses.

Prior to 1950, questions on citizenship and mother tongue were used, when feasible, to assign entries on nativity and country of origin where these entries were omitted or uncodable. In the 1950 Census the question on mother tongue was excluded; in 1960, this question was asked of the foreign born, but citizenship was not asked. Data for 1960 on mother tongue are to be presented in the forthcoming report PC(2)-1E, Mother Tongue.

Quality of Data

The classification by country of origin appears to be consistent with the expected values based on an examination of past censuses. In countries where the same boundaries have been maintained over a long period of time, the classification by country of origin appears to be reasonable.

The data seem to indicate that a completely accurate count of the foreign stock from areas in which there had been considerable boundary changes after World War I may not have been achieved. An example of such a problem is found in the reporting of Austria-Hungary as place of birth. A discussion of the technique designed to handle such entries is given above in the section on "Comparability of the data."

Changes from 1940 to 1950 and from 1950 to 1960 in the foreign stock from Ireland (Eire), Northern Ireland, and, consequently, the United Kingdom seem to reflect errors in reporting rather than actual changes in the numbers in each category. Because of the omission from the schedule of any instruction to distinguish Northern Ireland and Ireland (Eire) in 1950, the number of persons of foreign stock from Northern

Ireland was apparently underreported to a considerable degree in that census and that from Ireland, correspondingly overreported. The reinstated special caution relating to this point on the 1960 questionnaire resulted in a very different and probably more correct distribution between the two countries. The foreign born from Northern Ireland increased by 340 percent and those from Ireland decreased by 33 percent between 1950 and 1960. Similar changes occurred for native persons of Irish parentage. The decline in the foreign stock from the United Kingdom between 1950 and 1960 undoubtedly would have been greater had it not been affected by the spurious increase in the figure for Northern Ireland.

MEDIAN

The median is presented in connection with the data on age and years of school completed. It is the value which divides the distribution into two equal parts, one-half the cases falling below this value and one-half the cases exceeding this value. Median age for 1960 was computed on the basis of the 10-year age groups shown in this report; for earlier years, medians are based on 5-year age groups published in previous reports.

UNITED STATES AND CONTERMINOUS UNITED STATES

For 1960, the term "United States" when used without qualifications refers to the 50 States and the District of Columbia. In some tables, to preserve historical comparability, 1960 totals are shown for the 48 States and the District of Columbia, excluding Alaska and Hawaii. This area is designated "conterminous United States." For earlier censuses, this term refers to the expanding area of the United States (regardless of status as a State or territory) within the area of the 48 States and the District of Columbia.

REGIONS AND GEOGRAPHIC DIVISIONS

For 1960, the West and the Pacific Division include Alaska and Hawaii. These two States are not included in the areas designated as "conterminous West" and "conterminous Pacific."

METROPOLITAN-NONMETROPOLITAN RESIDENCE

Metropolitan-nonmetropolitan residence refers to residence inside or outside standard metropolitan statistical areas (SMSA's). Except in New England, an SMSA is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. In addition to the county, or counties, containing such a city or cities, contiguous counties are included in an SMSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, SMSA's consist of towns and cities, rather than counties.

AGE

The age classification is based on the age of the person in completed years as of April 1, 1960, as determined from the reply to a question on month and year of birth.

Table D.—MEDIAN AGE OF THE WHITE POPULATION, BY NATIVITY AND PARENTAGE, FOR CONTERMINOUS UNITED STATES: 1900 TO 1960

Census year	Total	Native		Foreign born
		Total	Native of foreign or mixed parentage	
1960.....	30.1	28.3	43.0	57.7
1950.....	30.6	28.6	36.8	56.1
1940.....	29.5	26.9	29.4	51.0
1930.....	26.9	23.7	24.7	43.9
1920.....	25.6	22.4	21.6	40.0
1910.....	24.4	21.4	20.0	37.2
1900.....	23.4	20.2	18.2	38.5

COLOR

The term "color" refers to the division of population into two groups, white and nonwhite. The color group designated as "nonwhite" consists of such races as the Negro, American Indian, Japanese, Chinese, Filipino, Korean, Asian, Indian, and Malayan races. Persons of Mexican birth or ancestry who are not definitely of Indian or other nonwhite race are classified as white.

YEARS OF SCHOOL COMPLETED

The data on years of school completed were derived from the answers to the two questions: (a) "What is the highest grade (or year) of regular school he has ever attended?" and (b) "Did he finish this grade (or year)?" Enumerators were instructed to obtain the approximate equivalent grade in the American school system for persons whose highest grade of attendance was in a foreign school system, whose highest level of attendance was in an ungraded school, whose highest level of schooling was measured by "readers," or whose training by a tutor was regarded as qualifying under the "regular" school definition. Persons were to answer "No" to the second question if they were attending school, had completed only part of a grade before they dropped out, or failed to pass the last grade attended.

The number in each category of highest grade of school completed represents the combination of (a) persons who reported that they had attended the indicated grade and finished it, and (b) those who had attended the next higher grade but had not finished it.

The questions on educational attainment applied only to progress in "regular" schools. Regular schooling is that which may advance a person toward an elementary school certificate or high school diploma, or a college, university, or professional degree. Schooling that was not obtained in a regular school and schooling from a tutor or through correspondence

courses were counted only if the credits obtained were regarded as transferable to a school in the regular school system. Schooling which is generally regarded as not regular includes that which is given in nursery schools; in specialized vocational, trade, or business schools; in on-the-job training; and through correspondence courses.

Elementary school, as defined here, includes grades 1 to 8, and high school includes grades 9 to 12. College includes junior or community colleges, regular 4-year colleges, and graduate or professional schools. The category "less than 5 years" includes persons reporting "none" for years of school completed.

MARITAL STATUS

This classification refers to the marital status of the person 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. Moreover, persons shown as married include those who are either legally separated or otherwise absent from their spouse because of marital discord. The enumerators were instructed to report persons in common-law marriages as married and persons whose only marriage had been annulled as single.

The number of married men may be different from the number of married women for an area because of the absence of husbands or wives from the country, because the husband and wife have different places of residence, because of the methods used to inflate the sample data, or for other reasons.

EMPLOYMENT STATUS

The data on employment status relate to the calendar week prior to the date on which the respondents filled their Household Questionnaires or were interviewed by enumerators. This week is not the same for all respondents because not all persons were enumerated during the same week.

Employed persons comprise all civilians 14 years old and over who 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) were "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 bad weather, industrial dispute, vacation, illness, or other personal reasons.

OCCUPATION

The data on occupation in this report are for employed persons and refer to the job held during the week for which employment status was reported. For persons employed at two or more jobs, the data refer to the job at which the person worked the greatest number of hours. The occupation statistics presented here are based on the detailed systems developed for the 1960 Census; see 1960 Census of Population, Classi-

fied Index of Occupations and Industries, U.S. Government Printing Office, Washington, D.C., 1960.

White-collar workers include the following major occupation groups: Professional, technical, and kindred workers; managers, officials, and proprietors, except farm; clerical and kindred workers; and sales workers.

Blue-collar workers include: Craftsmen, foremen, and kindred workers; operatives and kindred workers; service workers, including private household; and non-farm laborers.

Farm workers include: Farmers and farm managers; farm laborers and farm foremen.

COLLECTION AND PROCESSING OF DATA

COLLECTION OF DATA

Several enumeration forms were used to collect the information for the 1960 Census of Population. A few days before the census date, the Post Office Department delivered an Advance Census Report (ACR) to households on postal delivery routes. This form contained questions which were to be answered for every person and every housing unit. Household members were requested to fill the ACR and have it ready for the enumerator. The census enumerator recorded this information on a form specially designed for electronic data processing by FOSDIC (Film Optical Sensing Device for Input to Computer). The information was either transcribed from the ACR to the complete-count FOSDIC schedule or entered on this schedule during direct interview.

In the densely populated areas, the enumerator left a Household Questionnaire to be completed by each household (or person) in the sample and mailed to the local census office. The population and housing information was transcribed from the Household Questionnaire to a sample FOSDIC schedule. When the Household Questionnaire was not returned or was returned without having been completed, the enumerator collected the missing information by personal visit or by telephone and entered it directly on the sample FOSDIC schedule. In the remaining areas, when the enumerator picked up the ACR, he obtained all the information by direct interview and recorded it directly on the sample FOSDIC schedule.

Soon after the enumerator started work, his schedules were examined in a formal field review. This operation was designed to assure at an early stage of the work that the enumerator was performing his duties properly and had corrected any errors he had made.

More detailed descriptions of the 1960 Census procedures in the collection and processing of the data are given in reports entitled United States Censuses of Population and Housing, 1960: Principal Data Collection Forms and Procedures, 1961; and Processing the Data, 1962.

MANUAL EDITING AND CODING

After the FOSDIC forms had been checked for completeness in the field, they were sent to a central processing office for manual editing and coding and for microfilming. Except where some special problems arose, there was no manual coding of the FOSDIC forms for complete-count data. On the sample forms, the manual operation was limited to those items where coding required the reading of written entries and therefore could not be done effectively by machine. The

coding clerks converted the written entries to codes by marking the appropriate circles on the FOSDIC schedules and at the same time were able to correct obviously wrong entries and sometimes supply missing information.

ELECTRONIC PROCESSING

After the enumerators and coders recorded the information by marking the appropriate circles, the schedules were microfilmed. The information on the microfilm was then read by FOSDIC, which converted the markings to signals on magnetic tape. The tape, in turn, was processed in an electronic computer, which was used extensively to edit and tabulate the data and to produce the publication tables.

EDITING

For a majority of items, nonresponses and inconsistencies were eliminated by using the computer to assign entries and correct inconsistencies. In general, few assignments or corrections were required, although the amount varied by subject and by enumerator.

The assignment of an acceptable entry by machine was based on related information reported for the person or on information reported for a similar person in the immediate neighborhood. For example, in the assignment of age in the complete-count tabulations, the computer stored reported ages of persons by sex, color or race, household relationship, and marital status; each stored age was retained in the computer only until a succeeding person having the same characteristics and having age reported was processed through the computer; this stored age was assigned to the next person whose age was unknown and who otherwise had the same characteristics. This procedure insured that the distribution of ages assigned by the computer for persons of a given set of characteristics would correspond closely to the reported age distribution of such persons as obtained in the current census.

The extent of the allocations for nonresponse or for inconsistency is shown for the United States and for States, places of 10,000 inhabitants or more, and other areas in appendix tables in chapters B, C, and D of 1960 Census of Population, Volume I, Characteristics of the Population.

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

ACCURACY OF THE DATA

Human and mechanical errors occur in any mass statistical operation such as a decennial census. Such errors include failure to obtain required information from respondents, obtaining inconsistent information, recording information in the wrong place or incorrectly, or otherwise producing inconsistencies between entries on interrelated items on the field documents. Sampling biases occur because some of the enumerators fail to follow the sampling instructions. Clerical coding and editing errors occur, as well as errors in the electronic processing operation.

Careful efforts are made in every census to keep the errors in each step at an acceptably low level. Review of the enumerator's work, verification of manual coding and editing, checking of tabulated figures, and ratio estimation of sample data to control totals from the complete count reduce the effects of the errors in the census data.

Very minor differences between tables in this report or between corresponding data in this report and

chapters C and D of the Volume I report, Characteristics of the Population, result from imperfections in the electronic equipment. No attempt has been made to reconcile these minor discrepancies.

Some innovations in the 1960 Censuses reduced errors in processing and others produced a more consistent quality of editing. The elimination of the card-punching operation removed one important source of error. The extensive use of electronic equipment insured a more uniform and more flexible edit than could have been accomplished manually or by less intricate mechanical equipment. It is believed that the use of electronic equipment in the 1960 Censuses has improved the quality of the editing compared with that of earlier censuses but, at the same time, it has introduced an element of difference in the statistics.

A group of reports designated "Evaluation and Research Program" will deal with the methods, results, and interpretation of a group of evaluation and research studies of the 1960 Census of Population and Housing. A report entitled The Post-Enumeration Survey: 1950, Technical Paper No. 4, presents evaluative material on the 1950 Census.

SAMPLE DESIGN AND SAMPLING VARIABILITY

SAMPLE DESIGN

For persons in housing units at the time of the 1960 Census, the sampling unit was the housing unit and all its occupants; for persons in group quarters, it was the person. On the first visit to an address, the enumerator assigned a sample key letter (A, B, C, or D) to each housing unit sequentially in the order in which he first visited the units, whether or not he completed an interview. Each enumerator was given a random key letter to start his assignment, and the order of canvassing was indicated in advance, although these instructions allowed some latitude in the order of visiting addresses. Each housing unit which was assigned the key letter "A" was designated as a sample unit and all persons enumerated in the unit were included in the sample. In every group quarters, the sample consisted of every fourth person in the order listed.

Although the sampling procedure did not automatically insure an exact 25-percent sample of persons or housing units in each locality, the sample design was unbiased if carried through according to instructions; and, generally, for large areas the deviation from 25 percent was found to be quite small. Biases may have arisen, however, when the enumerator failed to follow his listing and sampling instructions exactly.

RATIO ESTIMATION

The statistics based on the sample of the 1960 Census returns are estimates that have been developed through the use of a ratio estimation procedure. This procedure was carried out for each of 44 groups of persons in each of the smallest areas for which sample data are published.¹ (For a more complete discussion of the ratio estimation procedure, see 1960 Census of

Population, Volume I, Characteristics of the Population, Part 1, United States Summary.)

These ratio estimates reduce the component of sampling error arising from the variation in the size of household and achieve some of the gains of stratification in the selection of the sample, with the strata being the groups for which separate ratio estimates are computed. The net effect is a reduction in the sampling error and bias of most statistics below what would be obtained by weighting the results of the 25-percent sample by a uniform factor of four. The reduction in sampling error is trivial for some items and substantial for others. A by-product of this estimation procedure, in general, is that estimates for this sample are consistent with the complete count with respect to the total population and for the subdivisions used as groups in the estimation procedure.

SAMPLING VARIABILITY

The figures from the 25-percent sample tabulations are subject to sampling variability, which can be estimated roughly from the standard errors shown in tables E and F. Somewhat more precise estimates of

¹ Estimates of characteristics from the sample for a given area are produced using the formula:

$$x' = \sum_{i=1}^{44} \frac{x_i}{y_i} Y_i$$

where x' is the estimate of the characteristic for the area obtained through the use of the ratio estimation procedure, x_i is the count of sample persons with the characteristic for the area in one (1) of the 44 groups, y_i is the count of all sample persons for the area in the same one of the 44 groups, and Y_i is the count of persons in the complete count for the area in the same one of the 44 groups.

sampling error may be obtained by using the factors shown in table G in conjunction with table F for percentages and table E for absolute numbers. These tables² do not reflect the effect of response variance, processing variance, or bias arising in the collection, processing, and estimation steps. Estimates of the magnitude of some of these factors in the total error are being evaluated and will be published at a later date. The chances are about 2 out of 3 that the difference due to sampling variability between an estimate and the figure that would have been obtained from a complete count of the population is less than the standard error. The chances are about 19 out of 20 that the difference is less than twice the standard error and about 99 out of 100 that it is less than 2½ times the standard error. The amount by which the estimated standard error must be multiplied to obtain other odds deemed more appropriate can be found in most statistical text books.

Table E.—ROUGH APPROXIMATION TO STANDARD ERROR OF ESTIMATED NUMBER
(Range of 2 chances out of 3)

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

Table F.—ROUGH APPROXIMATION TO STANDARD ERROR OF ESTIMATED PERCENTAGE
(Range of 2 chances out of 3)

Estimated percentage	Base of percentage					
	500	1,000	2,500	10,000	25,000	100,000
2 or 98.....	1.3	0.9	0.5	0.3	0.1	0.1
5 or 95.....	2.0	1.4	0.9	0.4	0.2	0.1
10 or 90.....	2.8	2.0	1.2	0.6	0.3	0.2
25 or 75.....	3.8	2.7	1.5	0.7	0.4	0.2
50.....	4.4	3.1	1.6	0.8	0.5	0.3

Table E shows rough approximations to standard errors of estimated numbers up to 50,000. The relative sampling errors of larger estimated numbers are somewhat smaller than for 50,000. For estimated numbers above 50,000, however, the nonsampling errors, e.g., response errors and processing errors, may have an increasingly important effect on the total error.

² These estimates of sampling variability are based on partial information on variances calculated from a sample of the 1960 Census results. Further estimates are being calculated and will be made available at a later date.

Table F shows rough standard errors of data in the form of percentages. Linear interpolation in tables E and F will provide approximate results that are satisfactory for most purposes.

For a discussion of the sampling variability of medians and means and of the method for obtaining standard errors of differences between two estimates, see 1960 Census of Population, Volume I, Characteristics of the Population, Part 1, United States Summary. For a discussion of the sampling variability of characteristics from the 1950 Census, see 1950 Census of Population, Volume IV, Special Reports, Part 3A, Nativity and Parentage.

Table G provides a factor by which the standard errors shown in table E or F should be multiplied to adjust for the combined effect of the sample design and the estimation procedure. To estimate a somewhat more precise standard error for a given characteristic, locate in table G the factor applying to the characteristic. Where data are shown as cross-classifications of two characteristics, locate each characteristic in table G. The factor to be used for any cross-classification will usually lie between the values of the factors. When a given characteristic is cross-classified in extensive detail (e.g., by single years of age), the factor to be used is the smaller one shown in table G. Where a characteristic is cross-classified in broad groups (or used in broad groups), the factor to be used in table G should be closer to the larger one. Multiply the standard error given for the size of the estimate as shown in table E by this factor from table G. The result of this multiplication is the approximate standard error. Similarly, to obtain a somewhat more precise estimate of the standard error of a percentage, multiply the standard error as shown in table F by the factor from table G.

Illustration: Table 9 shows that in 1960 there were an estimated 36,242 Austrian-born males 55 to 64 years of age in the United States. Table G shows that, for data on country of origin, the appropriate standard error in table E should be multiplied by a factor of 1.4. Table E shows that a rough approximation to the standard error for an estimate of 36,242 is 295. The factor of 1.4 times 295 is 413, which means that the chances are approximately 2 out of 3 that the results of a complete census would not differ by more than 413 from this estimated 36,242. It also follows that there is only about 1 chance in 100 that a complete census result would differ by as much as 1,033, that is, by about 2½ times the number estimated from tables E and G.

Table G.—FACTOR TO BE APPLIED TO STANDARD ERRORS

Characteristic	Factor
Nativity, parentage, country of origin.....	1.4
All other characteristics.....	1.0