

Introduction

INDUSTRIAL CLASSIFICATION

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Market economies like that of the United States are among the most complex institutions ever devised. Millions of individual transactions are conducted every day; myriad goods and services are produced, transported, and exchanged in hundreds of thousands of different locations. For the most part, market exchange is conducted without an overall plan or central direction. To understand how this complex, decentralized market economy works; to chart its progress; and to make forecasts, we need to be able to track many different exchanges. Statistical tracking schemes that have been devised to record, aggregate, categorize, and simplify the resulting record are called social accounting systems.

The Millennial Edition of *Historical Statistics of the United States* for the most part relies on three accounting systems: national income and product accounting, input accounting, and industrial classification systems. The concepts of national income and product, discussed in Chapter Ca, define a material measure of the productive accomplishments of the economy.

Another concept used to organize aggregate accounting systems is the distinction between outputs and inputs. The outputs included in the national income and product accounts are the goods and services that satisfy the final wants of households, businesses, and government agencies. Inputs are the goods and services that are used to produce the outputs. Yet inputs themselves are a product of economic activity. If wheat is grown to make bread and if bread is produced to satisfy the wants of consumers, then the wheat is an input. Goods used as inputs are called intermediate products. The bread is an output. Such goods are called final products. There are also inputs that are services, not goods. These are the services rendered by the “factors of production,” traditionally categorized into three broad groups labeled as land, labor, and capital, where “land” is thought of more broadly as natural resources. The services of labor include the productive power both of human energy and of human skill and knowledge. “Capital” refers to goods produced for the purpose of producing other goods; examples include machines, vehicles, and structures. Capital services raise the productivity of other inputs in the production process. Thus, at a high level of aggregation, the production of final output can be thought of as the result of a production process that employs land, labor, and capital.

Land and other natural resources are treated in Chapters Da and Db. Some factors that influence the productivity of land, such as weather and the environment, are dealt with in Chapter Cf. Labor is covered in Chapter Ba, and two factors that affect the “quality” of labor, education and health, are the subjects of Chapters Bc and Bd. Chapter Ce is concerned with capital. It should be noted that capital itself is an output; only the services of capital are inputs. Because capital raises the productivity of other inputs to the production

process, a key issue in any analysis of economic change is how the economy changes its stock of capital. It does that through saving. Output that is not consumed is saved in the form of capital. Chapter Cd treats consumer expenditures, and Chapter Ce focuses on the processes of saving and investment – that is, how the economy partitions the flow of output between final consumption and the creation of new capital (investment).

An industry comprises firms or establishments that produce products or services that are identical, similar, or closely related to each other. Thus, all of the doctors in private practice and all of the health maintenance organizations (HMOs) and all of the hospitals taken collectively might be described as the “health care industry” or “health and medical services industry.” By this definition, industries may be defined either narrowly or broadly. “Health care” is an example of a broadly defined industry; “offices and clinics of podiatrists” and “kidney dialysis centers” are examples of narrowly defined industries. Viewed in this way, the industrial structure of an economy consists of a list of broadly defined industrial sectors that are broken into more narrowly defined industries, which in turn may be subdivided still further, in a descending hierarchy.

At the highest level of aggregation, the production units in the economy are conventionally divided into three broad categories:

Primary: agriculture and the extractive industries such as mining and fishing

Secondary: goods-producing industries such as manufacturing and construction

Tertiary: non-goods-producing or service industries

Before World War II, each government agency responsible for collecting statistics on output or employment was free to define the industries under its purview in whatever way suited its own purposes. In many ways, this each-to-its-own approach was, and is, appropriate. Industrial classification, like taxonomies and classification systems in all sciences, must be in the first instance designed to meet the purposes of a specific analysis. During the World War II mobilization, however, economic planners and regulators found the inconsistency of definitions across government agencies a hindrance to their efforts to obtain accurate and comparable data on the nation’s productive capacity. Accordingly, in 1945 the U.S. Office of Management and Budget (OMB) standardized the classification of industries and the collection and reporting of data with the Standard Industrial Classification (SIC) system. Although the SIC system underwent revisions several times (the latest in 1987), its basic philosophy and structure remained in force from 1945 to 1997, when it was replaced with a different system.¹ The new system was adopted to facilitate international comparisons.

¹ For a description of the SIC system, see U.S. Office of Management and Budget (1987).

The first principle of the SIC system was to define an establishment as an economic unit – usually located at one place – where goods were manufactured, services were performed, or resources were extracted. A single company might consist of many establishments in different physical locations – factories, offices, stores, and warehouses. By SIC definition, establishments include both the production or primary service providers and the “auxiliary workers” who provide services – such as management, data processing, personnel services, and transportation – to other units within the same company. Each establishment was then assigned to one of eleven broad divisions, each designated by a capital letter:

SIC code

A	Agriculture, forestry, and fishing
B	Mining
C	Construction
D	Manufacturing
E	Transportation, communications, and electric, gas, and sanitary utilities
F	Wholesale trade
G	Retail trade
H	Finance, insurance, and real estate (FIRE)
I	Services
J	Public administration
K	Not elsewhere classified (NEC)

These top-level divisions are frequently called economic sectors. The eleven sectors are segmented by OMB into “major industrial groups” and assigned a two-digit numerical code. For example, the division of mining (SIC code B) was divided into five groups:

SIC code

10	Metal mining
11	Anthracite coal mining
12	Bituminous coal mining
13	Oil and gas extraction
14	Extraction of nonmetallic minerals except fuels

These major groups are commonly called two-digit industries. Two-digit industries are broken down into three-digit industries, and three-digit industries are broken down, in turn, into four-digit industries. For example, consider the metal can industry, SIC 3411:

SIC code

D	Manufacturing
34	Fabricated metal products
341	Metal containers
3411	Metal cans
3412	Metal shipping barrels, drums, kegs, and pails

In 1997 the SIC system was replaced by the new North American Industry Classification System (NAICS, pronounced “nakes”). Development of the NAICS system was undertaken jointly by the governments of Canada, Mexico, and the United States to introduce comparability across North American countries in their classification of industries and to aid in the implementation of the North American Free Trade Agreement (NAFTA). Unlike the periodic

revisions to the SIC system, the NAICS is a fundamental change. It redefined the concept of an establishment, revised the principles used to assign an establishment to a specific industry, increased the number of economic sectors from eleven to twenty, increased the number of industries defined at the narrowest level, recognizing many new industries in the process, and increased the hierarchical depth from four (expressed with four digits) to five (expressed with six digits).²

The major change introduced by NAICS in the definition of an establishment was to disaggregate the SIC establishment into production and “auxiliary” units and to consider the auxiliary units as separate establishments. This moved many workers and their associated output from the primary and tertiary industries into one of the service industries. Next, a single consistent economic principle was adopted to classify each unit. NAICS defines an establishment’s industry exclusively on the basis of the production processes it uses. Previously, many establishments were classified on that principle, but others were classified using different principles, such as the class of customer (individuals or firms) or the function of the product or service produced. Doing away with the class-of-customer criteria has greatly affected the boundary between the retail and wholesale trade sectors. Under NAICS, retailers are defined as establishments that sell merchandise in small quantities, generally relying on mass-media advertising, high-traffic locations, self-service, and attractive in-store displays. Examples of retail establishments include grocery stores, department stores, and boutiques. Wholesalers sell goods in large quantities using business-oriented methods such as specialized catalogs, direct customer contacts with sales personnel, and direct delivery to the customer from warehouse or office locations.

The revised, expanded list of top-level economic sectors in NAICS replaces the SIC system’s A through K list, as shown in Table Pd-A. For most of the top-level NAICS sectors, a rough indicator of the corresponding two-digit SIC industries is provided. Where no indication is given, the correspondence between the two systems at the two-digit level is too low to provide a helpful comparison. With the sectors where the correspondence is indicated, the changes in the NAICS classifications are greater than the similarity of sector titles would indicate. No NAICS sector corresponds exactly to a collection of SIC sectors, and the lack of correspondence is particularly evident in the service sectors. NAICS sector 55, for example, is almost exclusively made of establishments previously considered auxiliaries of primary establishments in other industries. While the correspondences indicated cannot be used to splice data for an SIC industry to data for a NAICS industry, they are given here as a rough guide to the differences and relationships between the two classification systems. Note that most of the expansion of industrial sectors comes in the service group.

The last economic census taken using the SIC system was in 1992. The data for 1997 has been released with tabulations based on both the 1987 SIC codes and the 1997 NAICS codes. Unfortunately, the federal government has no systematic plans to continue the old SIC system in parallel with the new system or to estimate

² For an overview of the NAICS system, see U.S. Bureau of the Census (n.d.). The full system is described in National Technical Information Service (1997).

TABLE Pd-A Correspondence between top-level NAICS sectors and two-digit SIC industries

NAICS		
Code	Sector	SIC code
11	Agriculture, forestry, fishing, and hunting	01-09
21	Mining	10-14
22	Utilities	49
23	Construction	15-17
31-33	Manufacturing	20-39
42	Wholesale trade	50-51
44-45	Retail trade	52-59
48	Transportation	40-47
51	Information	—
52	Finance and insurance	60-64
53	Real estate and rental and leasing	—
54	Professional, scientific, and technical services	—
55	Management of companies and enterprises	—
56	Administrative and support services	—
61	Educational services	82
62	Health care and social assistance	80, 83
71	Arts, entertainment, and recreation	79, 84
72	Accommodation and food services	70
81	Other services, except public administration	—
92	Public administration	91-97

industry aggregates using the NAICS for years before 1997. This will make it difficult or impossible for users to construct a continuous time series for a given economic sector or industry that bridges the SIC-NAICS gap. In some cases, the changes in sectoral differences are small enough that researchers interested in long-term trends will be tempted to splice the new industry data to the old; however, they should do so with caution. For example, construction is the least-changed economic sector, yet three of its twenty-eight detailed industries are new and fourteen are revised. Moreover, significant economic activity has been shifted from auxiliary units once classified as part of the construction industry to one or more service industries.

Of greater interest to users of the *Historical Statistics of the United States* is information on how the economic sectors (however technically defined) are arranged in this work. Because the Millennial Edition was conceived and planned during 1995 and 1996, it is organized more along the lines of the SIC system than the NAICS. Moreover, most of the data are based on the old system because the NAICS was introduced first in 1997 and was not fully implemented across government agencies until 2002. Table Pd-B is a sectoral guide to the material in *Historical Statistics of the United States*.

TABLE Pd-B Guide to the coverage of economic sectors in *Historical Statistics of the United States*

Sector	Chapter	NAIC Codes	SIC Codes
Primary			
Crop and animal production	Da	111-112	01-02
Support activities for agriculture	Da	1151-1152	07
Forestry, fishing, and hunting	Db	113-114	08-09
Mining	Db	21	10-14
Secondary			
Electric and gas utilities	Dh	22	491-493
Water, refuse, and sanitary services	Dh	—	494-497
Construction	Dc	23	15-17
Manufacturing	Dd	31-33	20-39
Wholesale trade	De	42	50-51
Retail trade	De	44-45	52-59
Transportation	Df	48	40-47
Service			
Information services	Dg	51	—
Finance and insurance	Cj	52	60-64
Real estate and rental and leasing	Dc	53	—
Professional, scientific, and technical services	Cg	54	—
Management of companies and enterprises	Ch	55	—
Administrative and support services	Ch	56	—
Educational services	Bc	61	82
Health care and social assistance	Bd	62	80, 83
Arts, entertainment, and recreation	Dh	71	79, 84
Accommodation	Dh	721	70
Food service and drinking places	Dh	72	58
Other services, except public administration	Dh	81	—
General government and public administration	Ea	921, 923-926	91, 93, 9411-9651
Justice, public order, and safety activities	Ec	922	92
Space research and technology	Cg	927	9661
National security	Ed	92811	9711
International affairs	Ee	92812	9721

References

- National Technical Information Service. 1997. *The North American Industry Classification System – United States, 1997*.
- U.S. Bureau of the Census, Economic Classification Policy Committee. n.d. "New Data for a New Economy."
- U.S. Office of Management and Budget. 1987. *Standard Industrial Classification Manual 1987*. U.S. Government Printing Office.