

Standard Metropolitan Statistical Areas

GENERAL

This report presents supplementary consolidations and classifications of statistics for standard metropolitan statistical areas (SMSA's) and their central cities and outlying parts. These data are based on the detailed statistics published in the 1960 State reports, Volume I, Characteristics of the Population, and on the SMSA totals in Series PHC(1), Census Tracts. Depending on the original publication source, the 1960 statistics are based on the complete count or the 25-percent sample of the population enumerated in the Eighteenth Decennial Census, taken as of April 1, 1960. (See "Sources of 1960 data," page XV.) In addition, summary historical figures by race and color in the areas were secured from the reports of the censuses for the years from 1900 through 1950. In these comparative figures from earlier censuses, the total area of the SMSA is that defined in the 1960 Census, but the area of the central city or cities is in terms of boundaries at the respective dates.

The consolidations and other processing of the data are designed to show the growth and distribution of metropolitan population from 1900 to 1960 and the basic demographic, social, and economic characteristics of this population in 1960. The population and its characteristics are given for SMSA's, central cities, and the areas outside such cities, in most instances separately for the total, white, and Negro or nonwhite groups.

The tables of the present report represent a selection from special tabulations made for one of the 1960 Census monographs. An analysis of the formation, composition, and internal differentiation of the metropolitan population is a component in a forthcoming monograph on the population of the United States in the twentieth century, by Irene B. Taeuber, Senior Research Demographer, Office of Population Research, Princeton University, and Conrad Taeuber, Assistant Director for Demographic Fields, Bureau of the Census.

This monograph is one in the series sponsored by the Social Science Research Council and the U.S. Bureau of the Census.

RELATED REPORTS

Additional statistics for SMSA's may be found in a number of other 1960 Census reports. In Volume I, Characteristics of the Population, Parts 1 to 57, data on the number of inhabitants of each SMSA are presented in chapter A, general characteristics of the population in chapter B, and social and economic characteristics in chapters C and D. Since most tracted areas are SMSA's, the Census Tract Reports, Series PHC(1), provide further information for SMSA's, including summary figures for the total SMSA and for its component parts. Many of the subject reports in Series PC(2) include statistics for SMSA's. The report PC(3)-1A, State Economic Areas, showing social and economic characteristics of the population of State economic areas, contains data for the larger SMSA's, which constitute metropolitan SEA's. In report PC(3)-1B, Size of Place, statistics are shown for the population in SMSA's by size of area, but no figures are given for individual areas.

AVAILABILITY OF UNPUBLISHED DATA

Statistics shown in tables 2 to 8 for SMSA's of 1,000,000 or more are available also for other individual SMSA's. Statistics for groupings of SMSA's in terms of size in 1960 and in terms of the census when 100,000 was first reached--shown here for conterminous United States only--are also available for each of the three regions. Requests for unpublished data, giving a specific description of the figures desired, may be made by writing to the Chief, Population Division, Bureau of the Census, Washington 25, D.C.

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 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.

STANDARD METROPOLITAN STATISTICAL AREAS

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

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

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

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

1. Each SMSA must include at least:

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

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

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

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

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

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

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

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

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

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

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

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

- a. 15 percent of the workers living in the county work in the county or counties containing central cities of the area, or
- b. 25 percent of those working in the county live in the county or counties containing central cities of the area.

Only where data for criteria 6a and 6b are not conclusive are other related types of information used as necessary. This information includes such items as the average number of telephone calls per subscriber per month from the county to the county containing central cities of the area; percent of the population in the county located in the central city telephone exchange area; newspaper circulation reports prepared

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

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

by the Audit Bureau of Circulation; analysis of charge accounts in retail stores of central cities to determine the extent of their use by residents of the contiguous county; delivery service practices of retail stores in central cities; official traffic counts; the extent of public transportation facilities in operation between central cities and communities in the contiguous county; and the extent to which local planning groups and other civic organizations operate jointly.

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

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

a. The name of the SMSA includes that of the largest city.

b. The addition of up to two city names may be made in the area title, on the basis and in the order of the following criteria:

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

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

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

Basis of the present compilations.--The delineation of SMSA's in terms of counties or other administratively defined areas facilitates tracing the population of the areas as defined in 1960 back through the censuses to the beginning of the century. (No determination has been made of the actual metropolitan character or integration of particular counties at earlier dates, however.) The population of central cities cannot be traced for constant areas, since the data pertain to areas as incorporated at the time of enumeration. Hence, the historical data on the population of SMSA's pertain to constant areas for the total SMSA and to changing incorporated areas for the central city. An SMSA is not included until the census at which the population of its central city attained 2,500. Very few areas were affected by this restriction, however.

Combinations of data for individual SMSA's can be made in many ways, depending on the focus of the interest in the formation, growth, composition, and differentiation of the metropolitan population. The premises of the census monograph for which the variables were selected and the combinations made were that the twentieth century was a period of extraordinary demographic transformation, and that in most instances this transformation accelerated in the 20 years from 1940 to 1960. The aspects of special importance in the analysis of the transformation that were amenable to evaluation for the population of SMSA's are listed here:

1. The urbanizing population and the extension of the concept of urbanization, with increasing proportions of the people born and reared in urbanized or metropolitan areas or areas related thereto.

2. The replacement of the immigrants of earlier periods with the children of immigrants, and the replacement of the children of immigrants with the grandchildren of immigrants. In terms of Census Bureau classifications, the population is increasingly native of native parentage.

3. The shifting residential and occupational characteristics with changing patterns of inter-relationships in type of residence, region, and economic activity.

4. Geographic, occupational, and educational mobility in relation to economic activities, educational levels, and life cycles. The scientific and technological developments are manifest in the occupational and industrial composition of the labor force and the advancing levels of education required for full participation in economy and society.

5. The changing roles of women, the alterations in traditional activities in and outside the home, the shifting patterns of participation in the labor force, and the changing place of the bearing and rearing of children in the life cycles of women and families.

6. Age at marriage, proportions married, and fertility in metropolitan, educated, skilled, and high-income population.

The emphasis is placed on change, with the continuing heritage of past to present and present to future. This involves the consideration of altered regional, residential, ethnic, economic, and social differentiations, with an assessment of the type and extent of the convergences, persistent differences, and new diversities. Hence, the data for individual SMSA's were processed in some or all of six different types of groupings: Region, size in 1960, census when population first reached 100,000, subregion, selected water location, and combination of SMSA's.

U.S. and regions.--The Census of 1960 was the first to include Alaska and Hawaii as States. Series on the population classified by race or color cannot be compiled for the two new States throughout the century, nor can characteristics similar to those available for the other States be derived for all earlier censuses. There is no SMSA in Alaska, but Hawaii includes the Honolulu SMSA. Hence, summary tabulations for the United States and the West are presented for the total and the conterminous areas. The combinations of SMSA's pertain to conterminous United States. The Northeast and the North Central Regions are combined in this report so that three regions, the North, South, and West, are shown, instead of the usual four. Standard metropolitan statistical areas that were located partially in one region, partially in another, were allocated to the region that included the largest central city. The allocation to regions is shown in List 1, page XVI.

Size of SMSA population in 1960.--Each SMSA was allocated to one of six categories on the basis of the size of its total population: 3,000,000 and over; 1,000,000 to 3,000,000; 500,000 to 1,000,000; 250,000

to 500,000; 100,000 to 250,000; and less than 100,000. Tabulations for the United States and the West are again presented for the total and the conterminous areas.

Census when SMSA population first reached 100,000.--Since the age of a metropolitan concentration and its duration as a place of substantial size may be related to growth, migration, mobility, fertility, social and economic characteristics, ethnic composition, and internal differentiation, some indicator was necessary. The one selected was the year of the census at which the total population of the SMSA first reached 100,000. Four categories were used: 1900 or earlier, 1910 or 1920, 1930 or 1940, and 1950 or 1960. The SMSA's in each category are given in List 3, page XIX. A consolidation for SMSA's whose 1960 population was less than 100,000 was presented along with the other groupings of the SMSA population by size in 1960.

Subregions.--The complexities of geographic localization require more subregions than the nine geographic divisions into which the regions are usually divided. The 15 subregions used in this report are shown in List 1, page XVI. It should be noted that these differ from the 121 economic subregions that are shown in the 1960 report, PC(3)-1A. Since the Honolulu SMSA is included in table 1, Hawaii is not included as a subregion in that table.

Selected water locations.--The changing areas of economic development and population growth have been related to the type and maturity of the economy, the prevalence and accessibility of alternative means of transportation, the age of population concentrations, climatic and other resources factors, and desirability as places for living to substantial portions of the population. The historic expansions, the redistributions of recent decades, and the transitions now in process are all apparent in the growth and composition of the population of SMSA's on or adjacent to coasts, lakes, and rivers. The combinations selected for inclusion here are as follows: Atlantic Coast, Virginia to Florida; St. Lawrence River and the Great Lakes; Mississippi-Missouri Rivers; Ohio River; Inner Gulf Coast; and Pacific Coast. The SMSA's included in each grouping are shown in List 4, page XX. Groupings among the subregions that are also water locations include New England; Coastal Middle Atlantic; Delaware, Maryland, and the District of Columbia; Florida; and Hawaii.

Other combinations of SMSA's.--The growth of metropolitan complexes is recognized in the Census of 1960 in the New York-Northeastern New Jersey and the Chicago-Northwestern Indiana Standard Consolidated Areas. The establishment and validation of contiguous interrelated metropolitan areas was beyond the resources of this project. Combinations were made for nine groupings of two or more cities selected to represent both the massive older concentrations, the swiftly growing concentrations of recent decades, and specific situations of the present or the recent past. The nine combinations included were as follows, single-city designations being those of the largest SMSA in the grouping: Boston to Washington, Pittsburgh, Detroit, Chicago, Miami,

Houston, Dallas, San Francisco, and Los Angeles. The SMSA's included in each category are shown in List 5, page XX. The components of the metropolitan region from Boston to Washington were included previously in the subregions: Northern--New England; Central--Coastal Middle Atlantic; and Southern--Delaware, Maryland, and the District of Columbia.

Individual areas.--Data for all the individual standard metropolitan statistical areas are published only in table 1, where they are shown for the successive censuses from 1900 through 1960. In tables 2 to 8, data are presented only for the 24 SMSA's with populations of 1,000,000 or more. The list of SMSA's by size in 1960 is given in List 2, page XVII.

Historical figures.--The total, white, and Negro populations of the counties or other minor civil divisions were secured from the publications of the censuses from 1900 to 1960, with adjustments for boundary changes as noted in the publications of later censuses. The total population of cities for the census dates from 1900 to 1960 was recorded from the State reports of the 1960 Census; the white and Negro population was obtained from earlier census reports. The numbers of Negroes in New England towns in 1950 were secured from the unpublished tabulations for enumeration districts. In 1930 and earlier years, it was assumed that all nonwhites in New England were Negroes. Some use of ratio estimation was required, but the concentration of Negroes in incorporated cities meant that the estimates for towns usually involved very small numbers. Limited use of ratio estimation was also required for the earliest census periods in some areas, but this also was a negligible source of error. All data in table 1 are from complete counts.

CONTERMINOUS UNITED STATES

The term "United States" refers to the 50 States and the District of Columbia. "Conterminous United States" refers to the United States exclusive of the recently admitted States of Alaska and Hawaii.

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.

RACE AND COLOR

The three major race categories distinguished in the census are white, Negro, and other races. Among persons of "other races" are American Indians, Japanese, Chinese, Filipinos, Koreans, Hawaiians, Asian Indians, Eskimos, Aleuts, and Malaysians. Negroes and persons of "other races" taken together constitute "nonwhite" persons. Persons of Mexican birth or descent who are not definitely of Indian or other nonwhite race are classified as white. In addition to persons of Negro and of mixed Negro and white descent, the category "Negro" includes persons of mixed Indian

and Negro descent unless the Indian ancestry very definitely predominates or unless the person is regarded as an Indian in the community.

NATIVITY AND PARENTAGE

Native.--This category comprises persons born in the United States, the Commonwealth of Puerto Rico, or a possession of the United States; persons born in a foreign country or at sea who have at least one native American parent; and persons whose place of birth was not reported and whose census report contained no contradictory information, such as an entry of a language spoken prior to coming to the United States.

Foreign born.--This category includes all persons not classified as native.

Native of native parentage.--This category consists of native persons both of whose parents are also natives of the United States.

Native of foreign or mixed parentage.--This category includes native persons one or both of whose parents are foreign born.

Foreign stock.--This category includes foreign-born persons and native persons of foreign or mixed parentage.

STATE OF BIRTH OF THE NATIVE POPULATION

The native population is classified into the following groups: Persons born in the State in which they were residing at the time of the census, persons born in a different State, persons born in an outlying area of the United States, persons born abroad or at sea of native American parents, and persons whose State of birth was not reported. The 1960 instructions specified that place of birth was to be reported in terms of the mother's usual State of residence at the time of the birth rather than in terms of the location of the hospital if the birth occurred in a hospital.

In this report, persons whose State of birth was not reported are combined with persons born in a different State. Native persons born in outlying areas of the United States are combined with the foreign born in the category "born outside U.S."

RESIDENCE IN 1955

Residence on April 1, 1955, is the usual place of residence five years prior to enumeration. The category "same house as in 1960" includes all persons 5 years old and over who were reported as living in the same house on the date of enumeration in 1960 and five years prior to enumeration. Included in the group are persons who had never moved during the five years as well as those who had moved but by 1960 had returned to their 1955 residence. The category "different house in the U.S." includes persons who, on April 1, 1955, lived in the United States in a different house from the one they occupied on April 1, 1960. This category was subdivided into three groups according to county and State of 1955 residence, viz., "different house, same county," "different county, same State," and

"different State." The "different house" category was also subdivided on the basis of SMSA residence into these categories: In the same SMSA, inside or outside the central city; and outside the same SMSA, in the North and West or in the South. The category "abroad" includes those with residence in a foreign country or an outlying area of the United States in 1955. (In the coding of this item, persons who lived in Alaska or Hawaii in 1955 but in other States in 1960 were classified as living in a different State in 1955.) The statistics on residence in 1955 in this report exclude persons 5 years old and over who had indicated they had moved into their present residence after April 1, 1955, but for whom sufficiently complete and consistent information regarding residence on April 1, 1955, was not collected.

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.

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. Persons reported as separated (either legally separated or otherwise absent from the spouse because of marital discord) are classified as a subcategory of married persons. The enumerators were instructed to report persons in common-law marriages as married and persons whose only marriage had been annulled as single. Persons "ever married" are those in the categories married (including separated), widowed, and divorced.

A married person with "spouse present" is a man or woman whose spouse was enumerated as a member of the same household even though he or she may have been temporarily absent on business or vacation, visiting, in a hospital, etc., at the time of enumeration.

FAMILY AND OWN CHILD

A family consists of two or more persons in the same household who are related to each other by blood, marriage, or adoption; all persons living in one household who are related to each other are regarded as one family.

An own child of a household head or of a family head is defined here as a single (never married) son, daughter, stepchild, or adopted child of the head in question.

CHILDREN EVER BORN

The number of children ever born includes children born to the woman before her present marriage, children no longer living, and children away from home, as well as children borne by the woman who were still living in the home. Although the question on children ever born was asked only of women reported as having been married, the data are not limited to legitimate births.

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.

Persons are classified as unemployed if they were 14 years old and over and not "at work" but looking for work. A person is considered as looking for work not only if he actually tried to find work but also if he had made such efforts recently (i.e., within the past 60 days) and was awaiting the results of these

efforts. Persons waiting to be called back to a job from which they had been laid off or furloughed are also counted as unemployed.

The "civilian labor force" includes all persons classified as employed or unemployed, as described above. The "labor force" also includes members of the Armed Forces (persons on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard).

Persons "not in the labor force" comprise all those 14 years old and over who are not classified as members of the labor force, including persons doing only incidental unpaid family work (less than 15 hours during the week).

OCCUPATION AND INDUSTRY

The data on occupation and industry 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 and industry statistics presented here are based on the detailed systems developed for the 1960 Census; see 1960 Census of Population, Classified Index of Occupations and Industries, U.S. Government Printing Office, Washington, D.C., 1960.

INCOME IN 1959

Information on income for the calendar year 1959 was requested from all persons 14 years old and over in the sample. "Total income" is the sum of amounts reported separately for wage or salary income, self-employment income, and other income. Wage or salary income is defined as the total money earnings received for work performed as an employee. It represents the amount received before deductions for personal income taxes, Social Security, bond purchases, union dues, etc. Self-employment income 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. Other income includes money income received from such sources as net rents, interest, dividends, Social Security benefits, pensions, veterans' payments, unemployment insurance, and public assistance or other governmental payments, and periodic receipts from insurance policies or annuities. Not included as income are 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," withdrawals of bank deposits, money borrowed, tax refunds, and gifts and lump-sum inheritances or insurance payments.

In the statistics on family income, the combined incomes of all members of each family are treated as a single amount. Although the time period covered by the income statistics is the calendar year 1959, the composition of families refers to the time of enumeration. For most of the families, however, the income reported was received by persons who were members of the family throughout 1959.

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, U.S. Government Printing Office, Washington 25, D.C.

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 Volume I, 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 Series" will deal with the methods, results, and interpretation of a group of evaluation and research studies of the 1960 Censuses 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.⁴ (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 A and B. Somewhat more precise estimates of sampling error may be obtained by using the factors shown in table C in conjunction with table B for percentages and table A for absolute numbers. These tables⁵ 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

⁴ Estimates of characteristics from the sample for a given area are produced using the formula:

$$x' = \sum_{i=1}^{44} \frac{x_i Y_1}{Y_i}$$

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 (i) 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_1 is the count of persons in the complete count for the area in the same one of the 44 groups.

⁵ 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.

that the difference is less than twice the standard error and about 99 out of 100 that it is less than $2\frac{1}{2}$ 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 A.--ROUGH APPROXIMATION TO STANDARD ERROR OF ESTIMATED NUMBER
(Range of 2 chances out of 3)

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

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

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

Table A 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. Table B shows rough standard errors of data in the form of percentages. Linear interpolation in tables A and B 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.

Table C provides a factor by which the standard errors shown in table A or B 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 C the factor applying to the characteristic. Where data are shown as cross-classifications of two characteristics, locate each characteristic in table C. 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 C. Where a characteristic is cross-classified in broad groups (or used in broad groups), the factor to be used in table C should be closer to the larger one. Multiply the standard error given for the size of the estimate as shown in table A by this factor from table C. 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 B by the factor from table C.

Table C.--FACTOR TO BE APPLIED TO STANDARD ERRORS

Characteristic ¹	Factor
Nativity and parentage.....	1.4
Residence in 1955.....	1.8

¹ All other characteristics appearing in this report but not listed in the table have a factor of 1.0.

Illustration: Table 4 shows that in 1960 in Florida, there were 44,000 persons in central cities of SMSA's who had lived in different counties within the State of Florida in 1955. Table C shows that for characteristics on residence in 1955 the appropriate standard error in table A should be multiplied by a factor of 1.8. Table A shows that the standard error for an estimate of 44,000 is about 326. The factor of 1.8 times 326, or 587, means that the chances are approximately 2 out of 3 that the results of a complete census would not differ by more than 587 from this estimated 44,000. It also follows that there is only about 1 chance in 100 that a complete census result would differ by as much as 1,468, that is, by about $2\frac{1}{2}$ times the number estimated from tables A and C.

SOURCES OF 1960 DATA

- Table 1. All data from complete count.
- Table 2. "All women" by age from complete count; other data from 25-percent sample.
- Tables 3-6. All data from 25-percent sample.
- Table 7. Number of women by age from complete count; other data from 25-percent sample.
- Table 8. All data from 25-percent sample.

List 1.--STANDARD METROPOLITAN STATISTICAL AREAS BY REGIONS AND SUBREGIONS

NORTH

New England

Boston, Mass.
 Bridgeport, Conn.
 Brockton, Mass.
 Fall River, Mass.-R.I.
 Fitchburg-Leominster, Mass.
 Hartford, Conn.
 Lawrence-Haverhill, Mass.-N.H.
 Lewiston-Auburn, Maine
 Lowell, Mass.
 Manchester, N.H.
 Meriden, Conn.
 New Bedford, Mass.
 New Britain, Conn.
 New Haven, Conn.
 New London-Groton-Norwich, Conn.
 Norwalk, Conn.
 Pittsfield, Mass.
 Portland, Maine
 Providence-Pawtucket, R.I.-Mass.
 Springfield-Chicopee-Holyoke, Mass.

Stamford, Conn.
 Waterbury, Conn.
 Worcester, Mass.

Middle Atlantic, Coastal

Allentown-Bethlehem-Easton, Pa.-N.J.
 Atlantic City, N.J.
 Harrisburg, Pa.
 Jersey City, N.J.
 Lancaster, Pa.
 New York, N.Y.
 Newark, N.J.
 Paterson-Clifton-Passaic, N.J.
 Philadelphia, Pa.-N.J.
 Reading, Pa.
 Trenton, N.J.
 York, Pa.

Middle Atlantic, Other

Albany-Schenectady-Troy, N.Y.
 Altoona, Pa.
 Binghamton, N.Y.
 Buffalo, N.Y.
 Erie, Pa.
 Johnstown, Pa.
 Pittsburgh, Pa.
 Rochester, N.Y.
 Scranton, Pa.
 Syracuse, N.Y.
 Utica-Rome, N.Y.
 Wilkes-Barre--Hazleton, Pa.

Delaware, Maryland, and Dist. of Col.

Baltimore, Md.
 Washington, D.C.-Md.-Va.
 Wilmington, Del.-N.J.

East North Central

Akron, Ohio
 Ann Arbor, Mich.
 Bay City, Mich.
 Canton, Ohio
 Champaign-Urbana, Ill.
 Chicago, Ill.

NORTH--Con.

East North Central--Con.

Cincinnati, Ohio-Ky.
 Cleveland, Ohio
 Columbus, Ohio
 Dayton, Ohio
 Decatur, Ill.
 Detroit, Mich.
 Evansville, Ind.-Ky.
 Flint, Mich.
 Fort Wayne, Ind.
 Gary-Hammond-East Chicago, Ind.

Grand Rapids, Mich.
 Green Bay, Wis.
 Hamilton-Middletown, Ohio
 Indianapolis, Ind.
 Jackson, Mich.
 Kalamazoo, Mich.
 Kenosha, Wis.
 Lansing, Mich.
 Lima, Ohio
 Lorain-Elyria, Ohio

Madison, Wis.
 Milwaukee, Wis.
 Muncie, Ind.
 Muskegon-Muskegon Heights, Mich.
 Peoria, Ill.
 Racine, Wis.
 Rockford, Ill.
 Saginaw, Mich.
 South Bend, Ind.
 Springfield, Ill.
 Springfield, Ohio
 Steubenville-Weirton, Ohio-W.Va.
 Terre Haute, Ind.
 Toledo, Ohio
 Youngstown-Warren, Ohio

West North Central

Cedar Rapids, Iowa
 Davenport-Rock Island-Moline,
 Iowa-Ill.
 Des Moines, Iowa
 Dubuque, Iowa
 Duluth-Superior, Minn.-Wis.
 Fargo-Moorhead, N. Dak.-Minn.
 Kansas City, Mo.-Kans.
 Lincoln, Nebr.
 Minneapolis-St. Paul, Minn.
 Omaha, Nebr.-Iowa
 St. Joseph, Mo.
 St. Louis, Mo.-Ill.
 Sioux City, Iowa
 Sioux Falls, S. Dak.
 Springfield, Mo.
 Topeka, Kans.
 Waterloo, Iowa
 Wichita, Kans.

SOUTH

Ky., Tenn., and W.Va.

Charleston, W.Va.
 Chattanooga, Tenn.-Ga.
 Huntington-Ashland, W.Va.-Ky.-Ohio
 Knoxville, Tenn.

SOUTH--Con.

Ky., Tenn., and W.Va.--Con.

Lexington, Ky.
 Louisville, Ky.-Ind.
 Memphis, Tenn.
 Nashville, Tenn.
 Wheeling, W.Va.-Ohio

North Carolina and Virginia

Asheville, N.C.
 Charlotte, N.C.
 Durham, N.C.
 Greensboro-High Point, N.C.
 Lynchburg, Va.
 Newport News-Hampton, Va.
 Norfolk-Portsmouth, Va.
 Raleigh, N.C.
 Richmond, Va.
 Roanoke, Va.
 Winston-Salem, N.C.

Deep South

Albany, Ga.
 Atlanta, Ga.
 Augusta, Ga.-S.C.
 Baton Rouge, La.
 Birmingham, Ala.
 Charleston, S.C.
 Columbia, S.C.
 Columbus, Ga.-Ala.
 Fort Smith, Ark.
 Gadsden, Ala.
 Greenville, S.C.
 Huntsville, Ala.
 Jackson, Miss.
 Lake Charles, La.
 Little Rock-North Little Rock, Ark.
 Macon, Ga.
 Mobile, Ala.
 Monroe, La.
 Montgomery, Ala.
 New Orleans, La.
 Savannah, Ga.
 Shreveport, La.
 Tuscaloosa, Ala.

Florida

Fort Lauderdale-Hollywood, Fla.
 Jacksonville, Fla.
 Miami, Fla.
 Orlando, Fla.
 Pensacola, Fla.
 Tampa-St. Petersburg, Fla.
 West Palm Beach, Fla.

Oklahoma and Texas

Abilene, Tex.
 Amarillo, Tex.
 Austin, Tex.
 Beaumont-Port Arthur, Tex.
 Brownsville-Harlingen-San Benito,
 Tex.
 Corpus Christi, Tex.
 Dallas, Tex.

List 1.--STANDARD METROPOLITAN STATISTICAL AREAS BY REGIONS AND SUBREGIONS--Con.

SOUTH--Con.	WEST	WEST--Con.
<u>Oklahoma and Texas--Con.</u>	<u>Northern Mountain</u>	<u>California and Southwest--Con.</u>
El Paso, Tex. Fort Worth, Tex. Galveston-Texas City, Tex. Houston, Tex. Laredo, Tex. Lawton, Okla. Lubbock, Tex. Midland, Tex. Odessa, Tex. Oklahoma City, Okla.	Billings, Mont. Colorado Springs, Colo. Denver, Colo. Great Falls, Mont. Ogden, Utah Provo-Orem, Utah Pueblo, Colo. Salt Lake City, Utah	San Bernardino-Riverside-Ontario, Calif. San Diego, Calif. San Francisco-Oakland, Calif. San Jose, Calif. Santa Barbara, Calif. Stockton, Calif. Tucson, Ariz.
San Angelo, Tex. San Antonio, Tex. Texarkana, Tex.-Ark. Tulsa, Okla. Tyler, Tex. Waco, Tex. Wichita Falls, Tex.	<u>California and Southwest</u>	<u>Oregon and Washington</u>
	Albuquerque, N. Mex. Bakersfield, Calif. Fresno, Calif. Las Vegas, Nev. Los Angeles-Long Beach, Calif. Phoenix, Ariz. Reno, Nev. Sacramento, Calif.	Eugene, Oreg. Portland, Oreg.-Wash. Seattle, Wash. Spokane, Wash. Tacoma, Wash.
		<u>Hawaii</u> Honolulu, Hawaii

List 2.--SIZE OF PLACE IN 1960

3,000,000 AND OVER	500,000 TO 1,000,000--Con.	250,000 TO 500,000--Con.
Chicago, Ill. Detroit, Mich. Los Angeles-Long Beach, Calif. New York, N.Y. Philadelphia, Pa.-N.J.	Gary-Hammond-East Chicago, Ind. Hartford, Conn. Honolulu, Hawaii Indianapolis, Ind. Jersey City, N.J. Louisville, Ky.-Ind. Memphis, Tenn. Miami, Fla. New Orleans, La. Norfolk-Portsmouth, Va.	Des Moines, Iowa Duluth-Superior, Minn.-Wis. El Paso, Tex. Erie, Pa. Flint, Mich. Fort Lauderdale-Hollywood, Fla. Fresno, Calif. Grand Rapids, Mich. Harrisburg, Pa. Huntington-Ashland, W.Va.-Ky.-Ohio
1,000,000 TO 3,000,000		
Atlanta, Ga. Baltimore, Md. Boston, Mass. Buffalo, N.Y. Cincinnati, Ohio-Ky. Cleveland, Ohio Dallas, Tex. Houston, Tex. Kansas City, Mo.-Kans. Milwaukee, Wis. Minneapolis-St. Paul, Minn. Newark, N.J. Paterson-Clifton-Passaic, N.J. Pittsburgh, Pa. St. Louis, Mo.-Ill. San Diego, Calif. San Francisco-Oakland, Calif. Seattle, Wash. Washington, D.C.-Md.-Va.	Oklahoma City, Okla. Phoenix, Ariz. Portland, Oreg.-Wash. Providence-Pawtucket, R.I.-Mass. Rochester, N.Y. Sacramento, Calif. San Antonio, Tex. San Bernardino-Riverside-Ontario, Calif. San Jose, Calif. Syracuse, N.Y. Tampa-St. Petersburg, Fla. Youngstown-Warren, Ohio	Jacksonville, Fla. Johnstown, Pa. Knoxville, Tenn. Lancaster, Pa. Lansing, Mich. Mobile, Ala. Nashville, Tenn. New Haven, Conn. Omaha, Nebr.-Iowa Orlando, Fla.
	250,000 TO 500,000	
500,000 TO 1,000,000	Albuquerque, N. Mex. Allentown-Bethlehem-Easton, Pa.-N.J. Bakersfield, Calif. Beaumont-Port Arthur, Tex. Bridgeport, Conn. Canton, Ohio Charleston, W.Va. Charlotte, N.C. Chattanooga, Tenn.-Ga. Columbia, S.C. Davenport-Rock Island-Moline, Iowa-Ill.	Peoria, Ill. Reading, Pa. Richmond, Va. Salt Lake City, Utah Shreveport, La. Springfield-Chicopee-Holyoke, Mass. Spokane, Wash. Tacoma, Wash. Toledo, Ohio Trenton, N.J. Tucson, Ariz. Tulsa, Okla. Utica-Rome, N.Y. Wichita, Kans. Wilkes-Barre--Hazleton, Pa. Wilmington, Del.-N.J. Worcester, Mass.

List 2.--SIZE OF PLACE IN 1960--Con.

100,000 TO 250,000

Abilene, Tex.
 Altoona, Pa.
 Amarillo, Tex.
 Ann Arbor, Mich.
 Asheville, N.C.
 Atlantic City, N.J.
 Augusta, Ga.-S.C.
 Austin, Tex.
 Baton Rouge, La.
 Bay City, Mich.

Binghamton, N.Y.
 Brockton, Mass.
 Brownsville-Harlingen-San Benito,
 Tex.
 Cedar Rapids, Iowa
 Champaign-Urbana, Ill.
 Charleston, S.C.
 Colorado Springs, Colo.
 Columbus, Ga.-Ala.
 Corpus Christi, Tex.
 Decatur, Ill.

Durham, N.C.
 Evansville, Ind.-Ky.
 Eugene, Oreg.
 Fall River, Mass.-R.I.
 Fargo-Moorhead, N. Dak.-Minn.
 Fort Wayne, Ind.
 Galveston-Texas City, Tex.
 Green Bay, Wis.
 Greensboro-High Point, N.C.
 Greenville, S.C.

Hamilton-Middletown, Ohio
 Huntsville, Ala.
 Jackson, Mich.
 Jackson, Miss.
 Kalamazoo, Mich.
 Kenosha, Wis.
 Lake Charles, La.

100,000 TO 250,000--Con.

Lawrence-Haverhill, Mass.-N.H.
 Lexington, Ky.
 Lima, Ohio
 Lincoln, Nebr.
 Little Rock-North Little Rock, Ark.
 Lorain-Elyria, Ohio
 Las Vegas, Nev.
 Lowell, Mass.
 Lubbock, Tex.
 Lynchburg, Va.

Macon, Ga.
 Madison, Wis.
 Montgomery, Ala.
 Monroe, La.
 Muncie, Ind.
 Muskegon-Muskegon Heights, Mich.
 New Bedford, Mass.
 New Britain, Conn.
 New London-Groton-Norwich, Conn.
 Newport News-Hampton, Va.

Ogden, Utah
 Pensacola, Fla.
 Portland, Maine
 Provo-Orem, Utah
 Pueblo, Colo.
 Racine, Wis.
 Raleigh, N.C.
 Roanoke, Va.
 Rockford, Ill.
 Saginaw, Mich.

Santa Barbara, Calif.
 Savannah, Ga.
 Scranton, Pa.
 Sioux City, Iowa
 South Bend, Ind.
 Springfield, Ill.
 Springfield, Mo.
 Springfield, Ohio

100,000 TO 250,000--Con.

Stamford, Conn.
 Steubenville-Weirton, Ohio-W.Va.
 Stockton, Calif.
 Terre Haute, Ind.
 Topeka, Kans.
 Tuscaloosa, Ala.
 Waco, Tex.
 Waterbury, Conn.
 Waterloo, Iowa
 West Palm Beach, Fla.

Wheeling, W.Va.-Ohio
 Wichita Falls, Tex.
 Winston-Salem, N.C.
 York, Pa.

LESS THAN 100,000

Albany, Ga.
 Billings, Mont.
 Dubuque, Iowa
 Fitchburg-Leominster, Mass.
 Fort Smith, Ark.
 Gadsden, Ala.
 Great Falls, Mont.
 Laredo, Tex.
 Lawton, Okla.
 Lewiston-Auburn, Maine

Manchester, N.H.
 Meriden, Conn.
 Midland, Tex.
 Norwalk, Conn.
 Odessa, Tex.
 Pittsfield, Mass.
 Reno, Nev.
 San Angelo, Tex.
 Sioux Falls, S. Dak.
 St. Joseph, Mo.
 Texarkana, Tex.-Ark.
 Tyler, Tex.

List 3.--CENSUS WHEN SMSA POPULATION FIRST REACHED 100,000

1900 OR EARLIER	1910 OR 1920	1930 OR 1940--Con.
Albany-Schenectady-Troy, N.Y. Allentown-Bethlehem-Easton, Pa.-N.J. Atlanta, Ga. Baltimore, Md. Birmingham, Ala. Boston, Mass. Buffalo, N.Y. Chicago, Ill. Cincinnati, Ohio-Ky. Cleveland, Ohio	Akron, Ohio Altoona, Pa. Augusta, Ga.-S.C. Binghamton, N.Y. Bridgeport, Conn. Brockton, Mass. Canton, Ohio Charleston, S.C. Charleston, W.Va. Chattanooga, Tenn.-Ga.	New London-Groton-Norwich, Conn. Phoenix, Ariz. Portland, Maine Raleigh, N.C. Roanoke, Va. Rockford, Ill. Sacramento, Calif. Sioux City, Iowa Springfield, Ill. Stamford, Conn.
Columbus, Ohio Dallas, Tex. Davenport-Rock Island-Moline, Iowa-Ill. Dayton, Ohio Denver, Colo. Detroit, Mich. Duluth-Superior, Minn.-Wis. Evansville, Ind.-Ky. Fall River, Mass.-R.I. Grand Rapids, Mich.	Columbia, S.C. Des Moines, Iowa El Paso, Tex. Erie, Pa. Flint, Mich. Fort Wayne, Ind. Fort Worth, Tex. Fresno, Calif. Gary-Hammond-East Chicago, Ind. Honolulu, Hawaii	Stockton, Calif. Waco, Tex. Wichita, Kans. Winston-Salem, N.C.
Harrisburg, Pa. Hartford, Conn. Huntington-Ashland, W.Va.-Ky.-Ohio Indianapolis, Ind. Jersey City, N.J. Johnstown, Pa. Kansas City, Mo.-Kans. Knoxville, Tenn. Lancaster, Pa. Lawrence-Haverhill, Mass.-N.H.	Houston, Tex. Jacksonville, Fla. Lansing, Mich. Little Rock-North Little Rock, Ark. Mobile, Ala. New Bedford, Mass. Oklahoma City, Okla. Saginaw, Mich. Salt Lake City, Utah San Antonio, Tex.	1950 OR 1960
Los Angeles-Long Beach, Calif. Louisville, Ky.-Ind. Lowell, Mass. Memphis, Tenn. Milwaukee, Wis. Minneapolis-St. Paul, Minn. Nashville, Tenn. New Haven, Conn. New Orleans, La. New York, N.Y.	San Bernardino-Riverside-Ontario, Calif. San Diego, Calif. San Jose, Calif. Savannah, Ga. Shreveport, La. South Bend, Ind. Spokane, Wash. Steubenville-Weirton, Ohio-W.Va. Tacoma, Wash. Tampa-St. Petersburg, Fla.	Abilene, Tex. Albuquerque, N. Mex. Amarillo, Tex. Ann Arbor, Mich. Baton Rouge, La. Bay City, Mich. Brownsville-Harlingen-San Benito, Tex. Cedar Rapids, Iowa Champaign-Urbana, Ill. Colorado Springs, Colo.
Newark, N.J. Norfolk-Portsmouth, Va. Omaha, Nebr.-Iowa Paterson-Clifton-Passaic, N.J. Peoria, Ill. Philadelphia, Pa.-N.J. Pittsburgh, Pa. Portland, Oreg.-Wash. Providence-Pawtucket, R.I.-Mass. Reading, Pa.	Terre Haute, Ind. Trenton, N.J. Tulsa, Okla. Waterbury, Conn.	Corpus Christi, Tex. Decatur, Ill. Durham, N.C. Eugene, Oreg. Fargo-Moorhead, N. Dak.-Minn. Fort Lauderdale-Hollywood, Fla. Galveston-Texas City, Tex. Green Bay, Wis. Huntsville, Ala. Jackson, Mich.
Richmond, Va. Rochester, N.Y. St. Joseph, Mo. St. Louis, Mo.-Ill. San Francisco-Oakland, Calif. Scranton, Pa. Seattle, Wash. Springfield-Chicopee-Holyoke, Mass. Syracuse, N.Y. Toledo, Ohio	1930 OR 1940	Kenosha, Wis. Lake Charles, La. Las Vegas, Nev. Lexington, Ky. Lima, Ohio Lubbock, Tex. Lynchburg, Va. Macon, Ga. Monroe, La. Muncie, Ind.
Utica-Rome, N.Y. Washington, D.C.-Md.-Va. Wheeling, W.Va.-Ohio Wilkes-Barre--Hazleton, Pa. Wilmington, Del.-N.J. Worcester, Mass. York, Pa. Youngstown-Warren, Ohio	Asheville, N.C. Atlantic City, N.J. Austin, Tex. Bakersfield, Calif. Beaumont-Port Arthur, Tex. Charlotte, N.C. Columbus, Ga.-Ala. Greensboro-High Point, N.C. Greenville, S.C. Hamilton-Middletown, Ohio	Muskegon-Muskegon Heights, Mich. New Britain, Conn. Newport News-Hampton, Va. Ogden, Utah Orlando, Fla. Pensacola, Fla. Provo-Orem, Utah Pueblo, Colo. Racine, Wis. Santa Barbara, Calif.
	Jackson, Miss. Kalamazoo, Mich. Lincoln, Nebr. Lorain-Elyria, Ohio Madison, Wis. Miami, Fla. Montgomery, Ala.	Springfield, Mo. Springfield, Ohio Topeka, Kans. Tucson, Ariz. Tuscaloosa, Ala. Waterloo, Iowa West Palm Beach, Fla. Wichita Falls, Tex.

List 4.--SELECTED WATER LOCATIONS

ATLANTIC, VIRGINIA TO FLORIDA

Charleston, S.C.
Newport News-Hampton, Va.
Norfolk-Portsmouth, Va.
Savannah, Ga.

ST. LAWRENCE--GREAT LAKES

Bay City, Mich.
Buffalo, N.Y.
Chicago, Ill.
Cleveland, Ohio
Detroit, Mich.
Duluth-Superior, Minn.-Wis.
Erie, Pa.
Gary-Hammond-East Chicago, Ind.
Green Bay, Wis.
Kenosha, Wis.

Lorain-Elyria, Ohio
Milwaukee, Wis.
Muskegon-Muskegon Heights, Mich.
Racine, Wis.
Rochester, N.Y.
Saginaw, Mich.
South Bend, Ind.
Syracuse, N.Y.
Toledo, Ohio
Utica-Rome, N.Y.

MISSISSIPPI-MISSOURI RIVERS

Davenport-Rock Island-Moline,
Iowa-Ill.
Dubuque, Iowa
Kansas City, Mo.-Kans.
Memphis, Tenn.
Minneapolis-St. Paul, Minn.
Omaha, Nebr.-Iowa
St. Joseph, Mo.
St. Louis, Mo.-Ill.
Sioux City, Iowa

OHIO RIVER

Cincinnati, Ohio-Ky.
Evansville, Ind.-Ky.
Hamilton-Middletown, Ohio
Huntington-Ashland, W.Va.-Ky.-Ohio
Louisville, Ky.-Ind.
Pittsburgh, Pa.
Steubenville-Weirton, Ohio-W.Va.
Wheeling, W.Va.-Ohio

INNER GULF COAST

Baton Rouge, La.
Beaumont-Port Arthur, Tex.
Brownsville-Harlingen-San Benito,
Tex.
Corpus Christi, Tex.
Galveston-Texas City, Texas
Houston, Tex.
Lake Charles, La.
Mobile, Ala.
New Orleans, La.

PACIFIC COAST

Bakersfield, Calif.
Eugene, Oreg.
Los Angeles-Long Beach, Calif.
Portland, Oreg.-Wash.
Sacramento, Calif.
San Bernardino-Riverside-Ontario,
Calif.
San Diego, Calif.
San Francisco-Oakland, Calif.
San Jose, Calif.
Santa Barbara, Calif.
Seattle, Wash.
Stockton, Calif.
Tacoma, Wash.

List 5.--COMBINATIONS OF STANDARD METROPOLITAN STATISTICAL AREAS

BOSTON TO WASHINGTON

Allentown-Bethlehem-Easton,
Pa.-N.J.
Atlantic City, N.J.
Baltimore, Md.
Boston, Mass.
Bridgeport, Conn.
Brookton, Mass.
Fall River, Mass.-R.I.
Harrisburg, Pa.
Hartford, Conn.
Jersey City, N.J.

Lancaster, Pa.
Lawrence-Haverhill, Mass.-N.H.
Lowell, Mass.
Meriden, Conn.
New Bedford, Mass.
New Britain, Conn.
New Haven, Conn.
New London-Groton-Norwich, Conn.
New York, N.Y.
Newark, N.J.

Norwalk, Conn.
Paterson-Clifton-Passaic, N.J.
Philadelphia, Pa.-N.J.
Providence-Pawtucket, R.I.-Mass.
Reading, Pa.
Springfield-Chicopee-Holyoke, Mass.
Stamford, Conn.
Trenton, N.J.

BOSTON TO WASHINGTON--Con.

Washington, D.C.-Md.-Va.
Waterbury, Conn.
Wilmington, Del.-N.J.
Worcester, Mass.
York, Pa.

PITTSBURGH

Altoona, Pa.
Johnstown, Pa.
Pittsburgh, Pa.
Steubenville-Weirton, Ohio-W.Va.
Wheeling, W.Va.-Ohio
Youngstown-Warren, Ohio

DETROIT

Ann Arbor, Mich.
Bay City, Mich.
Detroit, Mich.
Flint, Mich.
Jackson, Mich.
Lansing, Mich.
Saginaw, Mich.

CHICAGO

Chicago, Ill.
Gary-Hammond-East Chicago, Ind.
Kenosha, Wis.
Milwaukee, Wis.
Racine, Wis.

MIAMI

Fort Lauderdale-Hollywood, Fla.
Miami, Fla.
West Palm Beach, Fla.

HOUSTON

Beaumont-Port Arthur, Tex.
Galveston-Texas City, Tex.
Houston, Tex.
Lake Charles, La.

DALLAS

Dallas, Tex.
Fort Worth, Tex.

SAN FRANCISCO

Sacramento, Calif.
San Francisco-Oakland, Calif.
San Jose, Calif.
Stockton, Calif.

LOS ANGELES

Bakersfield, Calif.
Las Vegas, Nev.
Los Angeles-Long Beach, Calif.
San Bernardino-Riverside-Ontario,
Calif.
San Diego, Calif.
Santa Barbara, Calif.