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**Recent Improvements to Service Industry  
Data Coverage at the U.S. Bureau of the Census**

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## I. Introduction

The increase of service sector industry coverage has been the largest expansion of economic statistics in recent years within the United States' Bureau of the Census. Service sector industries<sup>1</sup> now account for approximately 73 percent of Gross Domestic Product (GDP) and about 76 percent of employment in the U.S. The increased relative importance of service sector industries in the economy, reduced availability of data on government-regulated industries, deregulation of some industries and consequent reshaping of these industries, and rapid change in the structure of many service industries have all contributed to the need for better data. Data users have indicated that they need data for more industries, as well as more detailed data to properly measure and understand the intricate changes of the economy.

A combination of pressure from data users, Congressional awareness, and interest from the Executive Branch have enabled the Bureau to increase service sector data coverage. In the early 1980's, the Bureau began a continuous expansion of industry coverage especially among the current sample survey programs. This followed a significant increase of service industry coverage in the 1977 economic census. At the 1989 meeting of the Voorburg Group in Ottawa, Canada, two papers were presented by the Bureau of the Census describing the background, progress to that point in time, and plans for further expansion in service industry coverage.<sup>2</sup>

In 1982 the Coalition of Service Industries (CSI), a private non-government association, was organized to represent those interested in the services sector of the U.S. Economy. The CSI, along with various government agencies, trade associations, and others in the private sector, made known the need for additional data on service industries. During the 1980's, improving census statistics also became one of the Commerce Department's program goals.

Quality improvement recommendations developed by a working group of the Economic Policy Council, chaired by Dr. Michael Boskin, Chairman of the Council of Economic Advisers, and presented to the President in 1989, built on and provided direction for data improvement efforts already underway at various agencies since 1984. At that time, the Congress had instructed the Census Bureau, along with the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA) to specifically improve their current survey programs on the dynamically changing service industries. In 1986, the Census Bureau was able to expand this earlier initiative to include the Quinquennial Censuses.

Last year President Bush approved a 5-year budget initiative, involving the major statistical agencies, to improve current economic statistics in the areas of 1) productivity, output, and prices; 2) investment,

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<sup>1</sup>All non-goods-producing industries - transportation, communications, and public utilities; wholesale and retail trade; finance, insurance, and real estate; services; and government.

<sup>2</sup>Aanestad, J. "Current Survey Statistics in the United States, Improved Statistics on Service Industries," presented at the Voorburg Group Fourth Meeting on Service Statistics, Ottawa, Canada, October 1989.

Marcus, Sidney O. "The Economic Censuses in the U.S.A., Improved Statistics on Services," presented at the Voorburg Group, Fourth Meeting on Service Statistics, Ottawa, Canada, October 1989.

savings, and national wealth; and 3) employment, income, and poverty. This initiative specifically addressed the need for collection of more services data and the unique problems in doing so. The Census Bureau has been directly responding to this presidential initiative in its recent budget initiatives.

Since the term "Service Industries" is used in many different ways, it is important to clarify how it will be used in this paper regarding Census Bureau programs. It is easiest to start with the broadest definition and narrow down to the focus of this paper on the components in critical need of expansion or improvement. In its broadest meaning "Services" includes all non-goods-producing industries. Relative to the U.S. Standard Industrial Classification (SIC) system, this would include everything other than mining, manufacturing, agriculture, and construction.<sup>3</sup> For purposes of discussion of the Census Bureau's services expansion, Wholesale and Retail Trades and Public Administration (Government) are excluded because there are successful, established data collection programs which meet major data user needs. The focus of this paper will be on the expansion in the remainder of the non-goods-producing sector, primarily the traditional personal and business services, along with transportation, communication, utilities, finance, insurance, and real estate.

## II. Service Industry Data Programs

The expansion of service industry data coverage has taken place in several program areas. Service data are collected in two major program areas at the Bureau of the Census, the quinquennial economic censuses and current sample surveys. In addition, there have been initiatives in several other areas to get additional data on services.

### A. Quinquennial Economic Censuses

The censuses are conducted every five years in years ending in two and seven (for example, 1987 and 1992). The censuses provide benchmark data for national income and product accounts, sampling frames for periodic sample surveys, and provide users (academia, businesses, and trade and marketing associations) data at detailed industry and geographic levels. The censuses concentrate on assigning accurate industry classification for each establishment, obtaining measures of size, updating company affiliation, obtaining physical (geographic) location information, and recognizing major components of business activities within establishments. Other data items are collected to assist in industry classification or because they are of priority interest to major users. Basic data measures - establishment counts, output measures (sales or revenue), payroll, and number of employees - are published by industry for the U.S. and smaller geographic areas, and for some industries down to ZIP (postal) code.

Data are also published showing establishments and firms by revenue and payroll size. Other specialized industry data, such as major sources of revenue are published for various industries.

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<sup>3</sup>There are some anomalies in the classification system whereby some services closely allied to these industries are included in the major industry group such as missile research & development and agricultural services (stud services, crop spraying) and conversely, there are some "services," such as video tape producers and prepackaged computer software developers, that could be termed "goods-producing."

In 1992 the censuses will add about 90 industries to increase overall coverage to include nearly all of transportation, communications, and utilities (electricity, gas, and sanitary services), hereafter referred to as TCU<sup>4</sup>, and all of finance, insurance, and real estate, hereafter referred to as FIRE. This group of industries represents more than 570,000 establishments with paid employees, about 10 million employees, and approximately \$300 billion in payroll.<sup>5</sup> This expansion brings economic census coverage to 98 percent of Gross Domestic Product (GDP). A total of about 500,000 report forms will be mailed to establishments in the newly covered industries.<sup>6</sup> This is in addition to the 1,050,000 report forms to be mailed to employer establishments in previously covered service industries. Data for about 5 million nonemployer establishments in the previously covered service industries, and nearly 2 million nonemployer establishments in the newly covered industries will not be surveyed, but rather tabulated directly from Internal Revenue Service income tax files.

The last large expansion to the quinquennial Census of Services was in 1977, when the census was expanded to include non-government health, education, and social service organizations and various types of membership organizations, including a large number of "non-profit" institutions. Non-profit institutions frequently rely heavily on charitable grants, donations, and investment income to support operations and this expansion introduced a group of industries for which output is not directly measured by fees paid for a product or service delivered. The basic output measure was initially total expenses, which relates more directly to the level of services delivered. More recently revenue has been used as the basic output measure at the request of data users. These newly covered industries added 500,000 employer establishments with 7.5 million employees, as well as over 500,000 nonemployer establishments. It should be noted that nonemployer non-profit establishments are not included in the census because of limitations of administrative record information.

In 1982 industry scope remained essentially the same, except that coverage of hospitals, elementary and secondary schools, colleges and universities, labor unions, and political organizations were dropped due primarily to budgetary constraints. A new inquiry on

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<sup>4</sup>Some parts of transportation (passenger transportation services, trucking and warehousing, and water transportation) had been covered previously; and the postal service, and certificated (scheduled) passenger air carriers and railroads for which there are fairly complete and usable data from other sources will still not be surveyed in 1992. Data from these other sources for the air carriers and railroads will, however, be published with census data.

<sup>5</sup>1989 County Business Patterns Survey.

<sup>6</sup>For newly covered industries, all establishments with paid employees will be included in the Mail Universe except trucking (SIC 42) and insurance agents (SIC 64) where small establishments will be mailed on a sample basis. For those establishments not mailed, industry classification and basic data measures will be taken from administrative records. The use of administrative records (instead of 100 percent mail survey) is a common practice for large (in terms of number of establishments), relatively homogeneous industries, in order to relieve respondent burden and reduce processing costs.

international service transactions (exported services) was added for four industry groups<sup>7</sup>.

In 1987 four additional industries were asked to report data for exported services - advertising agencies; accounting, auditing and bookkeeping services; research, development, and testing services; and legal services. The Commodity Transportation Survey, a part of the census program measuring origination-destination movement of manufactured goods, was cancelled for budgetary reasons; however, hospitals (both government and non-government) were once again included, and all motor freight transportation (for which more data had been previously collected and published by regulatory agencies), water transportation and transportation services were included. This expansion accounted for 110,000 employer establishments, over 4.7 million employees, and payroll of \$96 billion.

For 1992, again, there has been a major expansion of industry coverage, so that with the exception of private households, parts of transportation (railroads and scheduled air passenger carriers), the postal service, places of worship, political and labor organizations, and parts of education, coverage is complete.

In addition to the inclusion of these 90 industries in the census in 1992, exported services will be requested from the remainder of Business Services (SIC Major Group 73<sup>8</sup>) and from financial institutions, securities and commodities services, holding and other investment offices, and utilities among the newly covered industries.

Additional sources of revenue lines have been added for many previously covered industries to improve data on types of services provided and to further refine secondary activity data.

#### B. Current Surveys

Periodic sample surveys ("current surveys") collect data on a variety of industries at varying intervals - annually, quinquennially (in conjunction with the censuses), and on a special "as-needed" basis.

The current surveys, which are based on the establishment universe updated by the censuses and quarterly administrative records, provide intercensal estimates, and also provide detailed data more appropriately collected on a sample basis. These sample surveys for service industries have historically been more limited in scope in terms of industry coverage, industry and geographic detail, and number of data measures than the census.

Coverage of service industries in the current surveys program has been increasing since the early 1980's, with the addition of a number of industries to the surveys and an increase in the number of data items and industry detail collected.

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<sup>7</sup>Architectural, engineering and land surveying services; management, consulting, and public relations services; equipment rental and leasing services; computer and data processing services.

<sup>8</sup>Advertising, credit reporting and collection agencies; mailing, reproduction, and stenographic services; services to dwellings and other buildings; personnel supply services; and miscellaneous business services.

During the recent expansion phase, the current survey programs have responded to new and high priority data needs to fill urgent data requests prior to 5-year census coverage, specifically in trucking and warehousing, and communications.

#### Service Annual Survey (SAS)

The SAS provides nationwide estimates of receipts, revenue and other data for personal, business, amusement, social, health, and other professional services classified in Division I of the SIC. All industries in this division currently are included except educational institutions, labor unions, political and religious organizations and private households. In addition, arrangement of passenger transportation and real estate agents and brokers are covered. The industries covered accounted for about 20 percent of the nation's 1989 Gross Domestic Product.

The SAS is a sample survey of approximately 30,000 companies having one or more establishments classified in these industries. The sample represents a universe of approximately six million establishments.

The survey provides detailed sources of receipts and other data for the following industries: computer and data processing services, equipment rental and leasing, management and consulting, personnel supply services, automotive rental and leasing, arrangers of passenger transportation, amusement parks, offices and clinics of health practitioners, and nursing and personal care facilities.

Data represent estimates for employers and nonemployers for most industries. Nonemployers are excluded for firms which are exempt from Federal Income Tax (for which administrative records are not available) and correspondence and vocational schools, real estate agents and managers, arrangers of passenger transportation, and health and legal services.

The SAS was introduced for the 1982 survey year following the elimination for budget reasons of the Monthly Selected Services Receipts Survey. In that first year a single estimate of total operating receipts was published for 22 industries and industry groups. Since that time industry coverage and the amount of data collected in the survey have expanded. For the 1991 survey year, data will be provided for over 130 separate industries.

#### Motor Freight Transportation and Warehousing Survey (WATS)

The WATS, first introduced for 1984-85, is an annual sample survey of approximately 3,000 employer firms (representing a universe of over 98,000 establishments) primarily engaged in providing commercial motor freight transportation and public warehousing services. This includes firms furnishing local or long-distance trucking or transfer services, and those engaged in the storage of farm products, furniture and other household goods, and commercial goods of any nature.

The survey excludes private motor freight carriers that operate as auxiliary establishments to non-transportation companies, as well as independent owner-operators with no paid employees.

The survey provides detailed nationwide estimates of operating revenue and expenses for the trucking and warehousing industries, and

inventories of revenue generating equipment for the trucking industry.

The 1986 WATS was expanded to begin collecting over 50 different data items due to the increased complexity of the newly deregulated industry (sub-contracting, fuel costs, insurance expenses, etc.). The survey represents an important source of information for the trucking industry since the loss of much of the regulatory data produced by the Interstate Commerce Commission (ICC).

#### Annual Survey of Communication Services (ASCS)

The ASCS covers all employer firms with one or more establishments that are primarily engaged in providing point-to-point communication services. This includes telephone communications, including cellular and other radiotelephone services; telegraph and other message communications, such as electronic mail services, facsimile transmission services, and telex services; radio and television broadcasting stations and networks; cable and other pay television services; and other communication services, such as radar station operations, satellite earth stations, and satellite or missile tracking stations.

The ASCS is an annual sample survey of approximately 1,800 firms representing a universe of over 30,000 establishments with revenue of over \$200 billion in 1990. The survey provides detailed nationwide estimates of revenue and expense for the above industries.

The survey was introduced in 1991 (covering the 1989 and 1990 survey years) and began in response to high priority need for data on the communication industry as deregulation eliminated much of the regulatory data available. Data collection began before economic census coverage because the need was urgent and the Bureau's Standard Statistical Establishment List was sufficiently reliable to draw a sample. The sample data will be reconciled to the census file when it becomes available sometime in 1994.

#### Future Expansion

In 1994 (covering the 1992 and 1993 survey years) the Bureau plans to introduce annual survey coverage of charter, rural, and intercity busing, along with water transportation. We expect to publish detailed estimates of operating revenue, expenses, and other operating statistics for 19 industries and industry groups comprising these areas.

Also, in 1994 we plan to enhance our database on services by publishing detailed output measures for approximately 50 personal, business, automotive, amusement and recreation, social, health and other professional services where only estimates of total operating receipts/revenue are available. We also plan to complete industry expansion of the transportation sector by introducing annual coverage for air courier services, pipelines, and the transportation services industries.

In 1995 we expect to begin phased in coverage of the finance, insurance, and real estate (FIRE) industries, while continuing to enhance the data collected and published for industries already covered. While we expect to begin by covering the insurance industries, the priorities for introducing the FIRE industries will be determined through consultation with our major data users and an evaluation of existing data sources.

In 1984 when the major service expansion was initiated, the current programs covered approximately 57 percent of the services sector employment (based on 1989 data) when broadly defined to include all of the non-goods-producing industries. Over three quarters of this coverage was attributable to well established programs covering retail and wholesale trade, and the construction industries. With implementation of the 1994 initiatives annual survey coverage of the services industries would increase to 87 percent. Almost all of the still missing coverage would be in the FIRE area.

### C. Other Service Data Expansion

#### Commodity Flow Survey (CFS)

The year 1993 will mark the resumption of collecting nationwide data on interregional and interstate commodity movements. Data were last published in 1977. Data were collected covering 1983 but for a variety of reasons, including poor response rates in certain industries and in quality of reported data, the decision was made not to publish the data.

The 1993 CFS will collect shipment data from a sample of 200,000 manufacturing, mining, wholesale, retail, and service establishments, and will obtain 24 million shipment observations. The sampled establishments will report for a sample of shipments during a 2-week period on a quarterly basis, distributed over the year to minimize seasonal bias. For each sampled shipment, origin and destination, commodity type, weight, value, modes of transport, export destination, containerization, and hazardous material shipments will be reported. This survey will be conducted every 5 years concurrent with the economic census beginning in 1997.

The publication of state-to-state and substate level goods flows by mode of transportation will fill a high priority data gap for a number of data users.

#### Purchased Services

As many firms increasingly rely on purchasing services rather than providing them "in-house," there has been concern that the census data less accurately reflect economic activity in some industries, especially in manufacturing.

Selected categories of purchased services have been included in various existing surveys. For the 1992 census year, additional detail will be collected from auxiliaries (including central administrative offices) across all industries, as well as from manufacturing, wholesale, retail, and selected service activities.

Future plans include increased coverage of purchased services activity.

#### Quarterly Financial Reports

There are two areas of service-related expansion proposed for the Quarterly Financial Report (QFR) program. The QFR currently samples large manufacturing firms to estimate income and retained earnings, and related financial and operating ratios for domestic operations: 1) The program sample will be expanded to enable publication of small company measures of corporate profits, debt, and investment, especially for wholesale and retail trade, where both have heavy concentrations of small firms; and, 2) will add coverage of service



industries. These two areas of improvement will address serious data gaps.

### III. Conceptual Issues in New Survey Coverage

Many conceptual issues required research and resolution prior to surveying these industries for the first time. Decisions have been made in critical areas, with many items requiring continuing discussion and investigation between data user groups, respondent businesses, and the Census Bureau as data collector. For clarification of many of these conceptual issues, the Census Bureau has a close working relationship with our major client agency, the Bureau of Economic Analysis.

#### A. Statistical Reporting Unit

Probably the most significant exception to standard census procedures is among several of the new industries in FIRE and TCU, where the establishment concept does not work well for reporting output (revenue) data. The census is establishment-based, with primary activity, revenue, payroll and employment being measured for the establishment. Primary activities of these industries - depository banking, insurance, pipelines, telephone and telegraph companies, and gas and electric companies - are defined by groups of functions that are physically separated, and where it is not appropriate to try to measure revenue at each physical location.

For these industries, revenue will be reported at the state level, the lowest geographic level for which data are uniformly available, due to industry regulatory reporting requirements. Payroll and employment will still be requested for each physical location, all of which will be considered operating establishments.

#### B. Basic data measures

##### Output (revenue)

While trying to maintain as much consistency as possible in order to create as cohesive a set of economic data as possible, output measures for the censuses do vary by major trade group - value of shipments for manufacturing, value of construction for construction industries, sales for retail and wholesale, operating receipts for most service industries subject to Federal income tax, and revenue (which includes more than receipts for services rendered) for service industries exempt from Federal income tax.

For FIRE industries, total revenue is being requested on the forms. The supplemental inquiry requesting major sources of revenue will allow users to separate the components of revenue to tailor output measures for their own use. Operating revenue is being requested of TCU industries. For the broadcasting and cable industries, where there may be significant revenue among the tax-exempt companies from non-operating sources (grants), there is a supplemental inquiry requesting non-operating revenue. In addition, for highway passenger transportation industries, there is a supplemental inquiry requesting subsidies.

##### Input (Payroll and Employment)

Across all industries in the economic censuses, payroll and number of employees have standard definitions. Payroll requested in the census is the same as reported on IRS Form 941, "Quarterly Statement of Earnings and Withholding," so that census payroll and employment are

comparable to the administrative data we receive and use as proxy data for non-mail and non-response.

There can be distortions when looking at labor force data for any given industry if one looks only at paid employment, because of the effects of "nonemployer" independent agents, employee contracting and leasing, and use of temporary help supply.

For the insurance and real estate industries, the large use of independent contractors ("agents") seriously affects the work force picture. Therefore, for these industries, the number of independent contractors and commissions paid are to be reported as supplemental inquiries.

### C. Industry Classification

There are a number of problems in applying the SIC to the expanded coverage industries.

For example, the SIC does not necessarily reflect the kinds of activities in which the newly covered industries are engaged. An example is classification of holding and investment offices which depends largely on the type of product the office issues, open-end or closed-end investment funds. However, it is quite common for an establishment to issue both closed-end and open-end securities. Many of these establishments identify themselves simply as "investment offices." Furthermore, the industry has recently been moving toward a hybrid security which has characteristics of both open-end securities and closed-end securities. The issuers of hybrid-securities will not fit neatly into the current SIC codes.

Discrete classification criteria must sometimes be developed and interpretations made. For example, even with some concentration percentages specified in the SIC, differentiating among the various types of utility combination industries in SIC Major Group 49 is difficult, and determinations have to be made regarding what will be classified where.

In addition, the functional (organizational) levels at which activities are performed and/or accounted do not always fit with the current SIC structure. In the group of industries previously mentioned, which require consolidated reporting of revenue, essential functions which define the "activity" are frequently performed at separate locations. For example, commercial bank branches accept deposits, but "revenue" is generated wherever the loan and investment activity takes place. Strictly speaking, one or the other type of location would be auxiliary to the main "operating" activity as defined by the SIC. However, the SIC definitions for this group of industries really defines the institution, and all locations of firms in these industries will be defined in the census as operating establishments rather than defining some functions as "auxiliary."

Finally, we also have to learn how businesses identify themselves, and most importantly, how well those self-classifications relate to the SIC criteria. Our experience is that among the service industries there is a disproportionate number of respondents which do not identify with pre-listed industry classifications on forms and write descriptions. These "write-ins" represent a great variety of activities, and it may or may not be easy to assign to an SIC code. Our experience in the first rounds of survey coverage will be useful for future analysis and forms design, as well as any work done on studying newly emerging industries. Undoubtedly, the first census of

these industry groups will also provide specific input to suggestions for the next revision and/or restructuring of the SIC.

#### IV. Summary

To summarize, the Census Bureau has been engaged in an incremental expansion of service industries data for over a decade. The Bureau's data improvement initiatives are in line with the priorities set by the multi-agency recommendations organized by the Economic Policy Council Working Group on Improving Economic Statistics with expansion in basic data collection:

1. Economic Censuses - a large program expansion in terms of industry coverage, and increased data on exported and secondary services;
2. Annual surveys - expansion of industry coverage, including new surveys in trucking and communication services to provide data lost by deregulation, plus a significant increase in industry and data detail for many industries in the existing Service Annual Survey;
3. Improvement of service data in other surveys - including services purchased by manufacturers; and proposed expansion of quarterly corporate financial data to cover selected service industries;
4. Proposals for further expansion in service current surveys including the addition of a survey of emerging industries, a series of transportation surveys, and future initiatives in the FIRE area.

In preparing for data improvement activities, the Bureau sponsors research on data availability and needs, and continually studies classification problems and other issues related to industry data collection.

The Bureau of the Census recognizes the need for continued improvement and expansion of service industries data and highly values the support from the Executive Branch in recognizing the need to coordinate priorities and data collection activities, to have the resources to develop and maintain a core of statistical programs that truly can reflect the structure and functioning of the economy, and on a timely basis recognize, measure, and incorporate changes in a dynamic economy.

### Related Readings

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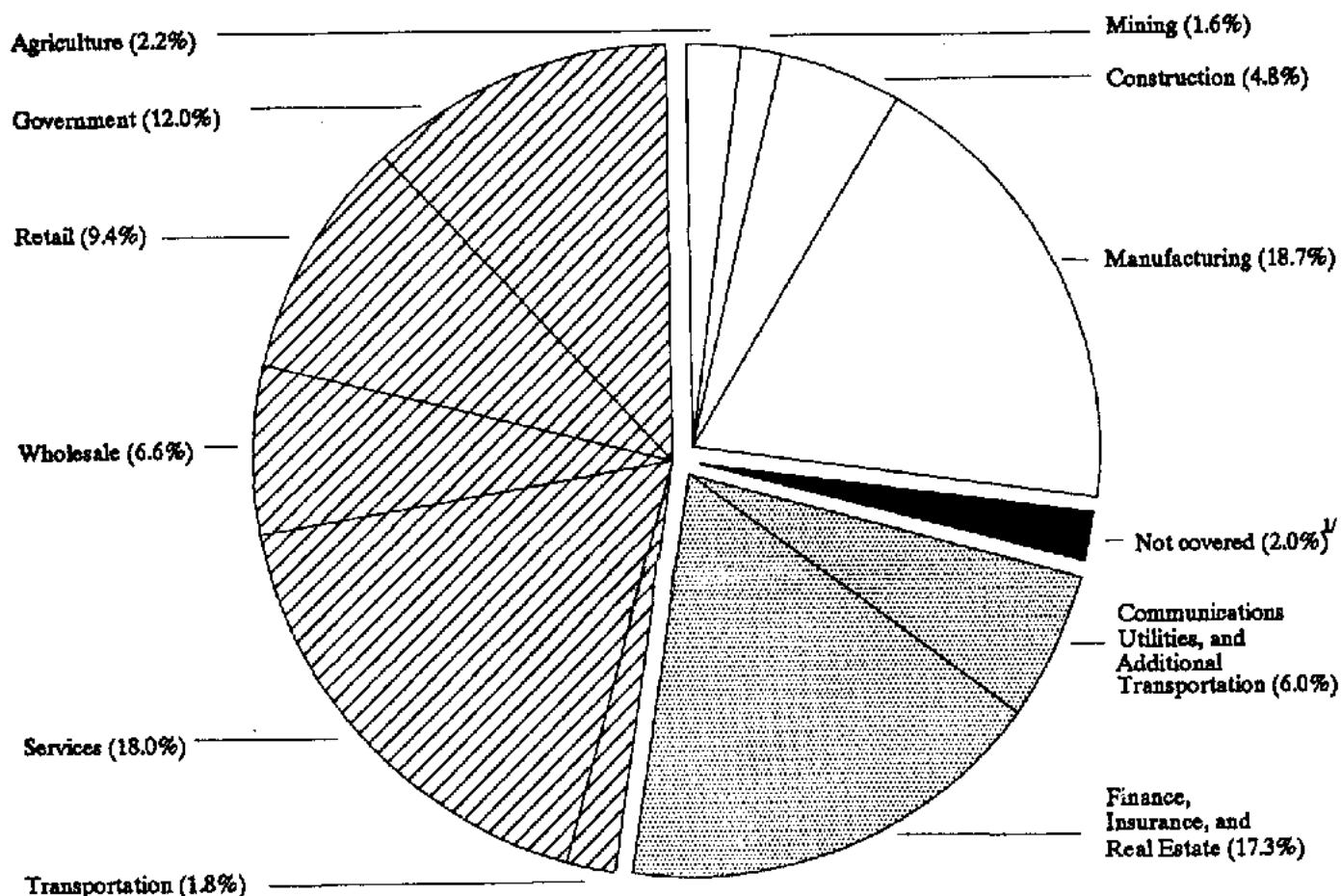
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# 1992 Economic Census Industry Coverage as Percentages of Gross Domestic Product (GDP)



## Legend

-  Previously covered goods-producing industries
-  Previously-covered non-goods producing industries
-  Newly-covered industries in 1992
-  Not covered in the census

<sup>1/</sup> Railroads, and portions of air transportation, education, and membership organizations, and private households are not covered in the economic censuses.

Source: (1989 GDP) Survey of Current Business, April 1991, Bureau of Economic Analysis