APPENDIX B: HISTORICAL DEVELOPMENT OF THE ECONOMIC CENSUS IN THE UNITED STATES

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ECONOMIC CENSUSES IN THE NINETEENTH CENTURY

BEGINNINGS OF THE ECONOMIC CENSUSES

1810

The United States first inquired into the state of the nation’s economy during the 1810 census. In a May 1, 1810 act, Congress directed that, “it shall be the duty of the several marshals, secretaries, and their assistants aforesaid, to take, under the direction of the Secretary of the Treasury, and according to such instructions as he shall give, an account of the several manufacturing establishments and manufactures within their several districts, territories, and divisions.” The act did not outline specific questions or prescribe a schedule, leaving those matters to the Secretary of the Treasury’s discretion.¹

To facilitate data collection, the Treasury Department divided manufactured products into 25 broad categories, encompassing more than 220 kinds of goods. As the U.S. marshals and their assistants conducted the decennial census, they also visited the manufacturing establishments in their assigned areas to obtain economic data—generally on the quantity and value of products manufactured.

The enumeration was conducted from August 1810 to July 1811, at a total cost of $40,000. In March 1812, Congress authorized $2,000 for the Treasury Department to prepare a statistical report on the kind, quantity, and value of goods manufactured and the number of manufacturing establishments in each state, territory, district, and county. The May 1813 report noted that the economic data were of poor quality because of serious under-counting and omissions during the enumeration. These shortcoming likely figured into the 1810 valuation of the nation’s total manufactures at about $173 million; however, the actual figure probably

¹Act of May 1, 1810.
exceeded $200 million.²

1820

The 1820 census collected similar manufactures data as those collected in 1810, and additional information on the location of establishments, types of raw materials used (kind, quantity, and cost), numbers of employees (men, women, and children), machinery (kind of machinery, quantity of machinery in operation, etc.), expenditures (capital, wages, contingent expenses), and production (nature and names of articles manufactured, value, demand, and sales). Federal marshals and their assistants collected the data and the U.S. Department of State published the results for each state, territory, and district.

As a result of insufficient funds to pay marshals and the neglect (or refusal) of many establishments to provide the required information, the Department of State did not attempt to compute U.S. totals because the data were incomplete. Data from 1810 and 1820 are not comparable because marshals counted household manufactures (goods produced at home) in 1810 but not in 1820.³

1830

The poor quality of data collected during the previous two censuses resulted in the marshals making no attempt to obtain manufactures data during the 1830 census.⁴

1840

Congress resumed collecting manufactures statistics as well as data on mining and


⁴Ibid., p. 29.
fisheries in 1840 following the rapid growth in commercial fishing, commerce, and mining since
the 1820 census. Marshals and their assistants used a single questionnaire, “Schedule of
Mines, Agriculture, Commerce, Manufactures, Etc.,” to collect data on these subjects. The
census divided manufacturing into 30 categories according to the basis of the manufactured
product (machinery, paper, furniture, etc.), and included an “all other manufactures”
classification. Census takers collected statistics on the quantity and value of goods produced,
amount of capital invested, number of employees, and number of establishments. After
classification of their operations (i.e., iron, lead, salt, stone, etc.), marshals questioned mine
operators about the quantity and value of materials produced, employment, and capital invested
in mining operations. Commercial fishermen responded to questions regarding quantity (and
sometimes value) of fish products, employment, and capital invested.

Marshals tabulated the returns for manufacturing, fishing, commerce, and mining and
published statistical tables on the “commerce and industry of the country.” However, the 1840
census results reflected a considerable undercoverage of the national economy.\footnote{Ibid., pp. 309–312. See list of inquiries to Manufactures in the 1840 census.}

**EXPANSION OF THE CENSUSES**

**1850**

In a report of the Senate Committee on the Library, Senator Rufus Choate of
Massachusetts acknowledged the deficiencies in the economic data collected during previous
censuses, stating that, “. . . in view of the manifest and palpable, not to say gross, errors of the
late census, the [members of the Senate Committee on the Library] feel bound to suggest to
the Senate the necessity of some legislation with a view to prevent similar errors and
inaccuracies in the census to be taken in 1850.” Subsequently, in a March 3, 1849 act,
Congress established the Census Board, specifically tasked with correcting these inaccuracies in data collection and selected board members “not for their political opinions, but for their scientific attainments and knowledge of the matters they are to investigate.\textsuperscript{6}

The newly established Census Board consisted of the Secretary of State, the Attorney General, and the Postmaster General. The Census Board nominated Joseph C. G. Kennedy, a statistician and newspaper editor-owner from Pennsylvania, to serve as secretary and the Secretary of the Interior formally appointed Kennedy “superintendent” of the Census Office in 1850. As superintendent, Kennedy’s responsibilities included designing and printing the schedules of inquiries, and collecting and publishing data on the nation’s population, manufacturing, mining, fishing, and commerce.\textsuperscript{7}

The Census Board consulted with prominent statisticians to develop six schedules of inquiries. Schedule 5 collected economic data from every corporation, company, or individual having annual production valued at $500 or more for the year ending July 1, 1850.\textsuperscript{8} The schedules also asked respondents to supply the following data:

- “Name of business, manufacture, or product”
- Amount of capital invested in real and personal estate in the business
- Quantities, kinds, and values of raw materials used
- Kind of motive power (water or steam), machinery, structure, or resource used in the manufacturing process
- Average number of male and female workers employed

\textsuperscript{6}Write and Hunt, pp. 40-41.
\textsuperscript{7}Ibid., p. 40.
\textsuperscript{8}For a time, the government used the words “schedule” and “questionnaire” interchangeably to refer to the report form completed either by a respondent or a census enumerator. In more recent years, the Census Bureau has generally used the term “questionnaire.”
• Average monthly cost of male and female labor
• Quantities, kinds, and values of annual production

Although federal marshals and their assistants continued to collect census data, clerks working under the supervision of Superintendent Kennedy prepared statistics for publication. The Census Board published the first general census results in June 1853. Partial data for manufactures were available in September 1854, and complete economic statistics for the 1850 census were released in December 1859.9

Following the enumeration, the Census Board reported that the total value of manufactures (including fisheries and the products of mines), as reflected in the 1850 census, exceeded $1 billion—a 500-percent increase since 1810, compared to a 75 percent growth in population. Although the undercount continued, the economic and decennial censuses were considerably more accurate than the previous censuses.10

1860

A significant change to the published results followed the 1860 census when Superintendent Kennedy offered analysis of census statistics. In the 1862 Preliminary Report on the Eighth Census, Kennedy described the increasing impact of manufacturing and commerce in the United States, estimating that one-third of the entire population in 1860 was supported, directly or indirectly, by manufacturing. He compared various industries, interpreted the data to show how and why sections of the economy expanded, stabilized, or decreased, and illustrated interrelationships among the production and socioeconomic factors.

9Ibid., p. 47.

1870

For the 1870 census, the Census Board modified several of the economic schedules in an attempt to collect more detailed data. For example, the “products of industry” inquiry collected additional information on machinery and machine power sources, cost of labor, and number of months the establishment was in operation. The motive power and machinery inquiry was subdivided so as to identify the kind of motive power, horsepower (if steam or water), and the number of machines used. Also, the inquiry concerning the average number of hands employed was revised to cover males (older than 16 years), females (older than 15 years), and children. Despite these changes, statistics on industry and wealth contained basic tabulations closely resembling those of 1850 and 1860.

1880

In March 1879, a new census law implemented major changes in economic data collection for the censuses of 1880. These changes included—

• Tailoring schedules to specialized businesses
• Expanding the scope of the censuses
• Replacing the federal marshals and their assistants with census supervisors and “experts,” appointed by the President and confirmed by the Senate.
• Implementing a schedule of fines and/or imprisonment for census workers who breached respondent confidentiality, falsified census records, or participated in other forms of misconduct.

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11 Act approved March 3, 1879, for the conduct of the tenth census. 20 Stat. 473.

12 For the economic census, “experts” and “special agents” (college professors, engineers, economic statisticians, and others with training and experience in the appropriate subject-matter areas) were authorized to collect, classify, and analyze statistics on manufacturing, mineral industries, or commercial fisheries in 279 large cities and towns.
The Census Office expanded the number of general economic questions used for the 1880 census and designed 49 special schedules, containing more than 2,000 inquiries tailored for manufacturing industries. Although the same item appeared on several (or on the general schedules and also on one or more special schedules), more than 700 inquiries were unique to an individual economic sector.\textsuperscript{13}

During the 1850, 1860, and 1870 censuses, mining and mineral industries inquiries were included on the “products of industry” schedules. The Census Office created 42 schedules specific to mining and mineral industries. (The 1850, 1860, and 1870 censuses collected these data from the “products of industry” schedules). The mining and mineral industries schedules contained almost 3,000 inquiries of which 1,600 were unique to specific schedules.\textsuperscript{14}

The 1880 census included five schedules for commercial fisheries to inquire about the amount and kind of fish taken, type of equipment used, employment, and finances. Of these schedules, commercial fishermen received a basic schedule and more detailed schedules were prepared for dealers in fresh and salt fish, and fishing activities.

Although the 1850 census collected some data on telegraph facilities, the 1880 censuses marked the first major effort to compile detailed statistics on transportation and communications, including the collection and publication of data on steam railroads, steamboat companies, incorporated express companies, and telegraph companies. The Census Office asked 375 questions designed to collect information on the railroads’ financial and physical

\textsuperscript{13}For a general description of the schedules, see Wright and Hunt, p. 63. Individual inquiries on the schedules are listed on pp. 316–363.

\textsuperscript{14}Although schedules for copper mines asked more than 120 questions, the median number of items on the mining and mineral industries special schedules was 53.
characteristics. The 1880 census also contained a special survey on wages and prices. Three schedules, with a total of 167 questions, collected statistics on wages in the manufacturing industries and building trades, and on average retail prices of the “necessaries of life.”

The insurance industry (specifically life insurance) merited several questions in the 1860 census. By 1880, 15 schedules collected data on the organization, finances, and insurance in force of life, fire, and marine insurance companies.

The rise of organized labor and trade associations prompted the government, for the first and only time in the censuses, to include a series of inquiries on labor unions and trade societies (number, objectives and methods, membership, receipts, and expenditures) and on the number, location, causes, and results of strikes and lockouts. The census used four schedules containing a total of 101 questions to collect this information.

The economic statistics compiled in the 1880 census were more comprehensive than in any previous census. The use of experts and special agents generally resulted in more complete and consistent returns, which led to more accurate data on the nation’s economy. The Census Office published the compendium summarizing census data in early 1883; manufacturing statistics and transportation-communications data in October 1883; and the

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15 Financial characteristics included income, expenses, and analysis of earnings, while physical characteristics encompassed track mileage, amount and kind of rolling stock (locomotives and cars), and fuel used to power locomotives, etc. The census requested a detailed report from each railroad on virtually every facet of its operations, including timber conservation practices and data on employees and others killed or injured in accidents.

In addition to questions about railroads’ current characteristics, there was a special inquiry on the history of their construction from which the Census Office tabulated statistics on mileage built and existent, by groups of states, for individual companies, annually from 1830 to 1880. The special schedules asked fewer and less detailed questions of steamboat companies (21), express companies (30), telegraph companies (24), and telephone/telegraph companies (16).

16 As a result of difficulties experienced in collecting and tabulating the data and, except for a preliminary statement in the statistical compendium, no report was issued on this subject.
mineral industries in July 1886. Additionally, the Census Office published several monographs (on water power used in manufacturing; precious metals; and petroleum, coke, and building stone) in the mid1880s. The office published the last 1880 publication—the 1880 statistical atlas—following the 1890 census.

1890

The 1890 Censuses of Manufactures and Mineral Industries followed the basic procedures established for the 1880 censuses. Specialists and agents visited establishments in 1,042 manufacturing and commercial centers, bulletins announced preliminary census results, and in many instances, the same schedule formats were used.

The 1890 censuses were the first to use administrative records (those kept by governmental or private organizations on their day-to-day operations) to compile economic census data, including indebtedness—such as real estate mortgages—of private corporations and individuals. Census agents compiled data on mortgages made during the period 1880 to 1890 from real estate recorders’ offices. Collected data included a description of the property, provisions of the mortgage, and the addresses of the mortgagor and mortgagee. The Census Office mailed schedules (and postage-paid return envelopes) to the mortgagors (or the mortgagees if the mortgagors did not respond), requesting additional information about their mortgages (whether or not they had been fully paid and, if not, how much was owed). Respondents mailed their completed schedules to the Census Office.17

Additionally, the 1890 census covered Alaskan manufactures for the first time.18 The


18Ibid., pp. 38–39. In the early 1880s, Ivan Petroff, a special Census Office agent, traveled to Alaska (in accordance with instructions from the Superintendent of the Census) to report on the number of inhabitants. As a result of his work, he (1) produced a brief statistical review of Alaska in geographic divisions, with tables of population, (2) provided a review of the fur trade, fisheries, mineral, and agricultural resources, (3) described the
census also expanded its inquiries into national transportation (first asked in 1880), to include coverage extended to sailing vessels and rapid-transit facilities in cities (including cable railways, railways operated by animal power, and electric street railroads).  

1900

The census of 1900, modeled on the 1890 census, included coverage of manufactures, mines and quarries, street and electric railroads, and, for the first time, central electric light and power stations. It compiled manufacturing information on the number of establishments, capital invested, number of wage earners and total wages paid, cost of materials, and value of products in 1,042 cities and towns. Most manufacturing establishments (about 513,000 of 640,000 establishments responding to the census) reported information on a general questionnaire. Thirty-two industry-specific questionnaires were used to enumerate the remaining establishments.  

The Census Office published manufacturing data in four volumes with summary data published in the 1900 statistical abstract and atlas. The Census Office also disseminated economic data in 59 unique bulletins on various special subjects in manufacturing that included shipbuilding, slaughtering and packing, and lumbering as well as bulletins on manufacturing for geography and topography of Alaska, (4) furnished a historical sketch of Alaska from its discovery to the year 1880, and (5) wrote notes on Alaskan ethnology. However, this effort did not constitute an economic census of that territory.  


20. Statistics for manufacturing were for the year 1900. Data for mining, street and electric railroads, and electric light and power stations were for 1902, but the Census Office released these results as part of the 12th Decennial Census publication series. See U.S. Census Bureau, Bureau of the Census Catalog of Publications 1790–1972, (Washington, DC: Government Printing Office, 1974). Hereafter cited as Census Catalog.  

each of the states and territories except Alaska and Hawaii.\textsuperscript{22}

The Census Office staff compiled statistics about street and electric railroads, on such topics as number of companies, length of rail lines, cost of construction and equipment, employees, and passengers. Data compiled for central electric light and power companies included number of stations, cost of construction and equipment, earnings, expenses, and power generated.\textsuperscript{23}

**THE TWENTIETH CENTURY: THE CENSUS BUREAU AND GROWTH OF THE ECONOMIC CENSUS**

**Permanent Census Act**

Moves to establish a permanent agency responsible for conducting the census began soon after the 1840 census. In a June 17, 1844 report, the American Statistical Society urged Congress to establish a permanent “bureau of statistics” so as to avoid the errors of the 1840 census. In the decades that followed, committees, and professional associations continued to lobby for a permanent agency. In 1888, Superintendent of the Census Francis Amasa Walker recommended that the task of taking the census, at the very least, be assigned to an already existing, organized, and permanently operating agency (specifically the Bureau of Statistics and Labor in the Department of the Interior).\textsuperscript{24}

Lobbyists for a permanent census bureau persisted, strengthened by continued efforts

\textsuperscript{22} Data for Alaska and Hawaii appeared in the regular census reports.

\textsuperscript{23} For details of the publications for the 1900 census, see the Census Catalog, pp. 28–33.

of the American Statistical Society, the National Board of Trade, and continued dissatisfaction with census results. Congress eventually rewarded proponents' efforts with passage of the Permanent Census Act in March 1902. The act established the Census Bureau (referred to as the Census Office in the act) as a permanent agency in the U.S. Department of the Interior. It also directed that a census of manufactures would be conducted every 5 years (quinquennially) beginning in 1905.

The 1902 act mandated several specialized inter-decennial censuses (taken between 1902 and 1937) that included street railways and telephone and telegraph companies. In 1922, the "street railways" survey expanded to include motor buses and, in 1932, trolley buses. Although the "telegraph" classification included only land telegraph and ocean cable systems in 1902, the agency added wireless systems in 1907. Other special censuses included enumerations of water transportation in 1906, 1916, and 1926; express businesses in 1907; and a census of commercial fisheries in 1908.

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25 In 1890, the National Board of Trade formed a committee to study the feasibility of a permanent census-taking agency. The committee was also tasked with developing recommendations to help avoid concentrating demographic and economic inquiries in a single year. In response to the committees recommendations, the Congress asked the Commissioner of Labor to prepare a plan for a permanent census agency. The U.S. House of Representatives and Senate held hearings on the agency's creation in 1897 only to conclude their sessions without action other than to address the situation in the future. A. Ross Eckler, The Bureau of the Census. (New York: Praeger Publishers inc., 1972). p. 9.


27 The name changed to the "Bureau of the Census" in 1903, when it became part of the new Department of Commerce and Labor. Legislation continued to refer to the "Census Office," however. The Census Bureau became part of the Department of Commerce in 1913 after the Department of Labor's separate establishment.

28 In his book, The Bureau of the Census, A. Ross. Eckler states that a mid-decade would not only serve the purpose of increasing the amount of economic data, but also would keep the agency's employees busy when not engaged in decennial census activities. pp. 9-10.

29 The Census Bureau also conducted censuses of commercial fisheries in 1963 and 1967, but discontinued to program after 1967 due to a lack of interest by data users.
1905

Prior to the 1905 census, the Census Bureau created an index of manufacturers names and addresses using the 1900 census results, city directories, trade publications, and state and local government lists. Using the index, the agency sent preliminary questionnaires to manufacturing establishments in October 1904 asking for basic information on their establishments (name and address, period of operation, and kind of business). The Census Bureau used the preliminary questionnaire data to update its index and—for the first time—mail the 1905 census questionnaires to establishments in early December 1904. Enumerators visited nonrespondent establishments beginning in January 1905.\textsuperscript{30}

The schedules used in the 1905 census were the same as those used in 1900. The agency redefined the scope of the census to cover only manufacturing establishments under the “factory system,” excluding the neighborhood and household industries and trades\textsuperscript{31} that were included previously. Upon completion, the agency retabulated the 1900 manufactures census results using the new definition to provide comparability between censuses.\textsuperscript{32}

**Economic Census of Puerto Rico**

The Census Bureau conducted the first economic census of Puerto Rico (for manufactures) for the year 1909. With the exception of 1929, the agency conducted a census in Puerto Rico at 10-year intervals through 1949, after which it was taken concurrently with

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\textsuperscript{31}Examples of these industries include custom tailoring, carpentering, taxidermy, and, in general, contract work done for individual customers. The census also excluded establishments that produced products with an annual value of less than $500.

\textsuperscript{32}Manufactures 1905. Part I. United States by Industries, p.xxvii.
censuses of retail and wholesale trade and selected service industries, for the years 1954 and 1958. (In 1952 and 1956, the Commonwealth Government of Puerto Rico conducted censuses of manufactures with more limited coverage than the stateside census.) The census in Puerto Rico has been part of the stateside economic census program since 1963.  

1910 Census Act and Confidentiality

The 1910 census act strengthened respondents’ confidentiality, particularly as it related to economic data. The Census Bureau informally considered data collected during earlier censuses confidential, but the 1910 law codified that data furnished by business, manufacturing, and mining establishments:

... shall be used only for the statistical purposes for which it is supplied. No publication shall be made by the Census Office whereby the data furnished by any particular establishment can be identified, nor shall the Director of the Census permit anyone other than the sworn employees of the Census Office to examine the individual reports.  

The Census Bureau acknowledged the importance of confidentiality by noting in the volume containing 1910 manufactures census results that:

It is essential to the success of the manufactures census that every concern should be assured explicitly by law that its business will not be disclosed to competitors, to the general public, to State and local officials, or even to officials of the Federal Government outside of the Census Bureau. Only with such a pledge of confidential treatment can the Bureau of the Census report expect manufacturers to furnish data promptly and accurately.

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34 Wright and Hunt, pp. 136, 145, 150, and 156.


1910

The Census Bureau used 1 general schedule, 1 administrative and general office schedule, and 62 special questionnaires for the 1910 census of manufacturing establishments. Establishments completed and returned their questionnaires to the Census Bureau and special agents visited nonrespondents.

The Census Bureau and the U.S. Geological Survey used a single schedule to collect data for mines and quarries. (This was done to decrease respondent burden, since the agencies collected similar data.) The Census Bureau assigned 1,227 special agents and 76 regular employees to enumerate factories, mines, and quarries. In sparsely settled areas, decennial census enumerators visited manufacturing and mining establishments.

For the first time, the 1910 Economic Census collected data from custom sawmills and gristmills and steam laundries. Under the definitions used in the two previous censuses of manufactures, mills that sawed lumber or ground grain for a fee did not fall under the factory system. The census covered steam laundries because they had become an important industry. Consolidating some categories reduced the number of separate industry tabulations published.

An amendment to the 1902 census act, passed February 25, 1910, required the Census Bureau to enumerate the number of animals slaughtered for food purposes and the number of hides produced during the year. This necessitated an enumeration of all butchering establishments, many of which would not have been included under the general rules defining

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37 Ibid., p. 797.
39 Ibid., p. 35.
May 2010

the factory system.\textsuperscript{40}

1915

For the 1915 Census of Manufactures, the Census Bureau sought help from prominent manufacturers and representative commercial and trade groups to conduct the census, as well as Congress, the Department of Agriculture, the Bureau of Corporations, and state statistical organizations, to carry out the census. The director of the Census Bureau and the Chief Statistician for Manufactures visited large industrial cities to obtain suggestions on the form and content of the schedules from economic census participants.\textsuperscript{41}

The Census Bureau published bulletins containing preliminary results by 1917, however, the United States’ entry into World War I (April 1917) delayed preparation of the final printed reports until after the armistice in November 1918.\textsuperscript{42}

Special Censuses in 1917 and 1918

The urgent need for industrial data during World War I resulted in a number of special economic censuses. In late 1917 and early 1918, the Census Bureau conducted a number of mail censuses for the War Trade, War Industries, Shipping, Federal Reserve, and Commercial Economy Boards, the Food Administration, and the Council of National Defense. These censuses covered such commodities as iron and steel; wool machinery and woolen manufactures; kapok fiber, jute, and silk; leather stocks and manufactured leather goods; antimony and graphite crucibles; commercial greenhouses; materials used in the manufacture

\textsuperscript{40}Ibid.


of explosives; and dental gold production.  

1920–1927

The growing need for detailed economic statistics prompted Congress to direct the Census Bureau (in the act providing for the decennial census of 1920)\textsuperscript{44} to conduct censuses of manufactures on a biennial basis and to collect and publish economic statistics for the years 1921, 1923, 1925, 1927, and for every tenth year thereafter. Inquiries of “economic and sociological importance” included—\textsuperscript{45}

- The size of establishments and hours of labor
- The absolute and relative magnitude of the various branches of industry and their growth and decline.
- The industrial importance (with increase or decrease) of individual states and large cities.

In planning the 1921 census of manufactures, Census Bureau officials consulted the National Association of Manufacturers, the Census Bureau Advisory Committee (including members of the American Economic Association), civic associations (such as chambers of commerce), trade associations, and government and private-sector statisticians. These organizations and individuals provided recommendations that helped the Census Bureau design questionnaires, publicize the census, and encouraged industry’s acceptance of the census.\textsuperscript{46}


\textsuperscript{44} An Act to provide for the fourteenth and subsequent censuses (March 3, 1919), 40 Stat. 1291.

\textsuperscript{45} Ibid., Section 29(8).

To reduce expenses and expedite the processing and publication of results, the Census Bureau omitted certain items included in previous censuses of manufactures (capital invested, age and sex distribution of employees, rent and taxes, primary horsepower used, and kind and quantity of fuel used in manufacturing). Additionally, it collected limited data on the number of wage earners and value of production from manufacturing establishments reporting products valued at less than $5,000 for 1921.

For the first time in an economic census, the Census Bureau used a punchcard tabulating system similar to the one introduced during the 1890 decennial census for tabulating population data to tabulate the 1921 census data from manufactures, mines, and quarries.

The Census Bureau issued preliminary summary reports of census results via press releases related to a particular industry or group of industries. A summary bulletin presented statistics for the United States by industries, and for all industries combined by state. Mining data were published to reflect geographic distribution of operations, land controlled by mining operators, characteristics of organization, scale of operations, and amount and kind of power used. The general report of economic data included analytical tables and tabulations, selected by mineral industry and state, so as to facilitate comparisons with the mining statistics published annually by the U.S. Geological Survey.

The procedures and coverage of the 1923 census were virtually the same as those of

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50 Ibid., pp. 16–17.
1921. The 1923 mailout operation was more successful than in 1921, due in part to the expanded cooperation of chambers of commerce. In many large cities, chamber representatives were sworn in as census agents and supervised the census in their area. The Census Bureau received approximately 65 percent of the returns by mail. By June 1924, almost 95 percent of the establishments had been canvassed by mail or by personal enumeration. Preliminary statistics first appeared in press releases and final data were published in industry bulletins. A one-volume compendium report was published in January 1926.51

For 1925, the Census Bureau again benefitted from the cooperation of local chambers of commerce and professional groups to encourage response to the census. Respondents returned about 65 percent of the schedules (approximately 130,000 of 200,000 sent) by mail. Census staff prepared press releases of preliminary results, plus the usual industry bulletins, and released the one-volume final report in December 1927.52

The 1927 census included 335 industries. Approximately 65 percent of the respondents returned their schedules by mail. The previous press-release, industry-bulletin, and final-volume publication sequence was followed, with the one-volume final report published in April 1930.53

1930

Encompassing censuses of manufactures and mineral industries, construction


531927 Census of Manufactures, pp. 3–12.
industries, distribution (including retail and wholesale trades), and hotels, the 1930 census was broader in scope than any previous census. These censuses covered activities for the year 1929.

The Census Bureau undertook the construction census in response to a post-World War I construction boom. In 1920, fewer than 850,000 workers were employed in contract construction, and total private construction for that year was valued at $5.4 billion. By 1928, the last full year before the start of the Depression, more than 1.6 million workers were employed in this field, and total private construction was valued at $9.2 billion.

When planning the first census of construction industries, the Census Bureau consulted an advisory committee composed of representatives of national contractors’ associations and individual construction companies. This cooperative effort produced one basic questionnaire designed to collect the following data:

- Organization of the establishment
- Number of salaried employees and total salaries paid
- Number of skilled and unskilled workmen employed
- Total annual wages
- Length of working day and week
- Expense for equipment, operation, and overhead
- Total value of materials and building equipment installed

To mail questionnaires to construction establishments, the Census Bureau prepared an

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address list of construction establishments (approximately 144,000 names and addresses) compiled from the records provided by contractors’ associations, private statistical agencies, chambers of commerce, city officials and postmasters. Census Bureau clerks added additional names and addresses to the list collected from telephone and city directories.\textsuperscript{56}

The Census Bureau mailed the construction census questionnaire to establishments engaged in construction (except industrial concerns, public utilities, municipalities, or common carriers that maintained construction crews to repair or maintain their own property). Nonrespondents received two reminder letters and in cities with populations of 100,000 or more, enumerators employed by the decennial census visited nonrespondent establishments.\textsuperscript{57}

The Census Bureau compiled detailed statistics only for establishments reporting gross receipts of at least $25,000 during the 1929 calendar year. A punchcard system mechanically tabulated the data and clerks and statisticians reviewed the tabulations to ensure accuracy. The results were published in a single bound volume in December 1932.\textsuperscript{58}

The 1930 census of distribution data (i.e., retail and wholesale trade) were collected solely via a field canvass. The retail trade inquiries covered operations of establishments involved in some manner of retail trade, including restaurants and some service businesses (such as automobile repair shops) that sold merchandise in addition to their services. Inquiries collected data on the numbers of stores, personnel, payroll, stocks, sales, operating expenses, seasonal employment characteristics, credit business, receipts from sales of meals and automotive services, value of returned goods and allowances, and type of organization. The

\textsuperscript{56}``Construction Industry 1930,“ pp. 2–4.

\textsuperscript{57}``Ibid.

\textsuperscript{58}``Ibid., pp. 4–5.
Census Bureau classified retail establishments according to their principal sales items or popular designation and published preliminary results as press releases.\textsuperscript{59} In February 1933, a one-volume final report included a summary of data by states, counties, and incorporated places, and separate tables for each state.\textsuperscript{60}

Wholesale trade included all establishments engaged in the purchase, sale, or distribution of goods on a conventional wholesale basis, plus other special categories such as cash-and-carry wholesalers, drop shippers (middlemen who secured orders from buyers and had merchandise shipped directly from the manufacturer to the buyer), manufacturers’ sales branches, and cooperative marketing associations. Virtually all merchandising establishments not in the retail group were covered by the census of wholesale trade.\textsuperscript{61}

The census of wholesale trade compiled data on the number of establishments; number of employees; salaries and wages; stocks; and net sales, credit sales, sales to ultimate consumers, and sales to industrial consumers.

Enumerators visited each of approximately 1.5 million establishments involved in wholesale trade to complete 1 of the 6 questionnaires.\textsuperscript{62} Clerks tabulated the wholesale data by kind of business (chemical products wholesaler, drug wholesaler, etc.), by geographic area (division and state), and by type of organization (proprietorship, partnership, etc.).\textsuperscript{63} The


\textsuperscript{63} Wholesale Distribution, 1930,” p. 8.
Census Bureau published preliminary results as press bulletins and released the final bound volume in December 1933.

The Census Bureau planned a mailout/mailback census of hotels (which included only establishments with at least 25 guestrooms) using the directory of names and addresses it compiled of about 27,000 hotels in February 1930. However, because of changes in ownership, duplications, and classification problems, a field canvass was necessary, using decennial census enumerators. Ultimately, clerks compiled data for approximately 15,500 hotels (70 percent of which returned questionnaires by mail, while enumerators contacted the remainder). The agency published tabulations on the number of hotels, number of rooms, seating capacity of dining rooms, receipts, employment, salaries and wages, and number of proprietors and firm members. These data were classified by plan of operation (American, European, and mixed), type of occupancy (transient, permanent, or mixed), and geographic division and state.\(^\text{64}\)

The procedures, coverage, and publication program for the 1930 manufactures census closely resembled those of the biennial censuses for 1921 through 1927. There were 165 questionnaires used to collect data for 238 industry categories. One major difference in coverage was that whereas the first four biennial censuses of manufactures included only firms reporting annual production valued of at least $5,000, the minimum for the 1930 census was $500.\(^\text{65}\)

The scope of the 1930 census of mines and quarries differed considerably from the


The 1930 census excluded the petroleum and natural gas industries, and did not collect data for capital, land holdings, rents, royalties, taxes, or detailed breakdowns by kind of employees. The census covered the sand and gravel, glass-sand, and molding-sand industries, and the quarrying of limestone carried on in connection with the manufacture of lime and cement. Questionnaires included new inquiries as to distribution of sales, equipment purchased, and mobile power equipment; and consolidated and reclassified a number of industries. The data-collection methods and the publication program remained unchanged from previous censuses.\textsuperscript{66}

The 1930 publication program included several special reports on economic topics, including distribution of sales of manufacturing plants; products of manufacturing industries; materials used in manufacturing; and location of industrial plants. With the addition of the censuses of distribution, construction industries, and hotels, the continuation of the manufactures and mineral industries censuses, and the coverage of special topics, the 1930 census was broader in scope than any of the previous economic censuses.

\textbf{1931–1933}

Congress reduced Census Bureau funding and personnel authorizations for the 1931 and 1933 Censuses of Manufactures, and the Census Bureau had to adopt new methods to reduce the cost of the enumeration.\textsuperscript{67} The 1931 census covered 310 industries, but discontinued some inquiries (e.g., on salaried employees, power equipment, and coal


consumption\textsuperscript{68}). The Census Bureau mailed questionnaires in January 1932, and establishments returned approximately 60 percent by mail. Officials of local chambers of commerce and census employees (in large industrial centers) conducted a telephone follow-up of nonrespondents. Decreased funding resulted in fewer field follow-ups and delayed the publication of census results. The Census Bureau released individual industry bulletins over a 2-year period (1933–1934) and a final one-volume report in 1935.\textsuperscript{69}

The agency reduced the number of special questionnaires for 1933, making greater use of the general questionnaire and of a short-form questionnaire for smaller establishments. The census used the mailout/mailback enumeration, with telephone follow-ups, and about 75 percent of the questionnaires were returned by mail. The published volume containing final census results warned data users that fewer personal follow-ups had resulted in incomplete coverage in some areas.\textsuperscript{70}

President Franklin D. Roosevelt’s “New Deal” policies, and their economic data requirements, triggered several special economic census projects, such as the 1933 business census. This census included retail distribution, wholesale distribution, and a new category, “Services, Amusements, and Hotels.” The service classification consisted of personal services (including barber shops and beauty parlors), mechanical repair services (such as radio shops), and miscellaneous services (such as parking lots). The agency collected data exclusively in a

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1935

The 1935 Census of Manufactures provided about the same level of detail as did the 1930 census. The Census Bureau mailed questionnaires in January 1936 and instructed establishments to hold their questionnaires until enumerators visited. Enumerators collected data from every establishment, including those that had not received questionnaires by mail. The 1935 Census of Business covered retail trade, wholesale trade, the construction industries, and service establishments (personal, business, repair, custom, and miscellaneous services) in an extensive field operation funded by the Works Progress Administration. The census also included a miscellaneous business category encompassing many types of establishments not canvassed in any previous census including—

- Advertising agencies (mailed questionnaires and received a follow-up visit)
- Radio broadcasting stations (mailed questionnaires, a follow-up letter, and received a follow-up visit)
- Banks (data collected by mail by the Federal Reserve Board, Comptroller of the Currency, and Federal Deposit Insurance Corporation; follow-up visits were supervised by the Census Bureau)
- Insurance companies (mailed questionnaires and received a follow-up visit)

The goal of the 1935 census was to canvass every recognizable place of business and appraise the effects of the economic depression. To that end, enumerators collected data from field enumeration funded by the Civil Works Administration.  

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real estate agencies, financial institutions other than banks (e.g., stock brokerages and finance companies), hotels, places of amusement, transportation (e.g., buses, trucks for hire, and warehousing), nonprofit organizations, property management firms, and miscellaneous business during a field enumeration.  

The Census Bureau tabulated some of these data at a special office opened in Philadelphia and published the final business census results in 14 volumes (3 each for retail trade, wholesale trade, selected service industries, and construction; 1 for transportation and warehousing; and 1 for the miscellaneous topics), plus a series of special reports. The agency also published a one-volume census of manufactures report.  

1937  

In 1937, the Census Bureau conducted only the census of manufactures. Although the agency reduced the number of special questionnaires used, it collected more product detail than in previous censuses, including data on finished-product and work-in-progress inventories.  

The Census Bureau developed the 1937 mailing list from 1935 census files, trade directories, license lists, etc., and mailed questionnaires in January 1938. Nonrespondents received two follow-up letters in February and March. Enumerators visited the remaining nonrespondent establishments between April and June 1938, after which the agency made a final attempt to obtain data from nonrespondents by mail.  

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74 Ibid., p. 20.  
75 Ibid., p. 19.  
76 For a list and descriptions of these reports, see the Census Catalog, pp. 144–149 and 238–241.  
The preliminary data from the 1937 Census of Manufactures appeared first as press releases. The Census Bureau published final results via pamphlets, and finally as a single volume released in December 1939.\textsuperscript{78}

1940

The 1940 decennial census included a field enumeration of businesses (retail and wholesale trades; selected service establishments, places of amusement, hotels, and tourist camps; and construction), manufactures, and mineral industries, for the 1939 data year.\textsuperscript{79}

The Census Bureau did not canvass the majority of the establishments classified in the 1935 miscellaneous business category (e.g., banks, advertising agencies, and radio stations).\textsuperscript{80} The agency shifted coverage of places of amusement and hotels to the selected service industry group. Furthermore, it modified the 1935 retail classifications for 1940, and published a special table on “reconciliation of classifications” to facilitate comparisons of 1935 and 1940 tabulations. The agency also extended the censuses of retail and wholesale trades and selected service industries to Puerto Rico.\textsuperscript{81}

Coverage of the census of manufactures was similar to that of 1937, but the enumeration shifted from a mailout/mailback operation with follow-up visits to a field enumeration. Enumerators asked a new question on capital expenditures for plants and

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\textsuperscript{78}See the U.S. Census Bureau, Biennial Census of Manufactures 1937: Part I (Washington, DC: Government Printing Office, 1939).


\textsuperscript{80}The Census Bureau changed the scope of the census of selected service establishments by adding the miscellaneous business classifications. U.S. Census Bureau, Sixteenth Census of the United States: 1940 Census of Business: Volume I, Retail Trade, Part 1, United States Summary (Washington, DC: Government Printing Office, 1943), p. 3. The reconciliation tables are contained in an appendix to the printed volume.

equipment and another on personnel collected data on gender and produced detailed categories of nonmanufacturing employees. 82

With the exception of a field enumeration for stone, clay, and sand and gravel industries, the Census Bureau collected 1939 data for mineral industries by mail enumeration. The Census Bureau conducted a mail enumeration of the bituminous coal industry with the cooperation of the Bituminous Coal Division of the Bureau of Mines, U.S. Department of the Interior. Bureau of Mines field offices distributed and collected the questionnaires from coal industry establishments. 83

In addition to press releases and pamphlets, the Census Bureau published data in 10 volumes (5 for the census of business, 3 for the census of manufactures, and 2 for the census of mineral industries). The country’s involvement in World War II interrupted preparation of planned special reports and some were abandoned, including subject reports for retail trade. The agency published the last volume of data in June 1943.

WORLD WAR II

Title 14 of the Second War Powers Act, passed March 27, 1942, permitted the Secretary of Commerce to dispense with or curtail any regular census of the U.S. Department of Commerce in order to undertake more urgent statistical work deemed vital to the war effort. Periodic economic censuses were replaced by war-related surveys that provided statistics needed by the Office of Price Administration, the War Manpower Commission, the Office of Defense Transportation, and other agencies charged with the nation’s defense. Executive


Order 9152 of April 29, 1942, specifically canceled the 1941 Census of Manufactures and later, the 1943 Census of Manufactures. The Census Bureau did not conduct a census in 1945 because Congress did not appropriate the necessary funds.\textsuperscript{84}

**POST-WAR ECONOMIC CENSUSES**

The Census Bureau conducted 1947 Census of Manufactures, the first since 1939, via a mailout/mailback operation\textsuperscript{85} in accordance with the Fifteenth Census Act of June 18, 1929.\textsuperscript{86}

A major innovation of the 1947 census was the introduction of the 1945 Standard Industrial Classification (SIC) Manual for classifying industries covered by the census. (Prior to World War II, the Census Bureau developed and used its own classifications.) The Census Bureau sent precanvass cards to about 525,000 possible manufacturing firms before mailing the questionnaires. The precanvass requested responses to questions about the establishment’s name and address, corporation affiliation, manufacturing process used, types of products, and number of employees.\textsuperscript{87} Response to these inquiries enabled the Census Bureau to eliminate addresses for nonmanufacturing establishments and determine which of the 212 questionnaires should be sent to each.\textsuperscript{88}


\textsuperscript{85}Field enumerators canvassed approximately 15,000 sawmills, which had highly mobile and sporadic operations.


\textsuperscript{87}The post office assisted the Census Bureau by verifying the presence or absence of an establishment at specified addresses.

The 1947 census collected statistics on work hours from all industries and collected data on the total number of employees, not just production workers. These more complete employee data permitted the Census Bureau to present data for industries by the total number of employees rather than the number of production workers.\textsuperscript{89}

Further innovations in the 1947 census included—\textsuperscript{90}

- Use of the Social Security Administration’s (SSA) Old Age and Survivors Insurance (OASI) records to ensure more complete coverage in the census. Staff reconciled the OASI establishment and industry classifications and those of the census. This improved coverage was an important initial step in further integrating Census Bureau and other federal agencies’ statistics.

- Data collection from firms manufacturing products valued at $5,000 or more during the census year, providing coverage more comparable to other federal programs.

- In addition to statistics for individual products ordinarily published in the census of manufactures, the Census Bureau grouped value figures into approximately 1,000 product classes. It used these classes when the number of reporting establishments was too small to permit showing data for individual products.

- The Census Bureau discontinued publication of data on cost of materials and value of products for the United States, major industry groups, and all geographic areas because of the unknown amount of duplication contained in these data. The Census Bureau did publish these data for most individual

\textsuperscript{89} Ibid.

\textsuperscript{90} Ibid.
industries and released data on value added by manufacture and number of employees for industry groups and individual industries.

- The agency carried out a field enumeration of selected areas to judge the completeness of the census, the nature of problems involved in coverage, and types of establishments missed or classified incorrectly.

- The agency tabulated and published data for 147 standard metropolitan areas.⁹¹

As in the past, the 1947 census results appeared first as preliminary reports, then as final reports, and finally in three volumes that included a general summary, statistics by industry, and statistics by state.

On June 19, 1948, Congress passed Public Law 80-671⁹² authorizing the Census Bureau to conduct economic censuses for 1949 and every fifth year thereafter. The first application of the new law came with the 1948 business census, which included retail trade, wholesale trade, and selected service industries.⁹³ Significant changes in the scope of the 1948 business census included:

- The exclusion of the contract construction industry; the limitation of the census to those areas where coverage was mandatory under the new law (the 48 States, the District of Columbia, Alaska, and Hawaii, but not Puerto Rico).

- A reduced emphasis on employment and payroll information.

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⁹¹ These were the forerunners of the present Office of Management and Budget–designated statistical areas. These are one or more counties around a central city or urbanized areas with 50,000 or more inhabitants. Contiguous counties were included if they had close social and economic ties with the area’s population nucleus.

⁹² An Act to provide for the collection and publication of statistical information by the Bureau of the Census, 62 Stat. 478 (Public Law 80-671 was later incorporated into Title 13, U.S. Code—Census).

⁹³ The law authorized censuses of mineral industries and transportation in 1949, but Congress did not appropriate funds for them, and they were not taken until 1954 (minerals) and 1963 (transportation; see discussion under 1963 below).
• The compilation of data on the number of trucks operated by business establishments.

The census collected only a limited amount of information from most small single establishments, but obtained more detailed data from a 1-in-10 sample. 94

The Census Bureau established 308 temporary field offices for the 1948 census and carried out an address listing operation. Between May and November 1949, enumerators left 1 of 12 questionnaires (5 for selected service establishments, 5 for wholesalers, and 2 for retail stores) at most single-establishment firms with instructions that it be completed and returned to the Census Bureau by mail. Enumerators completed the questionnaires for all establishments by interview, unless the establishments’ management specifically requested other arrangements.

The second phase of the 1948 business census consisted of data collection, coding, and editing. Clerks recorded the receipt of questionnaires in listing books for each enumeration district. Nonrespondents received a reminder card and then a follow-up visit. If questionnaires contained incomplete or incorrect data, enumerators visited the establishments to complete or correct the questionnaire. For the first time, preliminary editing of questionnaires took place at the Census Bureau’s field offices, and the agency paid enumerators on a per diem rather than a piece-rate basis. 95

After the field canvass, the Census Bureau re-enumerated 2,500 representative small (substate) areas revealing an undercoverage of 8.2 percent of service establishments and 3.6 percent of retail establishments. The undercoverage reflected a failure to list and canvass


95 Ibid.
small businesses, particularly those with no employees.\textsuperscript{96}

As usual, the Census Bureau published preliminary results and final reports, the latter in bound volumes (three for retail trade, two for wholesale, and two for service industries). In addition to the usual tabulations (receipts, sales, payroll, number of establishments, etc.), the Census Bureau published special tabulations on retail store sales by merchandise line and wholesale sales by commodity line. Publications presented statistics for 147 standard metropolitan areas (MSAs), in addition to states, counties, and cities.\textsuperscript{97}

**The Electronic Computer**

Processing and tabulation technology took a leap forward during World War II when the War Department began exploring the use of electronic digital computers to process ballistic information. In 1943, the National Defense Research Council (NDRC) approved the design and construction of the Electronic Numeric Integrator and Computer (ENIAC) to be used by the Department of Defense’s Ballistic Research Laboratory. The ENIAC was built over the course of three years by a team of engineers led by John W. Mauchly and his former student J. Presper Eckert.

During ENIAC project, Mauchly met with Census Bureau officials to discuss non-military applications for electronic computing devices. In 1946, Mauchly and Eckert secured a contract from the National Bureau of Standards (NBS) to begin work on a computer for the Census Bureau—the Universal Automatic Computer (UNIVAC).

Mauchly and Eckert began building UNIVAC I in 1948 and delivered the completed machine to the Census Bureau in March 1951. The computer, effectively an updated version of

\textsuperscript{96}Ibid.

ENIAC, read data from punch cards or magnetic computer tape, produced tabulations, and printed or stored the results on magnetic tape.

Census Bureau analysts used UNIVAC I to tabulate part of the 1950 Census of Population and Housing and the entire 1954 Economic Census. Throughout the 1950’s, UNIVAC also played a key role in several monthly economic surveys. The agency purchased a second UNIVAC I following the success of it first, and more powerful UNIVAC 1105 computers prior to the 1960 census, thus setting the Census Bureau on a path toward ever more powerful and advanced computer technology to collect and tabulate census data in the decades to come.


Although Congress appropriated funds for planning and preparatory operations in fiscal years 1952 and 1953, it did not provide funds in the fiscal year 1954 budget for the actual taking of the economic census. Instead, it allocated money only for special surveys of manufactures and business. As a result, the Census Bureau terminated work on the economic censuses in May 1953.\(^{98}\) Termination of the census programs provoked considerable alarm in many government agencies and in business and academic communities. In 1953, in response to complaints about the cancellation of the census, the Secretary of Commerce appointed a number of academicians, business executives, economists, and other specialists not affiliated with the Census Bureau to a commission, chaired by Dr. Ralph J. Watkins, Director of Research for Dun and Bradstreet, Inc. The Watkins Commission reviewed of the economic

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census and, in March 1954, recommended that the economic censuses be resumed.\textsuperscript{99}

Congress enacted Public Law 83-467 in June 1954, providing for censuses of manufacturing, mineral industries, and other business (including the distributive trades and service establishments) in the year 1955 relating to the year 1954 instead of censuses in 1954 relating to the year 1953. The economic censuses became an integrated economic statistical program in which data for retail trade, wholesale trade, manufacturing establishments, and construction, mineral, and service industries were collected for the same benchmark years.\textsuperscript{100}

1954

The 1954 Census of Business (retail and wholesale trades and selected service industries) marked the Census Bureau's first attempt since 1890 to compile census statistics from administrative records. Employers were enumerated via mailout/mailback questionnaires, and 1954 income tax records supplied by the Internal Revenue Service (IRS) provided selected data items (such as employment, payroll, and sales) for retail nonemployers with 1954 sales of at least $2,500 and for service nonemployers.\textsuperscript{101}

Income tax records did not contain the kind-of-business classifications necessary to determine which questionnaire should be mailed to a particular establishment, so the Census Bureau matched the IRS list with other lists—such as the Social Security Administration's (SSA's) employee master files—that contained kind-of-business classifications.\textsuperscript{102}


\textsuperscript{102}The names on these lists could often be linked through the use of the employer identification number (EIN) assigned to each case by the SSA, and matched mechanically on punchcard collating equipment.
For mining companies, the Census Bureau supplemented the mailing list with information provided by such agencies as the Bureau of Mines and the Federal Power Commission.\textsuperscript{103}

The Census Bureau conducted a mailout/mailback precanvass in fall 1954 to secure accurate and up-to-date information for multiestatment companies and to correct and consolidate the IRS list. The precanvass asked multiestatment companies to provide data about their names and addresses, employment, types of activities, etc.\textsuperscript{104}

The Census Bureau excluded wholesale firms without employees and retail and service nonemployers with sales and receipts below the cutoff points from the census. Nonemployers (employers without paid employees), although large in number, accounted for only a small percentage of retail sales volume and service receipts for 1954.\textsuperscript{105}

Prior to the mailout of the economic census questionnaires in early 1955, the Census Bureau prepared a mailing list using administrative records. For large companies, the mailing list used the 1953 Annual Survey of Manufactures (ASM).\textsuperscript{106} Census Bureau headquarters staff supervised the mailout and follow-up operations (generally establishments with at least six

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{106}] U.S. Census Bureau, United States Census of Manufactures 1954, Vol. I, Summary Statistics (Washington, DC: Government Printing Office, 1958), p. xvii. The Annual Survey of Manufactures (ASM) was first conducted in 1949 to provide data for intercensal years. The survey covered all large establishments (those having 100 employees or more from 1954 through 1967 and, from 1972, those with 250 employees or more) and a representative sample of smaller establishments. Large establishments remained in the ASM; however, the Census Bureau replaced smaller establishments every 5 years. During census years, the ASM questionnaire became the first two pages of the questionnaire used for the economic census.
\end{itemize}
\end{footnotesize}
employees) and field offices oversaw these operations for smaller companies. Respondents returned the questionnaires by mail, and nonrespondents received follow-up letters. The Census Bureau telephoned or visited establishments that did not respond to the follow-up letters.\textsuperscript{107}

As in past censuses, the Census Bureau published 1954 census results in preliminary bulletins, final reports, and bound volumes. In addition to the usual summary, industry, subject, and area reports, there were special tabulations for central business districts.\textsuperscript{108} Using the 1954 definition of a central business district, the agency also published retroactive retail trade and selected service data for 1948.

\textbf{1958}

The Census Bureau mailed questionnaires (similar to the 1954 questionnaires) between January and May 1959 from the newly established census operations office in Jeffersonville, IN. (The Jeffersonville office also handled receipt, check-in, clerical editing and coding, and card punching.)\textsuperscript{109} The Census Bureau also introduced more sophisticated computer systems and expanded computerized processing to include mailing list controls, more extensive editing, some coding operations, and other functions previously performed manually or with punchcard equipment for the 1958 census.\textsuperscript{110}

For the 1958 census, the Census Bureau introduced a new statistical geographic area

\begin{itemize}
\item \textsuperscript{108}Central business districts were newly defined geographic entities encompassing the downtown business areas of large cities.
\item \textsuperscript{110}Duncan and Shelton, Revolution in Statistics, pp. 135–136.
\end{itemize}
for the business census—the “major retail center” (MRC)—which represented outlying business areas like shopping centers. The agency published MRC data in a series of 97 reports, each covering a standard metropolitan statistical area (SMSA) and included information for central cities and their central business districts.

The Census Bureau also included Guam and the U.S. Virgin Islands to the geographic scope of the economic censuses for the first time.  

1963

Although authorized for 1949 and 1953 in Public Law 80-672, Congress did not appropriate funds for a census of transportation until 1963. The census of transportation collected data on the nation’s transportation that augmented (without duplication) those data already collected by other government agencies and the private sector. To achieve this objective, the Census Bureau developed the following surveys to fill specific gaps in the nation’s transportation data collection:

- The Passenger Transportation Survey. This survey produced statistics showing national and regional passenger patterns and their relationship to socioeconomic and geographic factors. The Census Bureau collected data quarterly personal interviews from a probability sample of about 6,000 households.
- The Truck Inventory and Use Survey (TIUS). This survey collected data on the nation’s truck resources, such as the number of trucks classified by physical characteristics,

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112 Earlier economic censuses had collected data on transportation, but these had covered only specific areas of transportation, such as water transportation (periodic censuses between 1880 and 1926) and street and electric railways, together with affiliated motorbus lines (included in the censuses of electrical industries taken at 5-year intervals between 1902 and 1926).

occupational use, intensity of vehicle utilization, and geographic distribution of vehicles. The Census Bureau mailed questionnaires to a sample of about 100,000 truck and truck-tractor owners selected from state motor vehicle registration records.

- The Commodity Transportation Survey (CTS). This survey collected data concerning the geographic distribution of tons and ton-miles of commodities, by type, shipped by the manufacturing sector. The survey obtained basic information from a probability sample of bills of lading or other shipping records maintained in company files.

- The Motor Carrier Survey. This survey produced statistics concerning “for-hire” carriers not subject to economic regulation by the Interstate Commerce Commission. The Census Bureau conducted a complete mailout/mailback enumeration of bus companies and public warehouses that also provided trucking services, plus a mailout/mailback enumeration of a probability sample of trucking firms.

At the request of the U.S. Department of the Interior’s Bureau of Commercial Fisheries, the 1963 Economic Census resumed the collection of data from commercial fisheries following a 55-year hiatus. The census included a mailout/mailback enumeration of commercial fisheries that had supplied employment data to the SSA. The questionnaires contained inquiries on employment, payroll, receipts, characteristics of vessels, and landed catch. The Census Bureau used a sample of administrative records to compile limited statistics for part-and full-time fishermen, without paid employees.¹¹⁴

The 1963 censuses of retail and wholesale trades, selected service industries, manufactures, and mineral industries closely resembled those conducted in 1958. The Census

¹¹⁴U.S. Census Bureau, Census of Commercial Fisheries, 1963 (Washington, DC: Government Printing Office, 1966), pp. 1, 15–23. Because the mailing list used to collect data from commercial fisheries was later found to be incomplete, a supplemental vessel survey was conducted in 1964.
Bureau again updated its computer systems and expanded the use of electronic equipment to automate geographic coding of establishment addresses and procedures to control mailout and follow-up operations, as well as systems for reporting progress on census operations, and to expedite the transfer of data from Jeffersonville to the computer facility at Census Bureau headquarters. The 1963 census also saw the substitution of magnetic tape for punchcards in developing the census mailing list and the production of computer-generated news stories for releasing census results and for automatically mailing these stories to news outlets.\textsuperscript{115}

The Census Bureau obtained selected information, such as value of receipts and sales, from non-employers’ tax returns. It also used administrative records to assemble mailing lists and obtain preliminary industry classifications for employer firms to be included in the mailout/mailback enumeration. In total, it asked about 3 million establishments to complete questionnaires (which were mailed between November 1963 and March 1964). The agency also derived statistics for approximately 1.5 million nonemployer establishments from administrative records.


1967

In 1967, Congress modified Title 13 of the U.S. Code—Census, changing the reference years for the economic censuses to those ending in “2” and “7.” This was done to distribute the staff and computer workload generated by the economic and demographic censuses more evenly. The 1967 Economic Census included censuses of retail and wholesale trades, selected

services, construction and mineral industries, manufactures, commercial fisheries, and transportation; and the enterprise statistics program.\textsuperscript{116}

The Census Bureau expanded the scope of the 1967 Economic Census to include:\textsuperscript{117}

\begin{itemize}
  \item A census of construction industries (the first since 1939), which, for the first time, included Puerto Rico.
  \item Adding architects and engineers, law firms, and arrangement of passenger transportation (travel agents and tour operators) to the census of selected service industries.
  \item Adding the National Travel Survey (NTS, called the Passenger Transportation Survey in 1963), TIUS, and the CTS to the census of transportation.
  \item Doubling the CTS sample size in the major population centers to improve the quality of the point-of-origin to point-of-destination commodity flow data, and extending the survey’s scope to include printing and publishing establishments (except newspaper and periodical publishers).
\end{itemize}

Data for all nonemployers in retail trade and selected service and construction industries were obtained from IRS income tax records. In addition, the Census Bureau expanded the use of these records to compile statistics for selected single-establishment small employers (firms with few employees during 1967).\textsuperscript{118}

In total, the Census Bureau used administrative records for 60 percent (about 2.9 million

\begin{thebibliography}{99}
\end{thebibliography}
establishments) covered by the economic census.\textsuperscript{119}

The census of commercial fisheries expanded to collect statistics on the number of vessel operators, catch, fishing gear, and various vessel characteristics. The Census Bureau obtained some basic information (gross receipts and industry classification) from the IRS and SSA for part-and full-time fishermen without paid employees. The agency did not publish the 1967 data from administrative records because of classification problems.\textsuperscript{120}


\textbf{1972}

For the 1972 Economic Census, the Census Bureau mailed 2.9 million questionnaires between December 1972 and February 1973. It collected additional information using administrative records from approximately 2.6 million additional establishments.

The 1972 Economic Census incorporated several changes including—\textsuperscript{121}

\begin{itemize}
  \item Collecting construction industries data in Guam and the U.S. Virgin Islands.
  \item Precanvassing all out-of-scope activities of companies that reported on an establishment basis in previous economic censuses.
\end{itemize}

\textsuperscript{119} U.S. Census Bureau, 1967 Procedural History, p. 4.


• Increasing the sample size for the National Transportation Survey from 18,000 (in 1967) to 24,000 households.

• Conducting the first survey of minority-owned business enterprises (SMOBE). The SMOBE presented tabulations by major SIC industry or industry group by race (Black, Asian American, American Indian, and “Other”) and Hispanic origin for MSAs. After 1972, the Census Bureau collected these data along with data for counties and places with specified numbers of minority-owned firms. The published data from the SMOBE was usually limited to legal form of organization and receipt-and employment-size of firm.

The first reports from each of the censuses appeared within 1 year of the period covered by the 1972 censuses. Recognizing the increasing ability of data users to work with data in large quantities, the Census Bureau also issued public-use computer tape files of economic census statistics.

Standard Statistical Establishment List (SSEL)

In 1977, The Census Bureau made changes in its precanvassing of all known multiestablishment companies. (The agency conducted this precanvass once every 5 years, so the company and establishment address records quickly became obsolete.) Following the 1972 Economic Census, the Census Bureau created the Standard Statistical Establishment List (SSEL) and began an annual company organization survey (COS) to update the SSEL’s address files. The SSEL was a central, multipurpose computerized name and address file of all known single-and multiestablishment employers (and nonemployer agricultural establishments) in the nation. Through the combined use of the SSEL file number and the employer identification number, the Census Bureau linked and identified the affiliation of parent
companies, subsidiary firms, and their establishments throughout all phases of economic
activity.\footnote{122}

For more information on the 1972 Economic Census, see U.S. Census Bureau, \textit{1972}
1976.

1977

The 1977 Economic Censuses covered retail trade, wholesale trade, service industries,
construction industries, mineral industries, manufactures, and transportation; the enterprise
statistics program; the SMOBE; and a survey of women-owned business enterprises
(SWOBE).\footnote{123} Between December 1977 and April 1978, the Census Bureau mailed more than 3
million questionnaires and collected obtained data for about 4 million small firms from
administrative records.

In preparation for the 1977 census, the Census Bureau also conducted the 1976
Recordkeeping Practices Survey. This survey obtained information on the ability of
respondents to provide data not previously requested in the Census Bureau’s economic
censuses and surveys. As a result, the Census Bureau began to:\footnote{124}

\begin{itemize}
  \item Collect additional data needed to improve the gross national product accounts.
  \item Expand the coverage of the service industries census.
  \item Develop a common set of commodity lines for all types of operations in the
\end{itemize}

\footnote{122}U.S. Census Bureau, Technical Paper 44, The Standard Statistical Establishment List Program

\footnote{123}The SWOBE collected more specific information about the demographic and economic characteristics of
women-owned businesses and their owners. U.S. Census Bureau, History of the 1977 Economic Censuses

\footnote{124}Ibid., pp. 10–11.
• Develop a better geographic coding system to improve the classification of data by areas.
• Improve the quality of the national travel survey.
• Conduct evaluation programs.

The Census Bureau gave priority in expanding product line detail for the 1977 Censuses of Manufactures and Mineral Industries to the growing need for more data to compare domestic output to imports and exports. Section 608, “Uniform Statistical Data on Imports, Exports, and Production,” of the 1974 Trade Act mandated that a comparability study be made of the commodity classification systems used for imports, exports, and domestic production. This 1975–1976 study was a joint effort of the Census Bureau and the International Trade Commission, and resulted in proposed modifications that would make data collected for individual products or groups of products more compatible with each other. Some of the product-line classifications for the 1977 censuses were developed or revised as a result of the study. The censuses incorporated new product-line classifications identified during the trade act review for which questionnaires had not already cleared the Office of Management and Budget (OMB). Those changes identified after clearance were not used for the 1977 Economic Census, but were included in the 1982 censuses.

The 1977 census coverage included nonregulated motor carriers and public warehousing as well as the National Transportation Survey (NTS), Truck Inventory and Use Survey (TIUS), and Commodity Transportation Survey (CTS). While the Census Bureau based the last three surveys on probability samples, it obtained data for nonregulated (by the

\[ \text{Ibid., pp. 3–4.} \]
Interstate Commerce Commission) motor carriers and public warehousing firms with employees in an enumeration of establishments in the same manner as the other economic censuses.\textsuperscript{126}

Coverage of service industries expanded for 1977 to include privately-owned hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions; and political organizations.


\textbf{1982}

The Census Bureau mailed more than 3 million 1982 Economic Census questionnaires and classification forms between December 1982 and March 1983. The enumeration included censuses of retail trade and wholesale trade; service, construction, and mineral industries; manufactures; and transportation; the surveys of minority- and women-owned businesses; the survey of characteristics of business owners (an expanded version of the 1977 special survey of women-owned businesses); and the enterprise statistics program.\textsuperscript{127} The census also included the first collection of data on retail trade, wholesale trade, manufacturing, and construction and service industries for the Commonwealth of the Northern Mariana Islands.\textsuperscript{128} Some of the service industries included for the first time in the 1977 census (see above) were

\begin{itemize}
\item \textsuperscript{127}U.S. Census Bureau, 1972 Census of Retail Trade, Geographic Area Series, United States (Washington, DC: Government Printing Office, 1984), pp. iii–v.
\end{itemize}
dropped for 1982.\textsuperscript{129}


1987

The general plan for the 1987 Economic Census program was similar to that of 1982, but included a number of significant changes in specific censuses. For retail trade, the number of broad merchandise lines increased from 34 to 41, providing data users more detailed information on the kinds of merchandise sold by different kinds of retail establishments. The agency dropped the major retail center (MRC) reports due to increasing costs.

The census of service industries collected data on health services as well as educational services; social services; museums, art galleries, and botanical and zoological gardens; membership organizations (except religious organizations); rooming and boarding houses; etc. In addition, the census collected additional information on international service transactions. Four more industries reported data on exported services—advertising agencies; accounting, auditing, and bookkeeping services; research, development, and testing services; and legal services.

The Census Bureau published retail trade and service industries data for individual ZIP Codes (for employer establishments only) and moved data on establishments with no paid employees from the \textit{Geographic Area Series} to a new \textit{Nonemployer Statistics Series}.\textsuperscript{130}

The census of transportation was similar to that conducted in 1982 except for the


cancellation of the Commodity Transportation Survey as a result of the deficit-reduction
guidelines mandated by the 1986 Deficit Reduction Act.\textsuperscript{131}

For construction industries, the Census Bureau collected data on the value of
construction work done rather than receipts, as was the case previously. In addition, the
number of construction questions increased from 8 to 24 so as to tailor inquiries to particular
industries.\textsuperscript{132}

The census of manufactures collected aggregate data on the foreign content of
domestically produced products for the first time.\textsuperscript{133} Additionally, as a result of revisions to the
SIC for 1987 and United States’ adoption of the Harmonized Coding system as the official
classification for import and export statistics, the Census Bureau published comprehensive data
on exporting manufacturers and made production statistics more comparable with foreign trade
statistics.\textsuperscript{134}

The 1987 censuses witnessed the following significant data-processing changes:\textsuperscript{135}

• Use of minicomputers gave analysts interactive access to micro-records and
summary data, reduced the amount of paper listings, and improved data quality.
• The Census Bureau upgraded its automated photo-composition system, the

\textsuperscript{131}1987 Guide, p. 87.

\textsuperscript{132}U.S. Census Bureau, 1987 Census of Construction Industries, Industry Series, United States Summary,

\textsuperscript{133}1987 Guide, p. 52; and U.S. Census Bureau, 1987 Census of Manufactures, Subject Series, MC87-S-1,

\textsuperscript{134}The Harmonized Commodity Description and Coding System is an internationally standardized system of
names and numbers for classifying traded products developed and maintained by the World Customs Organization
(WCO). For more information, see, U.S. Census Bureau, “Guide to Foreign Trade Statistics,”

\textsuperscript{135}U.S. Census Bureau, History of the 1987 Economic Censuses (Washington, DC: Government Printing
TIPS II. Laser printers in each of the subject-matter divisions (Business, Construction, and Industry) significantly reduced the time required to produce photo-composed proof copies of data tables, which contributed to the release of the final publications several months earlier than they had been in 1982.

- The Economic Programming Division was established in January 1987 to better utilize computer programming personnel. The staff and programming activities for the census or census-related surveys were consolidated into one division to allow computer staff to move among projects as required.

- Data were published in manipulable form on CD-ROM and diskette, and the publication of data on computer tape was discontinued.

Effective June 1983, the OMB established a new set of MSAs, consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). These replaced the two former types of metropolitan areas (standard metropolitan statistical areas and standard consolidated statistical areas). The Census Bureau used the 2-level system to report data for 21 metropolitan areas in 1987.\(^\text{136}\)


1992

The 1992 Economic Census covered retail trade; wholesale trade; service industries; transportation, communications, and utilities; finance, insurance, and real estate; construction

industries, manufactures, and mineral industries; and the TIUS. The program also included the 1992 Survey of Minority-Owned Business Enterprises, the 1992 Survey of Women-Owned Businesses, the 1992 Survey of Characteristics of Business Owners, and the 1992 Enterprise Statistics Program. The census and surveys were conducted in the 50 states and the District of Columbia. The 1992 Economic Census of Outlying Areas collected data on retail and wholesale trades, service industries, manufactures, and construction industries in Puerto Rico, the U.S. Virgin Islands, Guam, and the Commonwealth of the Northern Mariana Islands.

By adding coverage of financial, insurance, real estate industries, communications, and utilities, and several industry groups within transportation, the 1992 census marked the most significant expansion of the census in half a century. Together with the censuses of agriculture and governments, published separately, the economic census covered approximately 98 percent of the nation’s economic activity. The economic census, per se, increased from covering about 75 percent of economic activity in 1987 to approximately 85 percent in 1992.

The Census Bureau introduced various industry-specific output measures for some of the newly covered industries. For most industries, the basic output measures varied from sales (for retail establishments) to operating receipts (for taxable service establishments), revenue (for tax-exempt establishments), value of shipments (for manufacturers), or value of

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137 The Census Bureau used the term “economic censuses” to cover all of its economic data-collection activities between 1954 and 1987. For 1992, on the advice of the Advertising Council, the agency used the term “economic census” primarily to assist its promotional activities and because data users frequently did not understand what “economic censuses” meant.


139 Data for the individual Outlying Areas were published in U.S. Census Bureau, 1992 Economic Census of Outlying Areas, Geographic Area Series, OA92-E-1 through -7 (Puerto Rico [OA92-E-1 through -4], Virgin Islands [OA92-E-5], Guam [OA92-E-6], and Northern Mariana Islands [OA92-E-7]) (Washington, DC: Government Printing Office, 1994–1995).
construction (for construction industries). Several newly covered industries included as operating revenue items that were nonoperating for most industries, such as rents, interest, investment income, grants, contributions, and gifts. This required adjustment in the data to be collected. For the finance, insurance, and real estate industries, the Census Bureau asked for total revenue and used a supplemental question on the major sources of revenue to separate the components to allow users to tailor output measures for their own use. The item on “sources of revenue” also provided important information that could be used by the agency to identify secondary activity. Similarly, the questionnaire for transportation, communications, and utilities asked for operating revenues basis data.140

In the past, the IRS supplied the Census Bureau with gross receipts or sales (less returns and allowances) for relevant businesses. In 1992, the agency asked the IRS also to supply administrative gross rents and interest income for partnerships and corporations from its administrative records. These data did not comprise total revenue (e.g., dividend and royalty income and net capital gains were not included), but did include additional major sources of revenue for the newly covered industries.141

Because of a lack of data on the contribution of services to the volume of exports in past censuses, the Census Bureau asked respondents to report information on exported services for additional service industries as well as for selected financial services, including depository banking, business credit and other nondepository institutions, securities, brokers and dealers, and electric utilities.142

141 Ibid., pp. 63, 65–66.
142 Ibid.
In the census of manufactures, the number of purchased services expanded from three to eight, and the Census Bureau collected additional information on an auxiliary questionnaire. The agency restructured the receipts inquiry for the census of construction to improve data quality and response and streamlined inquiries on manufacturing output and materials consumed to reduce reporting burden and improve response rates. As required by the 1988 Women-Owned Business Act, the Census Bureau collected information on women-owned corporations for the first time in 1992.\(^\text{143}\)

In an effort to improve and accelerate response, the Census Bureau:\(^\text{144}\)

- Used more effective direct-mail techniques.
- Standardized the size of most economic questionnaires.
- Improved instructions and streamlined transmittal letters.
- Increased the emphasis on mandatory reporting in 1992.
- Implemented more effective follow-up strategies; e.g., using questionnaire follow-ups for single-establishment companies and multiestablishment companies.
- Added toll-free telephone number to all questionnaire mailings.

The Census Bureau implemented a proactive company contact program to encourage the nation’s largest establishments to respond. In December 1991, the agency mailed an information booklet to the 10,000 largest establishments with details about the 1992 Economic Census. The 1,000 largest establishments received special attention, including a contact


\(^{144}\)History of the 1992 Economic Census, pp. 6–7.
person in the agency to whom any questions could be directed.\textsuperscript{145}

In November 1992 (about 1 month before census mailout), the Census Bureau called each company contact person at the 1,000 largest companies to notify them that the questionnaires would soon be mailed. A second call placed in January 1993 ensured that the firms received the census packages and a third call to nonrespondent firms occurred in April 1993. Census Bureau analysts encouraged reporting and collected data by telephone from nonrespondents that had not reported by late June 1993.\textsuperscript{146}

Census reports for 1992 were for the first time published on the Internet in PDF format, as well as in print. In addition, selected data extracts were provided as text file on the Census Bureau’s new website.


\textbf{1997}

While the economic coverage of the 1997 census was similar to preceding enumerations, budget cuts compelled the Census Bureau to reduce the operation’s overall scope with the principal casualty being the Enterprise Statistics Program. Other aspects of the census were in jeopardy during census planning, including data collection for the mineral and construction industries, the Vehicle Inventory and Use Survey, the Surveys of Minority-and Women-Owned Business Enterprises, and the Outlying Areas; however, Congress provided the majority of funds needed to continue collecting these vital data. Statistics for mining and

\textsuperscript{145} Ibid., pp. 76–77.

\textsuperscript{146} Ibid.
construction below the state level were, however, curtailed.\textsuperscript{147}

The most significant change to the 1997 Economic Census was the replacement of the Standard Industrial Classification (SIC) system with the North American Industry Classification System (NAICS). The increasing obsolescence of the SIC codes (by the mid-1990s, the fastest-growing industry sector was “business services, not elsewhere classified”), and the passage of the North American Free Trade Agreement (NAFTA) produced tremendous pressure for an overhaul of the SIC. This situation resulted in the development of the NAICS, a cooperative effort among the Census Bureau, the Bureau of Economic Analysis, and the statistical agencies of Canada and Mexico, and replaced the three separate national systems used by the NAFTA signatories. In February 1997, the Office of Management and Budget (OMB) directed the Census Bureau to adopt the NAICS for the 1997 Economic Census.\textsuperscript{148}

In other preparations for the 1997 enumeration, the Census Bureau undertook a significant upgrading of its data-processing infrastructure. It replaced the Local Area Network servers with more powerful equipment, and faster systems and applications. Ultimately, the Census Bureau moved away from subject area-specific processing to more “generalized” processing for data edits and data analysis.\textsuperscript{149}

To collect the 1997 Economic Census data, the Census Bureau mailed questionnaires


\textsuperscript{148} The Census Bureau used classified establishments using NAICS in the 50 states and District of Columbia (with the exception of portions of wholesale trade and construction industries). At their request, Puerto Rico and the Island Areas postponed the transition from SIC to NAICS until the 2002 Economic Census. Office of Management and Budget, North American Industry Classification System: United States 1997 (Lanham, MD: Bernam Press, 1998), p. 22. For more detailed information on the development and implementation of the NAICS, see Chapter 3, “The Introduction of the North American Industry Classification System (NAICS)” in the History of the 1997 Economic Census.

\textsuperscript{149} 1997 Economic History, pp. 59-60.
to approximately 4.3 million companies in December 1997. The agency used administrative records from the Internal Revenue Service and the Social Security Administration to compile basic economic information on a further 1.5 million small employer businesses, and some 14 million nonemployer businesses. Telephone and mail follow-up operations continued into June 1998.\textsuperscript{150}

The Census Bureau published nearly all of the 1997 Economic Census data electronically. This required a greater degree of product standardization than in previous censuses, as well as user-access software improvements. (Standardization across product lines was critical for cross-referencing permitted through the manipulation of electronic data files.)

Electronic publication of data for the 1997 took four forms:\textsuperscript{151}

- Print images in PDF on the Census Bureau’s website.
- “Drill down” static hypertext tables on the Census Bureau’s website, for the first time linking definitions, maps, and more detail in the first true application for the web.
- The American FactFinder (AFF) system, allowing database query on the Census Bureau’s website.
- CD-ROMs, with software providing access similar to that in AFF, but with more extensive data selection and downloading options.

An Advance Report, issued in March 1999, initiated the publication program with a preliminary look at the 1997 census tabulations, including the first data ever published on a

\textsuperscript{150} Ibid.

NAICS basis. In addition to the standard data reports series, the Census Bureau also released the Bridge Between NAICS and SIC, which showed 1997 data cross-tabulated by both the old and the new classification systems identifying the lowest common denominators between the two.\textsuperscript{152}


\textbf{2002}

The 2002 Economic Census mailed questionnaires and used administrative records to compile statistics on approximately 23 million business establishments covering 96 percent of the nation’s economic activity. For the first time, the 2002 Economic Census collected, tabulated, and disseminated census data for all industries in the states and Island Areas using the North American Industry Classification System (NAICS). Although the Census Bureau introduced NAICS in the 1997 Economic Census, it initially was not used for the surveys of minority- and women-owned businesses or for the Island Areas.\textsuperscript{153}

Following the successful implementation of the NAICS, the governments of the United States, Canada, and Mexico began development and implementation of a joint classification system for the products of industry—the North American Product Classification System (NAPCS). The NAPCS is a market-oriented classification system for products that can be linked to the NAICS industry structure and promotes improvements in the identification and


\textsuperscript{153}For more information on the development of the NAICS, see the \textit{History of the 1997 Economic Census}, Chapter 3, “Introduction of the North American Industry Classification System (NAICS).”
classification of services products in particular.\textsuperscript{154}

Most questionnaire inquiries remained consistent with those asked in 1997. However, following consultation with professional organizations and data users, the Census Bureau added inquiries concerning e-commerce, leased employees, and supply chain activities.

Although content changes were minor, the Census Bureau’s Economic Directorate developed or redesigned several critical databases, database tools, and computer systems to upgrade its infrastructure, facilitate electronic reporting, and reduce operational costs. Notable improvements included—

- **Business Register Redesign.** The Business Register (BR) replaced the Standard Statistical Establishment List (SSEL). The BR provided analysts a central repository for administrative records and support for collection, processing, and tabulation for all economic programs, as well as research into business ownership, demographics, etc.\textsuperscript{155}

- **The Economic Metadata Repository (EMR) and the Generalized Instrument Design System (GIDS).** The EMR and GIDS improved overall consistency and quality of forms design, as well as facilitated data capture. The Census Bureau’s expanded use of electronic data reporting in 2002 meant the agency had to coordinate the content of the paper-based questionnaires, requiring a database to house the content and software used to compose electronic and paper-based questionnaires. The agency developed the EMR to store questionnaire content and the GIDS to compose the 545 electronic


and paper-based questionnaires from the EMR’s content.

- **Optical Mark Recognition (OMR)/Key From Image (KFI) system.** The Census Bureau developed an Optical Mark Recognition (OMR)/Key From Image (KFI) processing system for capturing data from the paper questionnaires used in the 2002 Economic Census. This system used questionnaire information provided by the GIDS to create and register templates for each of the more than 5,000 unique questionnaire pages used in the census.

  The KFI system streamlined data capture of the paper questionnaires by eliminating much of the manual keying and automatically capturing the check-box responses. It also provided the images for the edit referral review processes associated with post data capture operations.

- **Electronic reporting.** The Census Bureau expanded the availability of electronic reporting for the 2002 Economic Census, developed electronic questionnaires and reporting software and made these tools available via the Internet. Electronic reporting reduced respondent burden, improved data quality, and sharply reduced paper handling costs.

  At the conclusion of the 2002 data collection, review, and dissemination cycle, the Census Bureau published all 2002 data products electronically. Data users downloaded reports and tables, or created custom tabulations via the Internet, CD-ROM, and the agency’s American Factfinder website.\footnote{U.S. Census Bureau, *Procedural History of the 2002 Economic Census*, “Chapter 1: Introduction,” EC02-00R-HIST, September 2006. pp. 1-10, http://www.census.gov/prod/ec02/ec02-00r-hist.pdf (May 26, 2010).}

Washington D.C., 2006; or http://www.census.gov/prod/ec02/ec02-00r-hist.pdf.