

DOCUMENT RESUME

ED 306 173

SO 019 851

TITLE History and Organization. U.S. Bureau of the Census--Factfinder for the Nation. CFF No. 4 (Rev.).

INSTITUTION Bureau of the Census (DOC), Suitland, Md.

PUB DATE May 88

NOTE 14p.

PUB TYPE Historical Materials (060) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Agriculture; Business; *Census Figures; *Data Collection; *Demography; *Educational Resources; Government (Administrative Body); Housing; *Information Sources; Manufacturing Industry; Mining; Population Trends; Social Indicators; Transportation; *United States History

IDENTIFIERS *Bureau of the Census; Census 1790

ABSTRACT

This document chronicles the history and organization of census taking in the United States. The first census (1790) counted only free white males, free white females, all other free persons, and the number of slaves. Since that time the need for information has grown and the census has changed to meet new demands. The expansion of the census, the establishment of the Census Bureau, and the bureau's current operating procedures are briefly discussed. Changes in the population censuses (1790-present) are examined and a list of principle topics assessed shows how the process grew over 200 years. Likewise, the development of housing censuses (1940-present) is explained. The agricultural censuses (1840-present) give the only complete periodic statistics on agricultural activity for every county in the nation and for other areas under U.S. jurisdiction. The evolution of agricultural census-taking is presented. The history of the manufactures and mineral industries censuses (1810-present) is presented, as is that of the business censuses (1929-present). The document also addresses censuses of construction industries (1929-present), censuses of state and local governments (1850-present), and statistic-keeping on transportation and foreign trade. A number of programs to provide data that cross economic or demographic sectors are briefly described. The history of census-taking tools and the use of maps and charts is explored. A list of the census bureau's publications is presented, along with information on where data is available. (GEA)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED306173

HISTORY AND ORGANIZATION

FACTFINDER for the Nation

CFF No. 4 (Rev.)

Issued May 1988

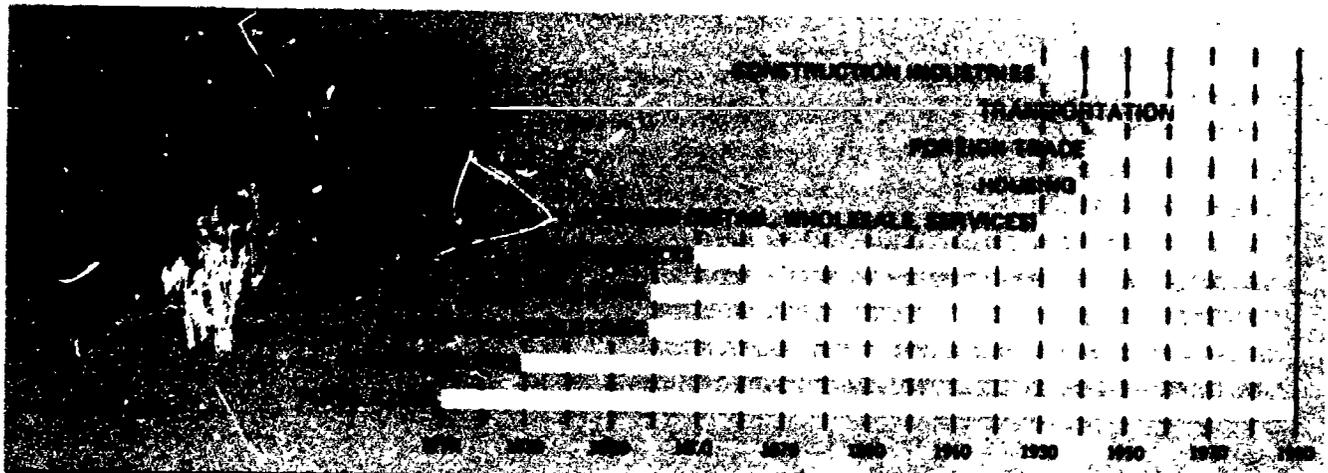
U.S. Department of Commerce
Bureau of the Census
Washington, DC 20233

U S DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it
- Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

SO 019 851



CFF No. 4 (Rev.)

Issued May 1988

HISTORY AND ORGANIZATION

INTRODUCTION

Factfinding is one of America's oldest activities. In the early 1600's, a census was taken in Virginia, and people were counted in nearly all of the British colonies that became the United States at the time of the Revolutionary War. (There also were censuses in other areas of the country before they became parts of the United States.)

Following independence, there was an almost immediate need for a census of the entire Nation. Both the number of seats each State was to have in the House of Representatives and the States' respective shares in paying for the war were to be based on population. Article I, section 2 of the U.S. Constitution, adopted in 1787, provided:

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective Numbers.... The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct.

Our Founding Fathers had concluded that the States' wishes to report few people in order to lower their shares in the war debt would be offset by a desire for the largest possible representation in Congress. Thus, the census would be fairly accurate.

State	Population	Other Data
Delaware	39,000	1
Pennsylvania	434,000	1
New York	1,000,000	1
Massachusetts	380,000	1
Virginia	700,000	1
North Carolina	500,000	1
South Carolina	250,000	1
Georgia	200,000	1
Florida	100,000	1
Alabama	100,000	1
Mississippi	100,000	1
Louisiana	100,000	1
Arkansas	100,000	1
Texas	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1
Ohio	100,000	1
Michigan	100,000	1
Wisconsin	100,000	1
Minnesota	100,000	1
Iowa	100,000	1
Missouri	100,000	1
Illinois	100,000	1
Indiana	100,000	1



Censuses and surveys are described in greater detail under the subject headings (p. 3 ff.); the resultant reports are listed in separate Factfinder brochures (see p. 12) carrying the same headings.

How the Census Bureau Came into Being...

U.S. marshals supervised their assistants' enumeration of the first nine censuses and reported to the President (1790), the Secretary of State (1800-1840), or the Secretary of the Interior (1850-1870). Census work, however, was only a small part of their regular duties, and they could not give it adequate time and attention. For the 1880 census, Congress established a census office in the Interior Department, with census supervisors to be appointed by the President and confirmed by the Senate. Each supervisor was to select, solely for their job fitness, the enumerators, who were forbidden to disclose any of the information they collected. These changes improved public relations and speeded the collection process. Nevertheless, the census organization still had to begin anew every 10 years; a large staff had to be recruited from "scratch," learn its duties, and then be disbanded as soon as the results were announced. There was no continuity from one census to the next. In 1902, Congress authorized the President to set up a permanent Census Office in the Interior Department. In 1903, the agency was transferred to the new Department of Commerce and Labor. When that Department was split in 1913, the Bureau of the Census was placed in the Department of Commerce. After World War II, Bureau headquarters was moved from downtown Washington, DC, to a nearby suburb, Suitland, MD.

and crime. (Later in this booklet, we explore the inclusion of additional subjects and the establishment of separate censuses.)

The censuses also spread geographically, to new States and Territories added to the Union as well as to other areas under U.S. sovereignty or jurisdiction.¹

There were so many more inquiries of all kinds in the censuses of 1890 and 1890 that almost a full decade was needed to publish all the results. Although the census furnished large quantities of statistics, it was failing to provide information when it was most needed. Accordingly, Congress limited the 1900 census to questions on population, manufactures, agriculture, and mortality. Many of the dropped topics reappeared in later censuses as advances in technology made it possible to process and publish the data faster (see p. 10).

The Census Bureau began using statistical sampling techniques in the 1940's in order to gather data on most of the subjects the various censuses needed to cover without unduly burdening the respondents. Further assistance came through the use of electronic computers in the 1950's and mail enumeration

in the 1960's. All of these made it possible to publish more data sooner and at a lower cost, and with less burden on the public that had to provide the information.

... and Surveys

As the Nation grew, changes in the economy became more frequent and far-reaching. Since Government officials and businesses had to adjust their plans as these changes occurred, they needed more frequent reports on them.

An effective way to provide current statistics is to collect data from samples of people and businesses, such as every 20th household or every 100th firm. Using experts in sampling and survey techniques to plan the surveys, an efficient field organization to collect the data, and modern technology to process the results, the Bureau can publish some reports less than 2 weeks after a nationwide collection of the data. It produces monthly, quarterly, and annual reports on population, housing, manufactures, business, construction, and governments, virtually all limited to the 50 States and the District of Columbia, and with most of the data published at the national level only. Many of these surveys are integrated with their respective censuses, so that they have parallel concepts and classifications, and the census and survey results can be used in tandem to fulfill data users' needs.

Since 1941, the Bureau has had responsibility for compiling current statistics on foreign trade, and it publishes reports on exports, imports, and shipping.

... and Its Present Organization

The Bureau, generally organized along the lines of the chart above, is headed by a Director. He is assisted by a Deputy Director and an Executive Staff composed of the associate directors. They oversee specific divisions, offices, and staffs that have to do with administration, planning, and subject matter; data collection, processing, and publication; research, training, and user services; and consultation within the Bureau, with other Federal, State, and local agencies, with interested organizations in the academic and private sectors, and with statistical establishments in foreign countries.

The Bureau has 12 regional offices—Atlanta, GA; Boston, MA; Charlotte, NC; Chicago, IL; Dallas, TX; Denver, CO;

¹The first Federal enumerations occurred in Puerto Rico in 1910; the Virgin Islands of the United States, 1917; Guam and American Samoa, 1920; the Panama Canal Zone, 1920 (last in 1970); the Trust Territory of the Pacific Islands, 1970; and, separately, the Northern Mariana Islands in 1980. There also were one-time U.S. censuses in the Philippine Islands in 1903 and in Cuba in 1907.

Detroit, MI; Kansas City, KS; Los Angeles, CA; New York, NY; Philadelphia, PA; and Seattle, WA—and processing and support facilities in Jeffersonville, IN, and Pittsburg, KS. The regional offices deal principally with data collection and assistance to data users. Additional processing centers are set up temporarily for the decennial censuses.

The Census Bureau Works for the Government ...

If another Federal, State, or local government agency needs data not already provided by the Census Bureau, but doesn't have the facilities for collecting or tabulating them, it may contract with the Bureau to do this work. The other agency then can concentrate its efforts on analyzing the resultant data according to its own program needs. Both agencies gain from this specialization. Random examples of such work at the Federal level are the American Housing Survey for the Department of Housing and Urban Development, the National Crime Survey for the Department of Justice, the Health Interview Survey for the Department of Health and Human Services, and the Consumer Expenditure Surveys for the Department of Labor.

... and the Government Works for the Census

To avoid duplication of effort and expense on the Government's part, as well as by individuals and companies who must respond, the Bureau makes extensive use of other Federal agencies' administrative records in compiling statistical data. In the economic censuses, for example, this virtually eliminates the need to collect data from over 4 million small establishments and the need for them to fill out additional census reports. Once in the Bureau's possession, these other agencies' records are protected by the same confidentiality provisions of the census law as the Bureau's own questionnaires.

The Law States What the Bureau Shall Collect

For many years, each census had to be authorized by a specific act of Congress. In 1954, that body brought together in title 13 of the United States Code the laws under which the Census Bureau operates. This title spells out the basic scope of the censuses and surveys, the requirements for the public to provide information as well as for the Bureau to keep that information confidential, and the penalties for violating any of these obligations.

The Secretary of Commerce (and through him, the Census Bureau) is now directed by law to take censuses of population, housing, agriculture, irrigation, manufactures, mineral industries, other businesses (wholesale trade, retail trade, services), construction, transportation, and governments at stated intervals, and it also may take surveys related to any of these subjects.

Reports Are Confidential

The sole purpose of the censuses and surveys is to secure general statistical information. Replies are obtained from individuals and establishments only to enable the compilation of such general statistics. The confidentiality of these replies is very important. By law, no one—neither the census takers nor any other Census Bureau employee—is permitted to reveal identifiable information about any person, household, or business. Thus, when the United States entered World War II and the War Department wanted to relocate Japanese Americans living on the West Coast in 1942, it could not obtain their names and addresses from the 1940 census.

In current censuses, once the information, with individuals' names and addresses dropped, has been transferred to magnetic tape and processed through the computer to produce statistical tables, the original questionnaires can be destroyed and the waste recycled.

Finally, before any census tabulation is published, it is carefully checked to make certain that no individual, household, or organization can be identified, or information about it inferred by reading the table or by analyzing the figures it contains.

In the case of the population and housing census, the questionnaires are microfilmed before destruction, and the microfilm is stored under strict security conditions for use in the Bureau's Personal Census Service Branch. Here, people who need proof of age or residence (for example), or their heirs or legal representatives, may obtain this evidence in the form of an official transcript.

Copies of population census schedules from 1790 through 1910, usually on microfilm, are available for appropriate research at the National Archives and at libraries in various parts of the country, but subsequent records are closed to the public for 72 years to protect the confidentiality of the information they contain. (The Freedom of Information Act, designed to make records available to individuals, does not apply to identifiable data the Census Bureau collects for statistical purposes.)

How Important Are Census Statistics?

Ever since 1790, the population census statistics have been the official figures used every 10 years to compute the number of congressional representatives allowed each State, and also, in conformity with the Supreme Court's 1965 one-man-one-vote ruling, to align congressional district boundaries so that each member of Congress represents approximately the same number of people. For the same reason, the census figures are used in redistricting State legislatures and other local governing bodies. In recent years, many Federal, State, and local government plans, grants-in-aid, and revenue-sharing programs have been based by law on factors calculated from census statistics for population, per capita income, geographic distribution, and other items. Likewise, census data of all types—population, housing, and all of the economic subjects, including agriculture and transportation—are crucial for market analysis, planning new services and facilities, for affirmative action programs, for studying environmental impact, and for basic research in many academic fields. Thus, it is even more important now than it was in 1790 that every person, farm, and business establishment be counted, and that the information about each be accurate and complete.

POPULATION

Censuses, 1790-Present

From 1790 through 1840, the population censuses listed the names of household heads only and tallied the number of people in each family according to their age, sex, race, and (later) employment, and the number of slaves held. Beginning in 1850, all free persons were listed by name with their characteristics, which then included occupation, place of birth (State or country) and school enrollment. (See "Content" p. 4)

As noted earlier, the development of sampling techniques early in the 20th century made it possible, beginning with the 1940 census, to ask some of the census questions only at every fourth or fifth household and yield reliable estimates for most census areas (see p. 11). For 1980, the sample questions were asked at every sixth household, except in places with less than 2,500 inhabitants, where every second household was sampled.

Experiments in self-enumeration led to its successful use in the 1960 census, when householders in urban areas were asked to complete and mail back questionnaires containing the sample items.



In 1980, approximately 95 percent of the households received—and were asked to return—questionnaires in the mail. Enumerators telephoned or visited only in those cases where the questionnaires were not returned, the data were incomplete, or where information was needed for people living in institutions, dormitories, or other such quarters. There also were special procedures for enumerating the homeless, travelers, and members of the Armed Forces. In a few rural or sparsely populated areas, each household received a "short form" questionnaire (containing the questions asked for everyone in the country) to complete for pickup by an enumerator who asked the additional questions for any household also designated to answer the sample items.

Self-enumeration by mail has several advantages; for example, it allows householders to report directly to the Bureau rather than through a face-to-face interview with an enumerator (who might have to call several times to find a respondent at home), and it permits the Bureau to concentrate its resources in those areas where the greatest effort is needed to complete the census.

Content

The principal topics listed below will indicate how the range of the population censuses grew during the past two centuries.

- Age and sex, 1790-present (but only for free Whites until 1820)
- Slave status, 1790-1860
- Color or race, 1790-present (see section below)
- Citizenship, 1820-1830, 1870, 1890-present
- Physical or mental handicap, 1830-1930, 1970-present

- Education or literacy, 1840-present
- Married in past year, 1950-1890 (but only for free Whites until 1870)
- Marital status, 1880-present
- Occupation, 1850-present
- Industry, 1820, 1840, 1910-present
- Employment status, 1880-present (except 1920)
- Crime, 1850-1910
- Mortality, 1850-1890
- Place of birth, 1850-present
- Birthplaces of parents, 1870-1970
- Wage rates, 1850-1890
- Pauperism, 1850-1910
- Prisoners, 1880-1910
- Institutionalized persons, 1880-1890, 1910
- Year of immigration, 1890-1930, 1970-present
- Number of children ever born, 1890-1910, 1940-present
- Language (or whether the person could speak English), 1890-1940, 1960-present
- Language of parents, 1910-1920
- Spanish/Hispanic origin or descent, 1970-present

In the 20th century, interest focused as well on people's economic characteristics—their jobs and how they travelled to work, their income, and how well they were housed. Most of these questions are asked on a sample basis

Race and Ethnic Origin

The concept of color or race in the censuses has never denoted any scientific definition of biological stock. "White" and "Black" persons have been identified in every decennial census since 1790. American Indians were first enumerated as a separate group in the 1860 census; however, until 1890, those in the Indian Territory or on reservations were not included in the official U.S. population count used for congressional apportionment. Data have been collected on the Chinese population since the 1860 census, and on the Japanese beginning in 1870.

Until recently, the census taker determined a person's color or race according to the Census Bureau's guidelines. Beginning with the 1960 census, however, respondents who completed their own census forms were able to classify themselves and other household members. The 1980 census made provision for each person's race to be marked as White, Black or Negro, American Indian, Japanese, Chinese, Filipino, Hawaiian, Korean, Vietnamese, Asian Indian, Guamanian, Samoan, Eskimo, or Aleut, or to be written in if none of these applied. In addition, American Indians were asked to report their tribe. The Hispanic population, which the Census Bureau recognizes as an ethnic group, now is

identified primarily by a question on Hispanic origin or descent (Mexican, Puerto Rican, Cuban, or Other Spanish), although other measurements are also available in terms of language spoken at home.

Special Censuses ...

Since 1915, the Bureau has conducted an increasing number of special enumerations for local governments at their request and expense, to measure demographic changes that affect such things as the allocation of money from Federal and State agencies, especially where there is considerable population growth between censuses.

... and Current Surveys

Sampling techniques developed for the censuses led to the use of demographic surveys in the 1940's. The resultant statistics would be representative of the Nation as a whole, or in some cases of regions, States, or smaller areas, depending on the size of the sample. The principal survey in which population data are gathered is the Current Population Survey (CPS), begun in 1942. It now covers approximately 57,000 households across the United States that are interviewed monthly to obtain labor-force statistics for the U.S. Department of Labor and current data on a variety of subjects for the Census Bureau and other agencies. Other surveys include such topics as household income and participation in Government programs, consumer buying, health, crime, and education. (Many surveys are done on a reimbursable basis for other Government agencies and under their authority.)

In addition to conducting demographic surveys, the Bureau produces population estimates and projections. The current total population is estimated monthly for the United States and annually for the States; the national population is estimated annually by age, sex, and race. Since 1959, the Federal-State Cooperative Program for Population Estimates has been carried out as a joint effort of the Census Bureau, the States, and Puerto Rico. The participants follow the Bureau's methodology to prepare annual population estimates for counties and metropolitan areas. More recently, these figures have been supplemented by occasional estimates of population and per capita income for counties, incorporated places, and other governmental units. Projections of future population are made periodically for the Nation and the various States. The Bureau also analyzes major demographic and socioeconomic developments both in this country and abroad.



HOUSING

Censuses, 1940-Present...

The number of slave houses was asked in the U.S. Decennial Census of 1850, and enumerators inquired about housing on Indian reservations in 1880. There were no general questions on housing in the censuses until 1890. From 1890 to 1920, interest in housing data was concentrated principally on whether or not residences were on farms, whether they were occupied or vacant, and, if owned, whether they were mortgaged. There have been detailed decennial censuses of housing from 1940 on.

The housing censuses are taken in conjunction with, and in the same manner as, the population censuses. (See p. 3.) The housing censuses cover only those residences that meet the definition of a "housing unit." In general, a housing unit is a group of rooms or a single room occupied or (if vacant) intended for occupancy as separate living quarters; that is, the occupants do not live and eat with any other persons in the building, and there is direct access from the outside or through a common hall. A mobile home also can be a housing unit. Transient accommodations, barracks for workers or members of the Armed Forces, and institutional-type quarters (dormitories, wards, large rooming houses, etc.) have not been counted as housing units, although their residents are included in the population census.

Below are some examples of the subject items covered in past censuses. A 100-percent question is asked for all housing units, and a sample item only at designated units.

- 100-percent
 - Complete plumbing facilities
 - Tenure (owned or rented)
 - Number of rooms
 - Value or contract rent
 - Vacancy status and months vacant
- Sample
 - Components of gross rent
 - Heating equipment

- Year structure built
- Source of water
- Sewage disposal
- Bedrooms and bathrooms
- Air conditioning
- Automobiles, vans, and trucks
- Elevator
- Fuels
- Shelter costs for homeowners

... and Surveys, 1956-Present

As World War II drew to a close in 1945, the Bureau began conducting a number of intercensal surveys of the Nation's housing, most of the concentrating on physical characteristics in selected local areas. A national housing survey, taken in 1956, was the first of its kind to deal with components of change in the housing inventory and to provide intercensal data on the financing of residential properties. Similar surveys were parts of the 1960, 1970, and 1980 decennial census programs. Other Bureau surveys in the housing area include the following:

Housing Vacancy Survey—Since 1955, quarterly and annual reports have been issued that contain data on selected characteristics of vacant units (for rent, for sale, rented or sold but not yet occupied, etc.), with comparative vacancy rates for previous periods.

Market Absorption of Apartments—Because of interest in the extent to which apartments in recently completed, privately financed structures are absorbed into the housing market, the Bureau began publishing relevant annual and quarterly data in 1969.

American Housing Survey—Formerly called the Annual Housing Survey, this activity dates from 1975 and consists of two different sample surveys. One is conducted nationally every other year, and the other, for rotating groups of selected metropolitan areas, is annual. These surveys cover a number of population, housing, and financial characteristics, including some data on the condition of the units and of the neighborhoods in which they are located.

AGRICULTURE

Censuses, 1840-Present...

Agriculture is one of our largest single economic activities, and it is certainly one of the oldest. The U.S. Census of Agriculture gives the only complete, periodic statistics on agricultural activity and production for every county in the Nation and for other areas under U.S. sovereignty or jurisdiction.



Although the 1820 population census counted the number of people engaged in farming, little was done about collecting data on agriculture itself until 1840. That first census was very limited; it had questions about numbers of livestock, grain, and other crops such as cotton and sugar, gardens and nurseries, and forest products including skins and furs. The number of farms and their acreage were first collected in 1850.

Facts about farms and the country's food and fiber production were essential as the U.S. frontier moved westward, new lands were opened to settlement, and foreign trade grew. After 1830, as American agriculture became more varied and complex, the censuses of agriculture that were taken every 10 years did too. Technological changes, such as irrigation, pest control, the use of chemical fertilizers, and mechanized and custom farming, became even more rapid in the 20th century, so that conditions had to be measured more often. Since 1920, there has been an agriculture census every 5 years that collected information on tractors and other important farm machines, farm facilities (such as electricity and telephones), land use and ownership, value of products sold, and the characteristics of people on farms, and data about various kinds of expenses. Beginning in 1900, the agriculture censuses were extended to U.S. territories, although some have been taken only at the time of the population and housing censuses in the years ending in "0."

Ten-year censuses of irrigation were added in 1910 and of drainage in 1920. There have been special censuses of horticultural specialty production for 1890 and 1930, and on a 10-year basis beginning with 1950. The drainage census was abolished after 1978. Information

about agricultural services—custom plowing, crop dusting, veterinary services, etc.—was collected for 1969 through 1978.

In the 1950's, the agriculture censuses were moved to the years ending in "4" and "9." A 1976 change in the law required the census of agriculture to be taken for 1978, 1982, and every 5 years thereafter, providing data for the same years as the economic censuses. Thus, census data became available for the same time period as the Nation's food and fiber system, including agricultural production (agriculture), food processing (manufactures), and distribution (wholesale and retail trade). Similar relationships became possible for farm supplies and equipment.

... and Surveys

Through the years, the Census Bureau also has conducted special surveys dealing with agriculture. The principal of these is the Cotton Survey, which has been taken every year since 1902 to cover each ginning season by State, and since 1913, to cover each ginning season by county; to report monthly activities or conditions from August through February; to detail production by crop year; and to provide cotton statistics for agriculture, foreign trade, and industry programs.

How the Censuses Are Taken

Until 1950, most information was collected in a traditional way, by having a Government employee visit every farm, ask the questions, and complete the report form. Sometimes the information was gathered by a special agent knowledgeable about certain crops, or by mail. In 1954, the Bureau began having mail carriers deliver the report forms, which an enumerator then would collect and check. Beginning with the 1969 census, the agency mailed the necessary report forms to the farm operators or establishments and asked that they be completed and returned by mail. The enumerator's work was limited to a small number of visits to operations that did not respond and to the census in Puerto Rico and other areas outside the United States. For 1982, the report forms were tailored to the different regions of the country and sampling was used to reduce the response burden. Followup was by mail and telephone.

What is a Farm?

In all the censuses, a farm has been one in which the land is under the control of one person or management

(which could be a partnership, corporation, or some other type of organization) and is used for or connected with agricultural operations. Agricultural operations are those which include growing crops, raising livestock and poultry and their products, or producing other items such as honey and greenhouse or nursery products. Such operations can vary in size from a small truck farm to a diversified farming or ranching complex.

From the beginning, the censuses have had a definition of what constitutes a farm, usually based on a minimum number of acres and/or a minimum value of agricultural products sold. Since 1978, a farm has been any place from which \$1,000 or more of agricultural products were (or normally would have been) sold in the census year.

ECONOMIC STATISTICS

The Unit of Enumeration

From the beginning, data for the Bureau's economic programs have been collected and summarized for publication primarily in terms of the establishment. An establishment, as defined for census and survey purposes, is a business or industrial unit at a single geographic location that produces or distributes goods, or performs services.

When more than one economic activity is conducted at a single location, each activity under separate ownership is regarded as a separate establishment. Furthermore, if the same ownership has substantially different kinds of activity at a single location, each activity of significant size and with its own records is treated as a separate establishment.

In the economic censuses, information is obtained for each establishment operated by a company (an organization consisting of one or more commonly owned or controlled establishments) whose primary activity falls within the scope of the censuses. The reporting units for the current surveys vary, but generally are designed to link the survey information with the censuses. The term firm is used interchangeably with company.

The Classification System

In the 1940's, the Bureau began tabulating data from the economic censuses and surveys (except for some transportation and construction surveys), and later from some parts of the agriculture and foreign trade programs, on the basis of the Standard Industrial Classification (SIC) system.

The SIC system classifies establishments by the types of activities in which they are engaged. It makes it easier to collect, tabulate, present, and analyze data relating to establishments engaged in all types of economic activity. The SIC also promotes uniformity and comparability in the presentation of statistics by various Federal and State agencies, trade associations, and private research organizations.

In some instances, more detailed classifications have been derived for census purposes, so that additional industries, kinds of business, or specific products can be identified within the SIC categories.



MANUFACTURES AND MINERAL INDUSTRIES

Censuses, 1810-Present ...

As noted earlier, the 1790 and 1800 censuses were restricted to a count of the population. There was little consideration given to collecting economic statistics because agriculture was by far the most important occupation of the American people. However, by 1810 the fragile beginnings of industrialization were becoming manifest. Congress responded to the need for statistics on the extent of this newly developed industrialization when, in an act passed on May 1, 1810, it directed the Federal marshals and their assistants responsible for conducting the 1810 Decennial Census to take "an account of the several manufacturing establishments and manufactures within their several divisions."

The first census of manufactures was very limited; it collected information for 27 broad categories, encompassing more than 200 kinds of goods. The decennial census of 1840 included manufactures and, for the first time, mineral industries. Thereafter, these were enumerated at approximately 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. (Minerals data were collected as part of the 1935 Census of Wholesale Trade.)

At the beginning of the 20th century, the United States found itself the world's leading industrial nation with an economy characterized by the increasing dominance of manufacturing. As a result of this development, Government decisionmakers, members of the academic community, business leaders, and other experts were faced with an urgent need for more current data on the economy. Congress therefore directed that quinquennial censuses of manufacturing be taken beginning with 1905. From 1919 through 1939, however, the census of manufactures took place every 2 years. The extent of the procedures, coverage, and publication programs for the biennial censuses fluctuated according to the economic conditions of the period.

During World War II, the periodic economic censuses were discontinued in favor of war-related current surveys, so that the next census of manufactures was for 1947. No further full censuses of manufactures and mineral industries occurred until 1954, when a quinquennial economic census program (including retail trade, etc.) was instituted.

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, excepting 1929, a census was taken at 10-year intervals through 1949. Censuses of manufactures also were taken concurrently with the census of business for the years 1954, 1958, 1963, and since 1967, at 5-year intervals as part of the regular economic censuses program. These censuses began in Guam and the Virgin Islands in 1958, and in the Northern Mariana Islands in 1982. A census of mineral industries has never been taken in any of the outlying areas.

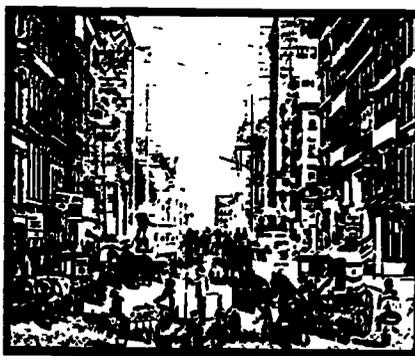
In the 1980's, the manufactures and minerals censuses collected major data items such as the number of plants or factories and workers, payroll, cost of materials, capital expenditures, and value of shipments or production.

These censuses cover all establishments primarily engaged in manufacturing and mining (the extraction of minerals in the form of solids, liquids, and gases) as defined in the Federal

Government's *Standard Industrial Classification Manual (SIC)*. Data were collected in two different ways: The questionnaire mailout/mailback method was used for multiestablishment and large and medium single-establishment firms. Data for most single-establishment small employers were extracted from Federal administrative records.

... and Surveys

Even quinquennial manufactures and minerals censuses could not keep pace with the rapid changes that are created by new processes, new materials, and the shifting demands for goods. Accordingly, a survey program was begun in 1906, and the results were published in a series of *Current Industrial Reports (CIR's)*; prior to 1960, the *CIR's* were titled *Facts for Industry*. Another integral part of the manufacturing statistics program is the Annual Survey of Manufactures (ASM) that, since 1949, occurs in every year in which a census is not taken (during census years it is part of the census). All of these surveys are carried out by mail. Some examples of data collected in the ASM are the number of employees, production workers' hours, and value of shipments. The *CIR's* generally present data on commodity products, shipments, consumption, and/or inventories.



BUSINESS

Censuses, 1929-Present...

Census coverage of the distributive trades and services encompasses three separate censuses—retail trade, wholesale trade, and service industries. These sometimes are called the business censuses.

Although limited data were collected in the 1840 Decennial Census to measure business enterprise in various categories, there are virtually no statistics on business until the first censuses of retail trade and wholesale trade conducted in 1930 (covering the year 1929). The census of retail trade covered operations of "all establishments doing business in a retail manner," including some



service businesses such as garages. The census of selected service industries, which began in 1933, included hotels, personal and business services, automotive repair, amusements, and dental laboratories.

The 1935 censuses were more comprehensive and were an effort to provide the "first actual appraisal ever available on the effects of a serious business depression." These censuses were taken again for 1939 (as part of the 1940 Decennial Census and including business in Alaska, Hawaii, and Puerto Rico for the first time) and 1948. (During World War II, periodic censuses were discontinued in favor of war-related surveys.) Since 1954, the censuses of retail trade, wholesale trade, and service industries have been taken as part of the quinquennial economic census program that includes manufactures, mineral industries, etc., and their scope was successively enlarged in subsequent years. These censuses began in Guam and the Virgin Islands for 1958, and in the Northern Marianas for 1982.

A significant innovation for the 1948 and succeeding censuses was that the classifications were based on the *SIC Manual*. In previous censuses, the Bureau had developed its own classifications after consultation with specialists in Government and the private sector.

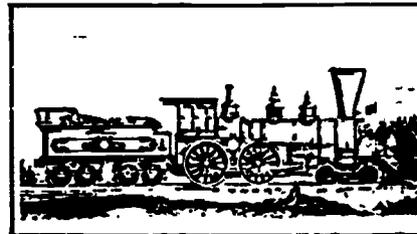
The business censuses in the 1980's collected basic data, such as the number of establishments, sales or receipts, employment, and payroll, plus specialized information about specific kinds of businesses. As in the censuses of manufactures and mineral industries, business census statistics are published primarily in terms of the establishment, and are collected both by mail and the use of administrative records.

... and Current Surveys

As with other censuses, those dealing with business cannot always keep pace with rapid changes in technology and marketing. Because of the shifts in business conditions, Government and other economists need prompt and reliable information. Accordingly, since the early 1950's, the Bureau has conducted

monthly and annual surveys of retail and wholesale trade. Basically, these are taken by mail and produce dollar-volume and percent-change (trend) estimates on such items as sales and merchandise inventories. Estimates are developed both on an unadjusted basis and adjusted for seasonal variation. There also is an annual survey of receipts or revenues for selected service industries. Other annual surveys estimate revenues, expenses, and inventories of revenue-producing equipment in the trucking industry, and revenue and expenses in public warehousing.

of these establishments receive census questionnaires by mail. The results are published by State and large metropolitan area for major items such as receipts (or value of construction work done), employment and payroll, selected operating expenses, assets, and inventories. Receipts are further broken down by specific kind of business and type of construction (commercial, industrial, etc.). Limited data, based on administrative records, are published for the approximately 950,000 firms without paid employees.



specific gap in knowledge, rather than a unified project as is common in other censuses. The transportation census consisted of a passenger transportation survey (designated the National Travel Survey in later censuses but discontinued in 1977) based on a nationwide probability sample of households, and surveys of truck inventories and uses (TIUS), commodity transportation (CTS), non-regulated motor carriers, and (later) public warehousing.

There were similar censuses for 1967, 1972, and 1977 as part of the economic census program. (Transportation data are collected by mail, and only in the 50 States and the District of Columbia.) The 1982 census consisted only of the TIUS—information on the physical characteristics and operational use of the Nation's 34 million private and commercial trucks—and data on public warehousing. The 1987 census included the TIUS and public warehousing, but added establishment-based data for the motor carrier industry, water transportation, and services such as the arrangement of passenger transportation.



... and Surveys

Since 1959, there have been monthly, quarterly, and annual surveys that focus primarily on the volume of residential construction and the dollar value of work done on all types of construction. Statistics are published monthly on such topics as building permits, housing starts and completions, new houses sold, and the value of new construction put in place. In addition, there are quarterly and/or annual series on expenditures for residential upkeep and improvements, housing characteristics, new mobile-home placements, and a price index of new houses sold.

TRANSPORTATION

The first available statistics from the Census Bureau on rail and water transportation date from the 1880 and 1890 Decennial Censuses. There were special censuses of water transportation in 1906, 1916, and 1926, plus one on the express business in 1907. Some transportation data were included in the monthly Survey of Current Business in the 1920's and early 1930's.

The inadequacy of transportation data and the need for appropriate action by the Government to overcome these deficiencies were recognized in a law Congress passed in 1948 authorizing a census of transportation in 1949, but funds were not appropriated except for preparatory work in the early 1950's. A National Travel Survey, which the travel industry sponsored, was conducted in 1957 as a pilot project, but the first census (actually several different surveys, as described below) did not take place until 1963.

The 1963 Census of Transportation was a pioneering effort with respect to the economic areas covered as well as the survey techniques used. The primary objective was to close—or at least narrow—major gaps in statistical knowledge without duplicating data already available from other government or private sources. This objective led to the adoption of a program consisting of four individual surveys, each aimed at a

FOREIGN TRADE

In 1790, the Federal Government embarked on a program to compile general statistics on foreign commerce and navigation from annual reports submitted by the collectors of customs and assembled by the Treasury Department. Since 1941, these figures have been prepared by the Bureau of the Census. Monthly statistics have been compiled since 1866, and cumulative data continue to be available in some reports. In addition to the data on U.S. trade with foreign countries, the Bureau also compiles separate statistics on U.S. trade with Puerto Rico, the Virgin Islands, and other U.S. possessions.

Virtually all information is extracted from shippers' export declarations and import entry forms received through the U.S. Customs Service at American ports or, in recent years, directly from exporters and importers in the form of monthly summaries or actual data on magnetic tape or "floppy disks," or by direct transmission. The Bureau takes figures from some 700,000 export and 450,000 import documents each month, and from automated reports filed by export companies and import brokers.

CONSTRUCTION

Censuses of Construction Industries, 1929-Present ...

Certain data on building activity, compiled from historical files of permits and from surveys by private firms and other Federal agencies, are available for years as early as 1868, and the development of construction industries in this country can be inferred from these. In 1930, however, the Bureau of the Census began collecting data on the entire range of these industries and publishing statistics as part of the business census reports for 1929, 1935, and 1939. Data for construction establishments were not collected again until the 1967 Economic Censuses, of which the census of construction industries became an integral part, and the pattern of enumeration every 5 years was resumed.

In the 1960's, the census included 27 construction industries and industry groups—general building, heavy construction, and special trade contractors (subcontractors); subdividers and developers; and operative or merchant builders. There are about 1.4 million construction establishments in the country. Around 450,000 of them have paid employees, and most



GOVERNMENTS

The Census Bureau's governmental statistics programs are concerned primarily with the organization, finances, and employment of State and local governments. Not only are these governments large in number (currently about 82,000 units), complex in structure, and extremely varied in authorities and responsibilities, but they also comprise an important sector of the Nation's economy. Purchases of goods and services by States, counties, municipalities, townships, school districts, and special districts account for nearly 15 percent of the gross national product.

Censuses, 1850-Present ...

Some data on numbers and kinds of schools and pupils were collected in the 1840 Decennial Census. After that, a census of governments was taken at approximately 10-year intervals from 1850 to 1942, and then at 5-year intervals (for years ending in "2" and "7" from 1957). Early censuses dealt with property values, local property taxes, and schools and their revenues. Later, inquiries were added on public debt, utility systems, and public finance. In the 20th century, interest first focused on revenue and expenditures, estimates of the national wealth by State and class of property, and on the analysis of public debt. The 1957 and subsequent censuses have covered four major subject fields:

Governmental organization—numbers, characteristics, and descriptions of local governments, by type; and statistics on elected public officials (collected only for years ending in "7")

Taxable property values—assessed valuations classified by property-use and value-level classes, measurable sales and ratios of assessments to sales prices, and data on nominal and effective property tax rates in each of about 2,000 counties and major cities

Governmental employment—public employment and payrolls for a representative month; employee organization, and contributory benefit and insurance plans

Governmental finances—taxes and other revenues, expenditures, indebtedness and debt transactions, and holdings of cash and securities. Most of the census data are collected by mail, but some are either extracted from published records or obtained by Bureau representatives. The returns from the government censuses, in contrast to other enumerations required by law, are voluntary and, except for information collected about individual property values, are not subject to the confidentiality provisions of the U.S. Code. But the data do require intensive review and cross-checking to make certain that they are properly classified and comparable from one government to another. Recent censuses include Puerto Rico, Guam, and the Virgin Islands for all topics except property values.

... and Recurring Surveys

The Bureau also conducts a number of periodic surveys and prepares special studies in the area of government statistics, such as of trends in assessing valuations and property sales ratios. It conducts surveys for other Federal agencies, such as of criminal justice units, courts, and jails for the Department of Justice.

The regular surveys include the following:

- Annual financial statistics
- Finances of employee retirement systems of State and local governments
- Public employment
- Quarterly summary of State and local tax revenue
- Annual Federal expenditures by State
- Federal assistance awards

STATISTICS THAT CROSS SUBJECT LINES

Over the years, the Census Bureau developed a number of programs to provide data that cross economic or demographic sectors. These are briefly described below; the years in parentheses are the ones when the programs were begun or transferred from other Federal agencies.

One type of program involves the manner in which census results are presented.

- The concepts, definitions, classification schemes, and reporting units used in the economic censuses, surveys, and related programs generally have been made uniform across economic sectors (1954). This allowed the data user to compare different industries or kinds of business in given geographic areas.

- Both population and housing statistics were cross-tabulated in one series (PHC) of reports (1960). Thus, the user could find housing characteristics shown by such things as the householder's race or ethnic origin for a small geographic area. (The agriculture census has included certain socioeconomic characteristics of the farm population since the early 1900's).

- *Enterprise Statistics* (1954) regroups economic census data for business establishments under common ownership or control to show various economic characteristics of the owning or controlling firms and to present information about establishments that provide centralized management or supporting services for the owning companies' other establishments rather than for other firms or the general public. The economic characteristics of companies engaged in agricultural production were included for the first time for 1982. The other approach is to collect data across sector lines and then either publish them as such or augment them with existing census statistics:

- *County Business Patterns* (1946) is an annual series of reports that profile the economic structure of every U.S. county. They show employment, number and size of establishments, and payrolls, by county for the United States and Puerto Rico, for the following economic areas: Agricultural services, forestry, and fisheries; mining; contract construction; manufacturing; transportation and other public utilities (except the U.S. Postal Service); wholesale trade; retail trade; finance, insurance, and real estate; and services (except in private households).

- *Minority-Owned Business Enterprises* (1969) determine the extent of business ownership by specific minority groups in the United States—Blacks, persons of Hispanic origin, Asian Americans, American Indians, and others. The program covers the United States, States, and areas with 250 or more minority firms. This series contains useful information on finance, insurance, real estate, and other service-related industries not covered in other economic census reports.

- *Women-Owned Businesses* (1972) parallels the Minority-Owned program, and is based on administrative records used in the economic censuses. It covers U.S. places with 250 or more firms owned by women.

- *Characteristics of Business Owners (1982)* covers firms owned by minority groups and women, plus a comparison group of businesses owned by nonminority males.
- *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations (1982)* is the only Bureau program that collects profit-or loss-related information. This survey provides current estimates of income, assets, liabilities, stockholders' equity, and related financial and operating ratios, classified by industry and asset size.

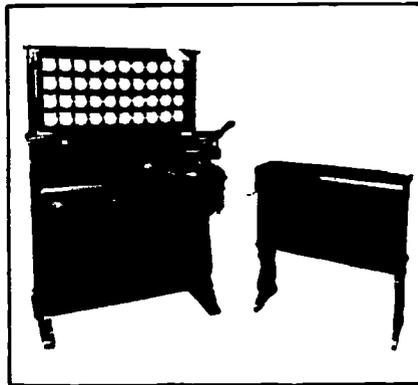
TOOLS FOR THE CENSUS

While planning, taking, and processing censuses and surveys, and publishing the results still requires the work of thousands of people (over 400,000 in the case of the decennial census of population and housing), many advances have been made over the years in the speed of publication and the multiplication of statistical and geographic detail through the development of mechanical and electronic tools.

For nearly a hundred years, census data were tabulated by clerks who made tally marks or added columns of figures with a pen or a pencil. As the Nation grew, and there were more people, items, and characteristics to count, speedier tabulation methods had to be invented or the results of one census would never be processed before it was time for the next one.

In 1880, a "tabulating machine"—a wooden box in which a roll of paper was threaded past an opening where a clerk marked the tallies in various columns and then added up the marks when the roll was full—made tabulating at least twice as fast as before. The first real breakthrough came when a punchcard tabulating system was developed for the 1890 census. Certain facts about a person, family, farm, or business were recorded by punching holes in cards. The cards were mechanically fed through a machine that counted the different holes by means of an electric current that passed through each hole and tripped a counter. This system could count 250 items a minute. Mechanical tabulating improved over the years, and by 1950 its speed had increased to 2,000 items per minute.

The next major speedup of data processing came in 1951 with the first large-scale electronic computer, UNIVAC I, designed and built specifically for the Bureau. This machine was able to tabulate 4,000 items per minute, but subsequent generations of computers have increased this speed to around a million items per minute.



To take advantage of these computers, there also had to be advances in getting the data ready for processing. Punching cards, although far faster than writing, is still basically a hand operation that is subject to human error and creates quantities of perishable records. During the 1950's, the National Bureau of Standards and the Census Bureau developed a system called FOSDIC (film optical sensing device for input to computers). Questionnaires that were completed by using a pencil to blacken dots opposite the appropriate answers were permanently photographed onto microfilm with automatic cameras. FOSDIC then "read" the blackened dots and transferred the data to magnetic tape for the computer at speeds that ranged from 3,000 items a minute with the earliest models to 70,000 items a minute in more recent versions. In the 1980's, FOSDIC also could transmit the data over long distances to the computers at Bureau headquarters. FOSDIC also performed simple checks and tabulations so that discrepancies could be reviewed before the computer began its work. Other equipment allowed data from survey or census report forms to be keyed directly to the computer tape and checked for acceptability at the same time.

At the other end of the computer process, high-speed electronic printers were utilized, beginning in the 1950's, that produced tabulations in forms that required only the addition of headings to be published by offset processes. From 1970 on, the Bureau took advantage of new high-speed compositors that converted the data on computer tape

directly to words and numbers on offset negative film used in publishing. A variety of electronic data plotters came into use to produce maps, charts, and graphs from the computerized data.

The Bureau began making unpublished data available to users in typed or manuscript tables early in the 20th century, in punchcard form at least from the mid-1920's, and on computer tape since the 1960's. (Users sometimes ordered microform or paper printouts of the tapes until the availability of computers became widespread.)

Public-use tapes, which allow users to handle the Bureau's data to suit their own requirements, take several forms: **Summary tapes** parallel the published reports, but often with greater statistical or geographic detail; **microdata tapes** are samples of the basic records, with individual identification removed; and **geographic reference tapes** (see "Computerized Geography" below) make it possible to match data elements and geographic codes to their respective areas electronically. In addition to these standard products, special tabulations are prepared to users' specifications on a reimbursable basis, again with individual identification masked.

In the late 1970's and early 1980's, some data were published on microfiche that did not appear in paper reports. Beginning in the mid-1980's, some statistics were made available on diskettes for use in microcomputers and users began to obtain statistics "on line" through the CENDATA system. In the late 1980's, the Bureau began testing CD-ROM (compact disk/read-only memory) laser disks as a medium for releasing data.

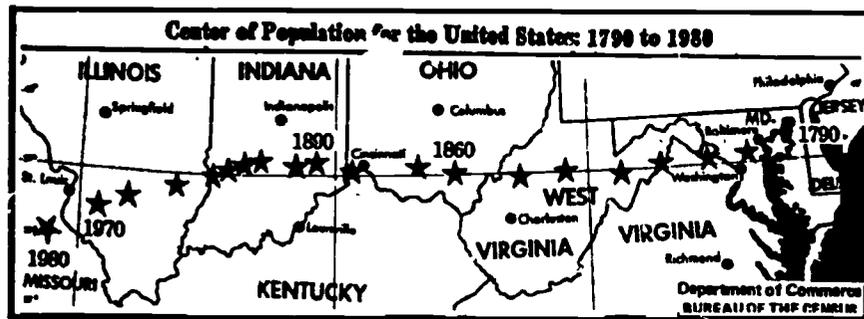
GEOGRAPHIC AREAS AND PRODUCTS

Maps and Charts

Over the last century, the Bureau's census and survey operations have become heavily dependent on maps, both for collecting data and, along with charts, for presenting statistics.

Maps (many in color) and charts were first used to illustrate the demographic, economic, and other characteristics of various geographic areas covered in the 1870 census and have appeared in even greater number and variety for most censuses and surveys in later years. Outline maps are printed in reports or separately, allowing data users to identify the exact areas for which statistics are presented in their printed reports, tapes, or other products.

Since 1900, thousands of maps have been collected from State and local agencies, and/or prepared by Bureau



mapmakers, for taking censuses and assigning geographic codes to the results. In the 1980's, the Bureau began working with the U.S. Geological Survey to develop an electronic data base, called the TIGER (topologically integrated geographic encoding and referencing) system, which combined these various map-making, coding, and related functions into a single coordinated, computerized operation.

Growth of Statistical Areas

Reflecting both the capacity to handle a larger volume of data, made possible by advances in data-processing techniques, and users' growing needs for small-area data, the trend in this century has been to produce more and more data for units such as metropolitan statistical areas, census tracts, blocks, and ZIP-Code areas.

In 1910, the Bureau began publishing population census data for "metropolitan districts"—basically major cities and their adjacent suburban areas. The Federal Government designated "standard metropolitan areas" (SMA's) for the 1950 census as consistent statistical definitions of the Nation's major urban communities. In 1959, the term was altered to "standard metropolitan statistical area" (SMSA).

In concept, each metropolitan area is a closely integrated economic and social unit with a large population nucleus, and generally consists of one or more entire counties that meet specified standards with regard to population, commuting patterns, and metropolitan character. Each area has one or more central cities. (In New England, towns and cities, rather than counties, are the basic geographic units for defining these statistical areas.) These areas were quickly adopted for Federal statistics, and their use spread to the private sector for such purposes as assessing markets and placing advertising. Some Federal agencies also have chosen to adopt the official metropolitan area definitions for nonstatistical program purposes.

With large-scale metropolitan growth in the 1960's and 1970's, many formerly separate metropolitan areas merged (for example, Dallas and Fort Worth, TX),

and the expanding size of certain of the largest metropolitan complexes created what were in many respects separate metropolitan entities within the larger whole (for example, the Long Island portion of the New York area). Noticing these developments, in 1983 the Office of Management and Budget adopted the term "metropolitan statistical area" (MSA) for most areas, while recognizing certain of the largest areas as "consolidated metropolitan statistical areas" (CMSA's), within which "primary metropolitan statistical areas" (PMSA's) also were officially recognized. As of June 30, 1987, the United States had 20 CMSA's containing 71 PMSA's, as well as 261 MSA's. (These counts do not include Puerto Rico, with one CMSA containing two PMSA's, and four MSA's.)

In 1910, the first census tracts were outlined for New York City to show groups of city blocks where the residents had similar characteristics. (A census tract averages about 4,000 people.) Tract statistics from the 1980 Census of Population and Housing were published for all SMSA's as well as some areas outside them.

In the 1940 census, the Bureau published population and housing data by block for cities with 50,000 or more inhabitants, and for other governmental units that contracted for such work. This program has increased every decade since then (2.5 million blocks in 1980, with around 10 million expected for 1990) and presents the data on microfiche and computer tape.

The 1950 census saw the advent of the urbanized area (UA). Its purpose was to make census data tabulation possible for populations around one or more central cities. A UA must have at least 50,000 people, with a population density of at least 1,000 per square mile in the areas adjacent to the core area.

In the economic censuses, data—particularly for retail activity—have been published for small areas generally defined by using census tracts and blocks to approximate central business districts, major retail centers, or ZIP-Code areas. (Most economic statistics are tabulated for incorporated places, counties, metropolitan areas, States, and the like.)

Computerized Geography

The advent of the mailout/mailback data-collection technique changed the role of the census taker, who traditionally had recorded all of the geographic information applicable to each household, establishment, etc. Consequently, address coding guides on computer tape were developed to assign geographic codes for mailing and/or tabulation in various censuses, beginning with the 1962 Census of Governments. In the 1970 and 1980 Censuses of Population and Housing, such guides were used to automatically code the questionnaires mailed to many metropolitan households to the appropriate census tracts, blocks, and other geographic areas, and were printed out for clerks to use in assigning geographic codes to the places where people reported that they worked.

Techniques were developed in the mid-1960's to create computerized geographic base files that had wider applications than simply assigning codes to addresses. The files are useful tools for local government and private organizations interested in such activities as computer mapping and network analysis. As noted in the previous section, the TIGER system represents a further technological advance in this area.

INTERNATIONAL ACTIVITIES

The Census Bureau has an international reputation for expertise in fact-finding. Since 1946, it has trained more than 5,600 persons from statistical organizations in other parts of the world and has built a substantial library through its publications exchanges. It also provides technical assistance to developing countries through resident advisors, consultation, on-the-job training, and regional workshops. Statistical software developed at the Census Bureau is used in some 200 computer centers around the world. The Bureau conducts specialized studies of foreign social and economic systems, maintains socioeconomic data bases for all nations, and provides users with evaluated and adjusted statistics. It prepares estimates and projections of population and certain social and economic characteristics for various countries and world regions, and publishes country demographic profiles that detail fertility, mortality, and population changes.

GUIDES TO THE BUREAU'S PRINCIPAL PROGRAMS

The products of the Bureau's principal programs and their uses are described in separate brochures in the *Factfinder* series:

U.S. Department of Commerce
BUREAU OF THE CENSUS
Washington, D.C. 20233

Official Business
Penalty for Private Use, \$300



POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-202

First Class Mail

- 1 Statistics on Race and Ethnicity
- 2 Availability of Census Records About Individuals
- 3 Agricultural Statistics
- 4 History and Organization
- 5 Reference Sources
- 6 Housing Statistics
- 7 Population Statistics
- 8 Geographic Tools
- 9 Construction Statistics
- 10 Retail Trade Statistics
- 11 Wholesale Trade Statistics
- 12 Statistics on Service Industries
- 13 Transportation Statistics
- 14 Foreign Trade Statistics
- 15 Statistics on Manufactures
- 16 Statistics on Mineral Industries
- 17 Statistics on Governments
- 18 Census Bureau Programs and Products
- 19 Enterprise Statistics
- 20 Energy and Conservation Statistics
- 21 International Programs
- 22 Data for Small Communities

The various printed reports, microfiche, and computer tapes and disks are described in the Bureau's annual *Census Catalog and Guide* and specialized guides to publications, and are advertised in the monthly newsletter, *Census and You* (subscription) and free product announcements and publication order forms.

WHERE THE DATA ARE AVAILABLE

Published census statistics are available to anyone who needs them. Public and academic libraries across the country have or have access to the printed reports, and an increasing number have them on microfiche or computer tape.

Copies are kept for reference at the U.S. Department of Commerce's 47 district offices and the Census Bureau's 12 regional offices (see p. 2), all of which provide assistance in finding information.

Copies of the Bureau's and other agencies' publications can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, or through its bookstores located in other parts of the Nation.

The statistics are summarized in several of the Bureau's convenient compendia, which include data from a wide variety of sources: *The Statistical Abstract of the United States [year]* (annual, since 1878) and its more recent periodic supplements—*County and City Data Book [year]* (since 1947), *Historical Statistics of the United States, Colonial Times to 1970* (since 1949), *Congressional District Data Book [year]* (since 1957), and *State and Metropolitan Area Data Book [year]*, since 1979.

In addition to those appearing in Bureau publications, census and survey statistics can be found in almanacs, journals, textbooks, newspapers, and other secondary sources.

Census data may be purchased, at the cost of reproduction, on computer tape in even greater detail than in the printed reports. Users also may order special tabulations at cost. These tapes and special tabulations are subjected to the same screening to prevent disclosure of individual data as are the standard Bureau publications.

Public-use tapes, disks, and some microfiche are available from the Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233. There also are State data centers in every State, the District of

Columbia, Puerto Rico, and the Virgin Islands, as well as other registered public and private organizations located throughout the country, which are able to provide tape copies and related services.

FACTFINDER FOR THE NATION

Many decades of collecting data have brought a wealth of experience to the Bureau of the Census, and for several reasons it is especially qualified to be the Nation's major factfinder.

It has established a reputation for trustworthiness, and people generally are willing to give it accurate information, knowing it will be kept confidential.

The Bureau collects data throughout the country, from year to year, and from one generation to the next; consequently, its statistics for different areas or time periods are useful for comparative study.

The Bureau has developed an extensive program for consulting with users of its statistics, primarily through public meetings, advisory committees, and conferences and workshops, in which suggestions are sought and the latest methods of handling census materials are studied to assure that the data are widely useful. It consults regularly with statistical agencies in other countries to take mutual advantage of the latest techniques being developed in the United States and abroad.

The staff constantly looks for new and better ways to serve the Nation's statistical needs and welcomes suggestions. Write or call—

Director
Bureau of the Census
Washington, DC 20233

