Educating the Educator: U.S. Government Statistical Sources for Geographic Research and Teaching.

EDUCATING THE EDUCATOR:
U.S. GOVERNMENT STATISTICAL SOURCES FOR
 GEOGRAPHIC RESEARCH AND TEACHING

BY

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INTRODUCTION

Geographic research frequently involves obtaining and analyzing statistical data. Economic geographers are interested in locating statistics on transportation, industry, and agriculture. Population geographers want fertility data, sex ratios, and migration statistics. Physical geographers need soil, weather, and climate data. While the range of needed information is diverse, so is the desire for areal and subject detail. Regardless of the specific need, the importance of statistics cannot be overstated.

Fortunately, the United States Government through its multi-million dollar statistical programs collects, analyzes, and publishes vast amounts of significant data of use to the geographer. Approximately one hundred federal agencies are directly involved with statistics. Moreover, thirty-eight do this as their prime or major function.\(^1\) Of course, the Bureau of the Census is the preeminent producer of statistical reports; but others, from the Bureau of Labor Statistics to the Central Intelligence Agency, collect and publish general purpose and thematic data. Unfortunately, this wealth of information is often not effectively tapped by geographers and their students. "Faced with volume after volume, page after page, and column after column of statistics," Eiselen notes, "the teacher--and even the researcher--too frequently turns away in frustration."\(^2\) (Slide 1)
If geographers in consultation with government publications librarians learn to communicate the basics of federal statistics, geography students will be better able to fully utilize the massive amount of federal statistics for quality reports and mapping. Clearly, it is impossible for teachers and librarians to describe or even mention all federal statistical publications. For example, in 1981 there were approximately 6,500 titles which contained significant data. It is possible, however, for geography teachers and librarians to illuminate the basics of federal statistics by describing the diversity of statistical sources available; explaining the content, scope, and organization of a few significant titles; and identifying appropriate finding guides and indexes. The authors intend to delineate these basics along with evaluating the relative usefulness of these sources. (Handout distributed. See appendix.)

REFERENCE SOURCES

Ready-reference sources are one of the most useful types of statistical reports published by the federal government. They compile a large quantity of general purpose information into an easily usable form. These sources are most useful for students, but they can also benefit the experienced researcher. Some significant titles are:

*Statistical Abstract of the United States.* 1878 to date. Annual. Bureau of the Census. (Slide 2)
The Abstract is the most valuable single volume of statistics published by the federal government. In the 1981 Abstract, over 1500 tables drawn from government and non-government, published and unpublished sources provide researchers with virtually instant access to significant and comprehensive data about the United States.

The Abstract is organized into 34 different sections ranging from "Geography and Environment" to "Foreign Commerce and Aid." A detailed table of contents and a forty page subject index make information easy to locate. A significant strength of the Abstract is its value as a guide to other statistical sources where further data can be found in greater subject or geographic detail. This guidance is given in three ways. First, the introduction to each chapter, in addition to giving the chapter's scope and relevant definitions, notes other sources of special value. Second, all tables have a source note which indicates the origin of the information. Third, the appendices in the Abstract provide a subject index and comparative tables to other important statistical sources.

Obviously because of its broad scope and relatively small size (approximately 1000 pages), the Abstract does not give statistics by small geographic area. Generally, statistics are given for the United States as a whole, although much of the data is given by region and state. Moreover, a small amount of information is presented for selected metropolitan areas.
The strengths of the Abstract are its broad scope, currency, handy format, and its ability to guide users to other sources. Its weaknesses are its lack of information below the state level and its paucity of retrospective statistics. The lack of geographic detail and historical statistics are partially corrected by three supplements to the Abstract.

County and City Data Book: A Statistical Abstract Supplement. 1952 to date. Irregular (currently every five years). Bureau of the Census.


These two volumes compensate for the lack of geographic detail in the Abstract. The County and City Data Book presents approximately 200 important summary statistics for all U.S. counties, SMSAs, and cities over 25,000. It also guides a researcher to other important sources. Its strong points are the detailed geographic presentation of data and excellent black and white state outline maps showing counties, SMSAs, and places over 25,000. The volume's major weakness is its lack of current information. For example, the current edition contains some data no more recent than the late 1960s or early 1970s. This is partially caused by its reliance on the major censuses which are taken only every five or ten years. Finally, the organization of the volume may cause confusion to users.
The State and Metropolitan Area Data Book gives 2008 statistical items for states and 440 items for metropolitan areas. It has a detailed table of contents and a good index which makes the volume easy for use. In addition, it guides users to other sources.


Historical Statistics contains data on the social and economic development of America from 1610 to 1970. Not only is it a handy reference source, but it also guides researchers to more detailed statistical materials. Historical Statistics basically aggregates data nationally with some information given for regions and states. Two helpful indexes, one by subject and the other by time period, make the source easy to use.

In coordination, the Abstract, County and City Data Book, State and Metropolitan Area Data Book, and Historical Statistics provide a researcher access to a rich source of both current and historical data for the United States and its states, counties, and urban areas.

The World Factbook (formerly National Basic Intelligence Factbook). 1970s to date. Annual (formerly semi-annual). Central Intelligence Agency. (Slide 5)

The Factbook gives general information on each country of the world under such topics as land, water, people, government, economy,
communication, and defense forces. This information is based on the most recent data or estimates from the CIA, the Defense Intelligence Agency, the Bureau of the Census, or the State Department. The Factbook is organized alphabetically by country and has eleven world regional outline maps for reference. This is not a source for detailed information about a nation or its regions, but it is an excellent source for useful comparative data about the countries of the world.

THEMATIC SOURCES

Every week, month, quarter, or year a variety of government agencies publish reports on a range of specific topics. In addition to the Bureau of the Census, agencies such as the Statistical Reporting Service, Department of Agriculture; the National Center for Education Statistics, Department of Education; and the National Center for Health Statistics, Department of Health and Human Services report valuable data on agriculture, education, energy, the environment, health, labor, and other topics. Often this information is more current than data found in reference sources or the major censuses, and these sources always give data limited by subject. To reiterate, the amount of federal statistical publication is voluminous; the government publishes over 800 statistical periodicals alone. Consequently, only a few representative titles, ones useful for geographers, will be described:
Agricultural Statistics. 1936 to date. Annual. Department of Agriculture. (Slide 6)

This is a good example of a thematic source because one volume gives information on virtually all aspects of agriculture including production, consumption, facilities, and costs. The majority of the data used is from USDA counts or estimates with some information from other government sources. Each volume usually gives recent as well as historical (the last 10-15 years) information. To find comparable data before 1936, look at the statistics section in the Yearbook of Agriculture.

Agricultural Statistics is organized into fourteen chapters and has a good index. The majority of the information given is for the United States, but some tables give information by state and occasionally by country.


Morbidity and Mortality Weekly Report. 1952 to date. Weekly with annual supplement. Center for Disease Control. (Slide 7)

Vital Statistics in three volumes presents official data on births, deaths, fetal deaths, marriages, divorces, and annulments. The data is given in demographic detail (by race, age, and sex) and in geographic detail (county and cities over 10,000). Prior to 1937 vital statistics were published by the Bureau of the Census in two separate reports. Data before 1936 is often incomplete, scattered, or non-existent.
Morbidity and Mortality Weekly Report presents provisional data, and its annual gives final figures on the incidence of 46 reportable diseases in the United States. The weekly report provides information for the United States, regions, and states along with a table giving the number of deaths by age for 121 cities. The annual summary reports information in greater demographic detail (age and race) and in addition gives historical information. Moreover, the annual contains many useful maps and graphs.

Handbook of Economic Statistics. 1975 to date. Annual. Central Intelligence Agency. (Slide 8)

The Handbook details a wide variety of specific economic data for Communist and selected non-Communist countries. Its 181 tables contain comparable national statistics ranging from the number of hogs in a country to crude oil consumption. The CIA uses its own estimates along with official national and international publications to produce the work. It also has a helpful table of contents and index.


The American labor force is continually profiled in this periodical. Most of its data is reported for the nation by age, sex, and race categories. However, a small amount of information is given for state and selected metropolitan areas such as employees on nonagricultural payrolls by industry; gross hours and earnings of production workers on manufacturing payrolls; and labor force and unemployment size.
Climatological Data, National Summary. 1950 to date. Monthly and Annual. Environmental Data Service.

Climatological Data, (State Sections). 1914 to date. Monthly and Annual. Environmental Data Service. (Slide 10)

These sources provide summaries of climate and weather information including such items as precipitation, temperature, and wind movement. The national summary contains general information for the United States and limited data for individual states. The State sections report more complete information for numerous individual weather stations within a state.


This is an important source of demographic information. The Current Population Reports provide population estimates and projections along with statistical reports on consumer income, the elderly, youth, fertility, and marital status. Most data is given for the nation and regions; yet some data, especially the projections and estimates, is broken down by state, county, and SMSA.

MAJOR CENSUSES

The most significant statistical publications for the majority of geographers are the major censuses conducted by the Bureau of the Census. The Bureau spends over 150 million dollars annually to collect and
report population, housing, demographic, and economic data. This information provides geographers, as well as other social scientists, the tools with which to understand America's past, cope with its present, and plan for its future.

The national census started with a simple population count in 1790 which was mandated by Article I, Section 2, of the Constitution to provide accurate information for the equitable collection of direct taxes and apportionment of the House of Representatives. As the government's and society's need for accurate information about the nation grew, so did the scope of the censuses to include social and economic data. Moreover, as the census developed, the aggregation of data into specific geographic units became more precise and detailed. For instance, it was not until 1850 that the census enumerators had to collect data uniformly for known civil divisions within a state. Furthermore from the late nineteenth century to the present, the census has improved its technology from simple counting machines to computers. It has also improved its methodology; for instance, in 1940 it introduced scientific sampling procedures.

To graphically illustrate the growth of the census, just compare the 1790 Census with the 1980 Census. The first census cost under $45,000 dollars and took 2 years to count 4 million people. To publish its findings took only 56 pages. The 1980 Census will cost approximately one billion dollars and will take ten years (July 1, 1973 to September 1983) to count 226.5 million people. Its findings will be published in
over a quarter of a million printed pages and myriad microfiche and computer tapes.\textsuperscript{9}

The major censuses primarily collect and disseminate statistics in ten subject areas (Slide 12). Moreover the data is aggregated into units which make detailed studies possible. Presently the censuses can be divided into two categories: the general purpose decennial census and the thematic quinquennial censuses.\textsuperscript{10}

The decennial Census of Population and Housing is the premier general purpose census done by the federal government. It gives detailed demographic and social data broken down into units as small as census blocks (Slide 13).\textsuperscript{11} The reports in this series are based on "complete count" information gathered from all respondents to the census and "sample items" gathered from respondents to the "long form" sent to approximately one out of every six households. "Complete count" data includes information on items such as age, sex, and race; and "sample item" information includes data on such topics as educational attainment, place of work, and number of bedrooms. Preliminary data from the 1980 Census was published by the fall of that year with more information published continually until the end of 1983. The data will be published in three media: print, microfiche, and computer tape (Table 1). The computer tape will have ten times more data than will appear in print.\textsuperscript{12} Also it will contain information in greater geographic and subject detail than will be available in print.

Most of the quinquennial censuses started as part of the decennial census in the nineteenth century and became separate censuses in the
twentieth century. All thematic censuses give information on clearly defined topics such as agriculture, construction industries, retail trade, wholesale trade, service industries, transportation, manufacturing, mineral industries, and government. The subject censuses give information by the United States, regions, divisions, states, and often by county or SMSA. Currently, most thematic censuses are published every 5 years in years ending with 2 and 7. The frequency of their publications has changed over the years and possibly will change in the future.

FINDING AIDS

How does a geography student or even an experienced researcher cope with the vast amount of federal statistical publishing? The best way is to utilize a myriad of guides and indexes to this information. The guides generally describe the type of information available from and the organization of certain statistical series. The indexes are more specific; they lead researchers to specific volumes where particular information can be found. The best indexes even locate the chart or page of desired data. A selection of useful guides and indexes are:

American Statistics Index. 1974 to date. Monthly with annual cumulation. Congressional Information Service. (Slide 14)

American Statistics Index is by far the best index to federal statistical publications. It clearly identifies, succinctly abstracts,
and thoroughly indexes federal statistical publications for social and economic data and selectively for scientific and technical data. It covers material published since 1960. ASI is divided into two main sections: the index and abstract. The major index is arranged by subject and name; but smaller, more specialized, indexes provide access to statistics by geographic breakdowns (city, county, state, etc.), economic breakdowns (income, industry, occupation, etc.), and demographic breakdowns (age, educational attainment, marital status, etc.). Lastly, ASI will also enable a researcher to locate general guides and other reference materials concerning specific statistical series.


The *Monthly Catalog* is the basic index to government publications of all types. Currently, through six separate indexes—author, title, subject, series/report, stock number, and title keyword—the researcher can locate a significant number of statistical publications and guides to those publications. The *Monthly Catalog*’s main advantage is that it covers almost ninety years of government publishing. Yet it has several important disadvantages when compared to ASI for recent and current statistical research. The *Monthly Catalog* does not have an abstract and its subject indexing is not as detailed as ASI. Despite its shortcomings, the *Monthly Catalog* is a handy index to know about and use.

The Catalog lists and generally describes all major census publications and programs from 1790 to date. All years have a subject index, and the years from 1946 to date also have a geographic index.


This directory provides a table-by-table description of federal statistical resources which give statistics for areas smaller than states. Most of the reports referred to are standard published items. A few sources mentioned are not published but are available from the issuing department, agency, or bureau. The work is arranged by broad subject such as agriculture, education, manufacturing, and population. In addition, each entry gives the type of information available on a specific topic, the geographic scope of the information, the frequency with which the information is published, and the source. There is a detailed subject index which makes this source relatively easy to use.

Directory of Data Files. 1979 (irregular updates). Bureau of the Census. (Slide 18)

In response to the growing amount of statistical information on computer tape and the increased demand for it, the bureau produced a complete guide to its 1,500 data files. In language intended for the knowledgeable layman, the directory describes these files in detail and explains how to obtain them. Four types of information compose these
files: summary statistics, microdata (individual records stripped of identification), geographic reference data, and computer software. The directory is organized by broad subject and has a title index. It is especially valuable for the researcher who finds printed data too limited or inflexible for certain types of research.


This volume is an authoritative guide book to the 1980 Census which explains the scope, purpose, and products of the latest decennial census. Its seven chapters describe census fundamentals, questions asked on the census, procedures, census geography, data products, data limitation, and sources of information. The guide is essential reading for anyone who plans to deal with the 1980 Census extensively. Also the bureau produces similar guides to most of the thematic major censuses.

**CONCLUSION**

The authors hope that both the diversity and potential usefulness of federal statistical publications are clear as well as the importance of exposing upper-level college geography students to the basics of federal statistics. Ideally, it will lead them to more sophisticated statistical sources for geographers such as the GBF/DIME-FILES and related products. 14

Furthermore, the authors believe that there are four additional points worth emphasizing. First, there is an abundance of statistical
information collected and reported by the federal government that is important for geographers and their students. The current budget cuts have and will diminish the quality and quantity of some statistical programs. Nevertheless the government will continue to publish valuable statistics pertinent to geographers. Second, the Census Bureau is a major source of statistical information, but it is by no means the only important federal government source of statistics. Numerous agencies produce data important to both students and researchers. Third, government statistical reports are involved in a continual trade off between currency, geographic detail, and subject detail. Analysis and cross tabulation of data take time. Thus, the most detailed reports will not be as current as reports which are more general. Fourth, academic geographers and academic librarians need to cooperate, utilizing the expertise of each, so geography students can effectively identify federal statistical information relevant for their scholastic needs.
FOOTNOTES


2. Elizabeth Eiselen, "Foreword," in Census Data: Geographic Significance and Classroom Utility, Bordon D. Dent, ed., NCHE Pacesetters in Geography, No. 2 (Tualatin, Oregon: Geographic and Area Study Publications, 1976), p. ix. Census Data contains many fine articles on classroom activities based on statistics and individual federal statistical publications. Yet it lacks an integrated overview of federal statistical publishing which is important for the novice in this area.


10 The decennial census occurs every ten years; the quinquennial census occurs every five years.

11 Census blocks are "the smallest type of census area; blocks average about 70 people and most commonly are small rectangular areas

12 Bureau of the Census, Census '80, pp.336-338.


14 For information on the GEF/DIME-FILES see Bureau of the Census, Users' Guide, pp.65-66.

Slide 1. Shelves of documents in the library.

Slide 2. **Statistical Abstract of the United States.**

Slide 3. **County and City Data Book and State and Metropolitan Area Data Book.**

Slide 4. **Historical Statistics of the United States, Colonial Times to 1970.**

Slide 5. **The World Factbook.**

Slide 6. **Agricultural Statistics.**


Slide 8. **Handbook of Economic Statistics.**

Slide 9. **Employment and Earnings.**

Slide 10. **Climatological Data, National Summary and Climatological Data, (State Sections).**

Slide 11. **Current Population Reports.**


Slide 13. [Map Diagram]


Slide 18. Directory of Data Files.

Below is listed current information about the examples of federal statistical sources used in today's presentation. The information will help you locate these titles in many libraries, or allow you to order them. Each entry will contain title, dates of publication, frequency, issuing agency, Superintendent of Documents Number, and date of most recent issue. If available, entries will also include order information. This will normally be publisher, stock number, and price.

REFERENCE SOURCES


THEMATIC SOURCES


Climatological Data, National Summary. 1950 to date. Monthly and Annual. Environmental Data Service. C 55.214. To date. 3

Climatological Data (State Sections). 1914 to date. Monthly and Annual. Environmental Data Service. C 55.214. To date. 3


MAJOR CENSUSES


Census of Business. 1930 to date. Quinquennial. Bureau of the Census. The business census since 1972 has been divided into three separate censuses: Census of Retail Trade (C 3.255/no.:), Census of Wholesale Trade (C 3.256/no.:), and Census of Selected Service Industries (C 3.257/no.:). 1977. GPO. 4


Census of Foreign Trade (Foreign Trade information is published under numerous specific titles). 1940 to date. Irregular. Bureau of the Census. C 3.164. To date. GPO. 4


FINDING AIDS

American Statistics Index. 1974 to date. Monthly with annual cumulation. Congressional Information Service. To date. CIS. 5
Government Printing Office. GP 3.8/. To date. GPO. 021-000-80002-3. $90.00/yr.


GPO. 003-024-02167-6. $5.00.


1979.

Users' Guide...1980 Census of Population and Housing. 1982 (irregular updates).


2. Contact Distribution Services, Manager Analysis and Services Office, 1-SB-419, Center for Disease Control, Atlanta, Georgia 30333.


4. Price depends on individual document ordered.

5. 1982-83 annual subscription ranges from $600 to $1580 depending on size of library's book budget.