Economic Classification Policy Committee

Issues Papers

Issues Paper No. 6, Services Classifications

September 1993

Note for the Eighth Meeting of the Voorburg Group, Oslo, Norway: As many Voorburg participants already know, the Economic Classification Policy Committee (ECPC) in the United States, joined by Statistics Canada and Instituto Nacional de Estadistics, Geografía e Informática of Mexico, have begun a far-reaching examination of economic concepts for economic classifications. The three countries are committed to putting into place a new North American classification system by 1997. A progress report on the North American work, "Economic Concepts for Economic Classifications," was presented by Jack E. Triplett at the last meeting of the Conference of European Statisticians in Geneva, June 1993.

This **DRAFT** paper on services classifications addresses primarily conceptual issues in constructing industry services classifications. The ECPC believes that the paper is also relevant to a discussion of the CPC because the paper is concerned with groupings. Commodity classification systems, as well as industry classification systems, entail groupings. The conceptual issues discussed in ECPC Issues Paper No. 6 may help to distinguish the concepts that apply to commodity grouping systems from the concepts that apply to industry grouping systems.

The paper has been written from a U.S. perspective, and because this is still a draft, reflects neither the Canadian classification system nor the one used in Mexico. The ECPC would greatly benefit from input from Voorburg Group participants, and wishes to make maximum use of the important work done by the Voorburg Group as its work progresses over the next several years.

DRAFT

September 14, 1993

Economic Classification Policy Committee
Issues Paper No. 6

Services Classifications

6.1 Introduction

Many classification problems in the U.S. Standard Industrial Classification (SIC) system arise from the rapid growth and radical changes in the nature of services industries. During the period 1959-90, employment grew by 294 percent in business and personal services, by 163 percent in finance, insurance, and real estate, by 44 percent in transportation, but only by 22 percent in goods-producing industries [1]. By 1990, goods-producing industries-- manufacturing, mining, agriculture, and construction--accounted for only 23 percent of U.S. employment and 39 percent of gross domestic product [2]. Nongoods industries produced the remainder.

Some of the changes affecting services most often cited include the following:

- Globalization of economic activity and increased trade in services;
- Technological changes, particularly in the areas of computers, information, and communications services, and their importance as both inputs and outputs of services industries;

- Changes in intangible inputs, such as education training and the growth of knowledge, which have increasingly become the basis for services transactions;
- Changes in government policy and programs, such as decreased regulation of transportation and financial services;
- Contracting out of services (especially from manufacturing);
- Changes in demographics such as aging, and the consequent increasing demand for health care; and
- Changing consumption patterns and living standards, more consumption of entertainment, recreational and travel services, and so forth.

This Economic Classification Policy Committee (ECPC) issues paper on services classifications addresses primarily issues that are encountered in the formation of 4-digit industries in the services sectors. In many ways, this paper expands ECPC Issues Paper No. 1, "Conceptual Issues" [5], to encompass those special problems and circumstances that arise in the classification of services. The question of services industry hierarchies--that is, how one should form the higher-level groupings of 4-digit services industries--raises the same issues that have already been covered in ECPC Issues Paper No. 2, "Aggregation Structures and Hierarchies" [5]. Issues concerning service-sector commodity codes--i.e., the basic lists of the services that exist in the economy--are discussed in ECPC Issues Paper No. 8, "Detailed Product Code Classifications."

6.2 The Goods-Services Boundary

At the 1991 International Conference on Classification of Economic Activities at Williamsburg, Virginia ([3], hereafter, "Williamsburg Conference"), Joel Popkin emphasized "There is an urgent need to redefine and retitle the major industries that comprise the nongoods sector in ways that better describe their role and significance in the U.S. industrial structure" (Williamsburg Conference [15], p. 61). Others repeated this theme.

In a number of dimensions, the boundary between "goods" and "services" is not clearly defined. Erwin Veil (Williamsburg Conference [21], pp. 127-31) remarked that "there does not exist an internationally-agreed official definition of services," so that "as a consequence, cross-country comparability [of service statistics] is very limited."

T. P. Hill ([9], p. 318) defines a service as "...a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as the result of the activity of some other economic unit, with the prior agreement of the former person or economic unit." Hill's definition of services corresponds in large measure with what is sometimes called the "broad definition of services": everything other than the goods-producing industry divisions.

Expressing a contrary view, Courtenay Slater (Williamsburg Conference [20], p. 150) has complained that designating

everything other than the goods sectors as "services" results in a "conglomerate that is too large and too diverse to produce meaningful statistics." Popkin (Williamsburg Conference [16], p. 160-1) proposed separating "distribution networks" (transportation, communications, public utilities, wholesale and retail trade, and manufacturers' sales branches) from a "services" division that consists of producers' services, consumer services, social services, and public administration.

Even on a narrow definition of services, the boundary between goods and services is not always well defined. Hill notes ([9], p. 320) that "...one and the same activity, such as painting, may be classified as goods or service production depending purely on the organization of the overall process of production among different economic units. If the painting is done by employees within the producer unit which makes the good, it will be treated as [part of] goods production, whereas if it is done by an outside painting company, it will be classified as an intermediate input of services." Thus, when a service previously performed in a manufacturing establishment is "contracted out" to a specialized services firm, data will show an increase in services production in the economy, which appears inappropriate for some purposes. However, contracting out does imply a change in the structure of production and perhaps in its geographic location, and it results in a new set of transactions and transactors, so for many purposes, services data should record changes arising from contracting out.

A closely-related issue is the treatment of "auxiliaries." Auxiliaries are establishments that provide services to other establishments within the same company. Depending on whether the auxiliaries are grouped with the establishments that they service, those services may or may not be recorded in data on services produced in the economy. For some purposes, grouping auxiliaries with the output of the establishments that they service may be appropriate. For other purposes, however, this grouping may be undesirable, particularly when one is primarily interested in a measure of the total economic activity in services in the economy, or the total employment of workers engaged in the production of services.

The boundary between goods and services may also be ambiguous because many sales contracts for goods include an explicit or implicit bundle of associated services. Robert Reich ([17], p. 85) maintains that: "The distinction that used to be drawn between 'goods' and 'services' is meaningless, because so much of the value provided by the successful enterprise...entails services: the specialized research, engineering, and design services necessary to solve problems; the specialized sales, marketing, and consulting services necessary to identify problems; and the specialized strategic, financial, and management services for brokering the first two. Every high-value enterprise is in the business of providing such services."

Reich is certainly correct that for some purposes, the demand for information about the production of services in an

advanced economy encompasses services that are bundled with goods. For those purposes, any classification system that distinguishes between goods and services industries inevitably misses services that are bundled in with goods production. To keep this problem in perspective, however, it is not really new: Even 60 to 70 years ago, some luxury automobiles were sold with extended guarantees providing maintenance and repair services, in some cases at the residence of the purchaser. Early computer and office machine sales provided a more extensive set of post-sale services to the buyer than is common today.

In many cases, the demarcation of the boundary between goods and services is ambiguous. Ambiguity may arise because the goods-services boundary depends on the purposes for which one wants economic data on services. In at least some of these cases, the alternative uses for services data may themselves be grouped into the same "demand-based" and "supply-based" uses of industrial statistics that have already been discussed in earlier ECPC issues papers.

For example, there is demand for data on services "wherever produced" (that is, all engineering services, not just those engineering services that are produced in specialized engineering establishments). If an economic unit is marketing specialized engineering supplies, it is interested in engineering services wherever they are produced, and it is not interested in a grouping that includes only those establishments that are specialized in Engineering Services, SIC 8711. Many engineering

activities are conducted in goods-producing sectors. A demand-based grouping of engineering services might include those services on a "wherever-made" basis.

The present engineering services industry might be thought of as production-oriented, or supply-based, services grouping. For many purposes, one would certainly not want independent engineering firms folded into related activities in manufacturing.

The application of economic concepts to services classifications is discussed in the next section.

6.3 Conceptual Approaches to Services Classifications

ECPC Issues Paper No. 1, "Conceptual Issues," distinguishes between two economic concepts for economic classifications. One concept is a market-oriented, or a demand-based, classification concept. The other is a production-oriented, or a supply-based, classification concept. These two classification concepts correspond in turn to broad categories of uses of industrial statistics.

The examples of production-oriented and market-oriented classification concepts in ECPC Issues Paper No. 1 were drawn from goods production. This was done in order to provide simple and familiar examples to illustrate relatively complex economic concepts. The task in the present section of ECPC Issues Paper

No. 6 is to explain how the two economic concepts can be applied to services.

Supply-based, or Production-oriented, Concept for Services

A supply-based, or production-oriented, concept aggregates according to similarity in the processes that produce and deliver goods or services (ECPC Issues Paper No. 1, section 1.2 contains more information on the production-oriented or supply-based concept). Services that are produced in similar ways or that have similar inputs (including similar labor skills) are grouped together in a production-oriented classification concept, in a way that is parallel to the equivalent groupings for goods producers.

It is perhaps less common to describe services as the outputs of production processes. However, the concept of production is no less valid for services than for goods.

As an example, industry SIC 8062, General Medical and Surgical Hospitals, delivers diagnostic services, medical treatment (including surgical services), continuing nursing services, and other hospital services. Hospitals employ the standard productive inputs of economics: capital (structures and equipment, some of it highly specialized), materials (including drugs), and labor (many of whom are skilled specialists). The provision of medical services is a "high-tech" production process. Medical technology and medical inputs are combined to

deliver medical care, just as manufacturing technology and manufacturing inputs are combined in a manufacturing production process. Analysis of medical treatment in a hospital requires an understanding of medical technology and the use of medical equipment, materials, and labor, as does managerial analysis on the effective use of beds, surgical bays, nurses, and expensive equipment.

Once an output measure for hospitals has been determined, hospital production is in principle analogous to production in a manufacturing industry. The difference between hospitals and manufacturing is not the applicability of the basic economic model of production. The real difference arises because we do not have good measures of the outputs of hospitals and do not fully understand how to measure the output of many medical care production processes (section 6.4 discusses problems in measuring services industries).

Once the production concept for the analysis of services is accepted, the application to classification concepts is straightforward. Service industries may be classified by a production-oriented (supply-side) classification concept, as discussed in ECPC Issues Paper No. 1. Then one might ask: Is SIC 8062, General Medical and Surgical Hospitals, too broad or too narrow? Some hospitals have the capability for carrying out exotic and "high-tech" medical procedures, such as transplant operations and by-pass surgery. One would expect that the medical equipment, as well as the medical skills, in such

hospitals would differ from those in hospitals that do not have these advanced capabilities. If this is so, it might be appropriate to separate SIC 8062 into two or more 4-digit industries, based on a delineation of the medical production processes they employ, and indeed the types of medical care that are provided in these hospitals.

Similarly, one might ask whether "walk-in" medical clinics, now part of SIC 8011, Offices and Clinics of Doctors of Medicine, should be grouped together with hospitals in SIC 8062. Walk-in clinics provide substitutes for some kinds of hospital out-patient care. However, the concept of medical care production suggests that walk-in clinics do not share all of the technological capability of advanced hospitals. If this is a valid generalization, it suggests that in a production-oriented classification system walk-in clinics should be grouped with hospitals in SIC 8062.

Of course, one might also separate hospitals that do transplant operations and their advanced procedures on a demand-side concept. For patients who need transplant operations, hospitals that cannot do such operations do not provide close substitutes for hospitals that do. The demand-side concept for services is discussed in the following section.

Demand-based, or Market-oriented, Concept for Services

A demand-based, or market-oriented, classification concept yields a classification system that depends on how the commodities are used. Again, the application of this classification concept to services is analogous to its application to goods. Under a demand-based concept, services commodities are grouped together that serve similar purposes, that are used together, or that are functionally related in use. ECPC Issues Paper No. 1 describes the demand-based concept in more detail.

As an example, SIC 7997, Membership Sports and Recreation Clubs, consists of establishments that provide amateur sports and recreation facilities on a membership basis. These range from aviation clubs, bridge clubs, boat clubs, to golf clubs. To consumers, these activities represent various choices or substitutes in the use of their leisure time. Even the ancillary function of sports clubs as meeting places for businessmen is covered through many of these activities. The club houses or restaurants of these facilities serve as informal gatherings for businessmen that presumably strengthen the commercial relationships of the members. Consumers select which club to join based on their personal and professional needs.

While these sports clubs serve similar purposes, the demands for labor, land, equipment, and capital inputs vary considerably among hunt clubs, country clubs, and boat clubs. The ability of

producers to change from one delivering one type of sports facility to another is extremely limited. Sports and recreation clubs do not seem a very homogeneous grouping with respect to input usage or production processes.

Demand-side groupings may often, though not always, differ from supply-side groupings. Moreover, because they reflect limits of markets demand-side groupings sometimes imply that outputs of a single economic unit may be separated into two or more demand-side groupings. Though this is true for goods as well as for services production, certain demand-side groupings in services have received particular attention.

The frequent request for a "tourism" industry classification is an example of a broad demand-side grouping for services.[1] A "tourism" industry would include amusement parks and recreation facilities, which are clearly oriented primarily to consumers. But the industry would include as well air transport and other forms of travel, plus hotels and motels, restaurants, and so forth, all of which cater to tourism. Airlines, hotels, and restaurants, however, also provide services to business travelers, and restaurants to local residents as well as travelers. Only a portion of the sales receipts of such businesses derives from tourism; put another way, a "tourism

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[1]"Most definitions of tourism are demand-based and define tourism as the aggregate of the services and products purchased by tourists, however tourists are defined. This means that the same product or service will or will not be a tourism-related economic activity based on certain characteristics of the consumer, rather than anything inherent in the product or service" [22].

industry" is a demand-side grouping that would cut across industries defined on a supply-side basis such as restaurants, hotels, and air travel (the present SIC 5812, 7011, and 4512). The United Nations "Draft Standard International Classification of Tourism Activities (SICTA)" provides a comprehensive list of tourism services that is considerably broader than the activities listed above.

The tourism example is parallel to the example of the demand-based "sweetener" industry in ECPC Issues Paper No. 1: In the sweetener industry, also, certain outputs would be removed from supply-based groupings (for example, corn sweeteners would be taken from the wet corn milling industry, SIC 2046, and artificial sweeteners from inorganic chemicals, SIC 2869). Sweeteners produced by different processes would be combined into a category that shows corn sweeteners and artificial sweeteners as substitutes for cane sugar, beet sugar, and honey. In the tourism case, hotel services to tourists, restaurant services to tourists, airline services to tourists, and so forth, would be placed in a demand-based tourism industry because those services are all complementary, or used together, by consumers when they travel for personal pleasure. That the same services, or some of the same services, are also provided to business travelers does not necessarily justify putting business travel and tourism together, because the two activities are perceived as quite distinct markets.

Though it is clear that demand-based classifications in services correspond to important needs for services data, these needs cannot be met by supply-side groupings of services, or even by combinations of supply-side groupings.

The Importance of Labor Inputs, Skills, and Knowledge in Classifying Services

A services firm is often in the business of selling the skills of its workers. For example, an economics consulting firm will be located in the SIC 8732. If the firm regularly bids in contracts for economic projects that involve econometrics or other quantitative or technical tasks, its employees must have substantial skills in computer programming and other quantitative capabilities.

This consulting firm therefore may also obtain contracts to provide computer or programming services that are in some sense related to the computational activities that arise frequently in the firm's economic consulting work. Computer programming services fall in SIC 7371. Depending on the market for consulting, this consulting firm might switch from SIC 8732 to SIC 7371 with little change in its economic activity.

A different consulting firm may in the same way function sometimes in the computer programming industry (SIC 7371) and sometimes in, say, Accounting, Auditing, and Bookkeeping Services (SIC 8721). Yet, in parallel with the economics consulting firm, this accounting services/computer services consulting firm is

also selling the skills of its employees. What the accounting services/computer services firm produces will be similar, regardless of the precise marketing application of its work (as was true of the economics consulting firm).

In these two examples, the consulting firms each have the capability to produce services that now fall into two different 4-digit SIC industries. Each firm's production process or production activity depends mainly on the skills of the firm's workers. For each firm, inputs (worker skills and capital equipment) are the same for outputs that are primary products in two different SIC industries, and so far as can be determined the production processes are also similar.

This classification problem--that a unit might switch between two different SIC's with little real change in its economic activity--is not unknown for goods producers. One way to look at the classification problem is to say that the economics consulting firm has a secondary product that is computer services. In any given period, depending solely on market conditions, computer services might account for the bulk of the consulting firm's revenues, which could result in its reclassification to SIC 7371, where economic consulting services would be secondary products. Such "switching" of SIC's when there is no change in the basic underlying conditions of production is undesirable.

Another way of looking at the consulting firm example is to focus on the difference between a production-oriented economic

concept for classifications and a market-oriented concept. In the example, economic consulting services, computer consulting services, and accounting services are different marketing categories. They describe the contribution those consulting services make to the buyer's economic activity. Thus, the economic, computer programming, and accounting classifications are relevant to defining markets and to carrying out demand studies for business services. They may not be appropriate classifications for distinguishing production-oriented services industries.

On the production-oriented classification concept, the computer services-economic consulting services dichotomy does not suit the internal activities of the economics consulting firm. Similarly, the accounting services-computer services dichotomy does not suit the internal activities of the second consulting firm. The production capabilities of the first firm suggests combining economic consulting and computer services consulting. The productive capabilities of the second consulting firm suggests combining computer services and accounting services.

Suppose, however, that the economic consulting firm has no capability for producing accounting services and the accounting firm has no capability for doing economic analysis. Thus, even though the two firms compete in one market (computer services), they are incapable of entering the other markets in which the firms operate, because they lack the skills in accounting services and economics consulting, respectively. Separating the

three activities of these two firms into three SIC's, as does the present U.S. SIC system, is unsatisfactory from a production concept point of view. But putting the two firms together in one production activity (that is, combining economics consulting, computer services consulting, and accounting consulting) may not be satisfactory either.

The U.S. statistical system has not collected enough information to know how important switching is in services industries. Moreover, detailed services data collection is so relatively new that statistical agencies do not have as much experience as with goods. Thus, whether, the example in this section (which is a real one) is pervasive or an aberration is not presently discernable.

The examples suggest that some of the problems faced in classifying services are difficult ones for which the paradigm that applies to goods is not entirely satisfactory. Of course, in goods production, one also finds secondary products. In goods production as well, producers change the composition of what they produce and sell, and they not infrequently cross over from one 4-digit industry to another. It is not that services and services firms differ wholly from goods and goods-producing establishments. It is, rather, a matter of degree. The problems that arise in classification systems for goods often arise in more intense forms when one is dealing with services.

Obtaining the information to decide on classification of services is also quite difficult. If, for example, services

firms sell the skills of their employees, then it is reasonable to specify that information on skills of employees must be collected and used for classification purposes (the "model surveys" from services developed within the "Voorburg Group" propose just this). In the decentralized U.S. statistical system, this is almost impossible. The most detailed information on inputs that can be used for classifying establishments is collected by the Census Bureau (see Issues Paper No. 3, "Collectibility of Data"). Labor-market information, however, is collected by the Bureau of Labor Statistics. Existing disclosure rules and legislation make it difficult for the two statistical agencies to exchange information on individual units, in most cases. Expanded data-sharing arrangements would need to be developed.

Much of the requisite research on services needed to carry out a classification system for the economy of the 21st century has not been done. Under the present institutional arrangements for the U.S. statistical system, it is difficult to collect the appropriate information efficiently and with minimal respondent burden.

6.4 Measuring Services: Implications for Classifications

Producing statistics on the services sectors poses a number of difficulties that are perhaps more intense than similar difficulties encountered in collecting industrial statistics on goods-producing industries. Defining measures of output, satisfactorily handling heterogeneity and quality change in price statistics, collecting employment data from small employers, and so forth all pose particular difficulties in services. These collection and estimation difficulties are well known and have been discussed in professional reviews of service statistics since the review of service industry measurement issues by Victor Fuchs [8].

Most of the problems that arise in measuring services output also impede classifying services industries. In some services industries (SIC 7241, Barber Shops), the output is as readily defined as it is in most goods-producing industries. In other services industries, the output is not entirely clear, and because the output is not well defined, industry boundaries for classification purposes are likewise not well defined. Economists do not fully understand how to measure the output of financial services, for example; and without adequate measures of financial outputs, classifications experts find it more difficult to group financial activities into industries.

Of course, one cannot expect to resolve all conceptual issues for service industries before a new classification system

is constructed. However, in constructing a new system, it is important to keep in mind some of the difficult issues presented by many service outputs. Awareness of these issues may indicate where we cannot completely anticipate current or future user needs for services data. The following material is based on Mark Sherwood [19].

Transaction Unit is a Complex Bundle of Services

For some services, the transaction units include several services bundled together. Services in the bundle may be jointly or interdependently produced.

An example of the complex bundle problem occurs in the retail trade industry. When a customer goes to the supermarket to shop, he is buying a shopping basket full of food. Through the markup, the store adds to the food prices, he is also buying a complex bundle of services from the store itself. Some of the services which may be included in the bundle are: consummating transactions; assembling, displaying, and providing information on goods; making the goods available at times and places convenient to customers; supplying additional services like delivery and credit; and processing goods into more suitable forms (e.g., the deli counter at a supermarket) ([14], page 168). The bundle of services may vary among establishments. For example, some grocery stores have salad bars and deli's, some do not. Each of the bundled services will have characteristics

which also can vary. For example, some grocery store bag groceries and put the bags into customers' cars, some deliver to customers' homes, and some do not even provide bags.

When services are sold as a complex bundle, the classification system might reflect the complexity of the bundle. Should grocery stores with deli counters and salad bars be classified separately from grocery stores not offering these services? On what conceptual basis? Should banks offering "one-stop" investment services be classified separately from "traditional" banks? On what grounds?

Simple Transaction Units but Characteristics Vary Substantially Among Establishments

Sometimes a transaction unit can be described simply, like an hour of a lawyer's time. An hour's time is typically the billing unit for legal services. However, these units can vary considerably with respect to quality, and the effectiveness with which a legal task is executed. The quality level of an hour's legal service depends on the probability that the customer will achieve the outcome he desires after purchasing the service. This characteristic does not lend itself to easy classification.

Typically, clients hire attorneys on an hourly basis. The customer will make a decision on which lawyer's time to purchase by considering the price of time and expected benefits (i.e., the chance of winning the case) ([10], page 184-85). If the lawyer's hours are the measures of output, a highly skilled practitioner's

hours will be considerably more valuable than those of a novice, because the skilled lawyer is more likely to win the case for a client. The difference in output of the two lawyers may depend at least as much upon the difference in the quality of the hours as upon the difference in hours spent on the case ([11], page 128).

Recognizing quality differences, or differences in the characteristics of services provided, suggests questions for a services classification system. Do prestigious law firms, with presumably greater chances of winning cases than less prestigious firms, warrant a separate 4-digit industry? Are different kinds of law firms--those that practice corporate law and those dealing in domestic cases, for example--properly separated into 4-digit industries? On what basis?

Customer Involvement

Customers must supply an input or customers must be involved for many services to take place. For example, if a band plays to an empty stadium, there is no output because there are no customers ([9], page 324). Further, there is no way to put this live performance into inventory and consider it to be an output (it may of course be recorded, but recorded and live performances are not the same).

Customer involvement means that providers of some services must make provisions to accommodate customers' shopping patterns.

An illustration is again provided by retail trade. To buy goods in a retail store, a customer must allocate time and resources in order to determine the right good to buy, at what price, and then must transport the product home. The customer receives greater retail service if his time for the shopping transaction is reduced. For this reason, a store may choose its location(s) in order to allow customers to reduce their travel times. In this example, one of the store's outputs is convenience, which is difficult to measure.

Further, when the customer will arrive to shop is not certain. A store will tolerate idle clerks so that when a customer arrives, he may be served without an unacceptable delay ([14], page 169-70). This service is part of the store's output.

Customer involvement in the provision of services might be considered in the design of a services classification system. Should retail stores be distinguished by convenience? Should those retail stores that provide faster service because they maintain excess capacity be separated from those establishments requiring a longer wait? Should the same thing be done for medical centers [6]?

Also, it has been argued that because of customer involvement, an establishment's output can be dependent upon its customers. For example, teacher's service is to impart knowledge directly to the pupils through instruction. When a teacher has a class of poor students, it might be argued that this teacher produces less output because of the students' inability to absorb

this information ([9], page 324). Does this mean that the classification of educational establishments should distinguish the talents of their students?

Bundled Services

Individual business services establishments often provide a range of services, or combine the provision of services with the manufacture/sale of goods. For example, a facilities management firm may provide janitorial services, guard services, trash disposal, food service, and other basic services for managing and maintaining the infrastructure of a facility. Establishments which specialize in any one of these individual services would be classified according to the service provided. Should establishments providing combinations of services be classified into a separate industry? Should horizontal integration of service activities be considered unique industries by the fact of the combination of functions? Or should they be placed with nonintegrated establishments on the basis of their primary activity? The answer to this question may partly depend on decisions on the concept adopted for economic classifications.

In other instances, establishments may provide a "product" which includes both goods and services. Examples of establishments that are generally considered service establishments, but which sell goods or include goods as an integral part of their services, are systems integrators/value

added resellers, hotels, and marinas. In many instances, the goods are resales, and the gross volume of these resales may actually exceed the value of the service provided. How should the bundling of goods and services by establishments be handled in a classification system?

6.5 Crosscutting Industries

Over the years, the uses and expectations of the information provided by the SIC system have grown. Many data users want information on industries which the current SIC does not recognize. Often these industries are aggregations of existing industries, or parts of existing industries, which reflect the broad markets in which the individual users are interested. Data users want the SIC industry structure to provide information on these markets. Among the more commonly cited "industries" are the following:

- Travel and tourism;
- Information;
- Environmental services;
- Automotive services;
- Franchising; and
- Natural resources industry

Travel and Tourism

A "travel and tourism" industry would group airline establishments, hotels, restaurants, etc., together because all serve travelers. It seems clear that both the inputs and outputs of these types of establishments are quite different and would

not be grouped together under the supply-based concept described in Issues Paper No. 1. This grouping is clearly an example of a demand-based industry, and there is considerable interest in the "tourism industry" (see section 6.3 for additional discussion of the tourism industry proposed).

Information Services

The current SIC recognizes Major Group 48, Communications. Included in this major group are telephone and telegraph communications; radio and television broadcasting stations, including cable and other pay television services; and other communication services, such as radar stations, satellite earth stations, etc.

New communications technologies are rapidly changing the traditional methods of sending and receiving information, and are generating an increased interest in the classification of establishments providing information services. Some data users believe that communications should be broadened to encompass all types of information services, including printing and publishing activities now classified in manufacturing, and information retrieval services now located in Major Group 73, Business Services. On-line information retrieval services (SIC 7375), it is argued, are alternative methods of communications and may replace either the printed word or voice communication. Printing and publishing, the same argument goes, also are a means of

communication. Many publishers now offer information in either an electronic or printed format. There is no difference in the information supplied, only the means of communicating the information--that is, the technology--has changed. If a demand-based concept were adopted, all of these industries provide close substitutes, the communication of information, and should be grouped together. These groupings probably would not, however, be acceptable in a supply-based system.

Environmental Services

Environmental services is another "industry" for which there is an increasing demand for data. As with tourism and information services, establishments providing these kinds of services are classified in many different industries in the current SIC system. Environmental engineers, for example, are classified in SIC 8711, Engineering Services; environmental management consultants in SIC 8742, Management Consulting Services; hazardous waste removal in SIC 4953, Refuse Systems. Pulling these very different types of activities into an industry called environmental services is very appealing to data users wanting to analyze the market for environmental services, and might be justifiable in a demand-based classification system. There are, however, many different activities, skill levels, and production processes included in this "industry," making it, less appropriate for a supply-based classification system.

Franchising

Many data users want data on the prevalence of franchising and on the nature of the relationships between franchisors and franchisees. Many look to the SIC to provide answers, the appropriate groupings.

Franchise agreements are legal agreements between separate companies. Though some data on franchising can be collected by industry (e.g., hotel franchises, restaurant franchises), it is difficult to identify individual establishments whose primary purpose is to administer franchise operations. Often these operations are performed by establishments, such as central administrative offices, which are engaged in many other activities and classified accordingly. Moreover, there seems to be no meaningful way to put all franchisees into one industry or aggregation of industries. It is highly unlikely that a industry including all franchisors would capture a large percentage of all franchising activity.

Alternative Methods of Providing Data

Decisions to group or not group various types of establishments together do not imply that information on such markets is not a legitimate need or that alternative data cannot be provided. For example, for those seeking information on automotive repair and services, the Census Bureau collects

detailed data on gasoline sales, repair receipts, etc., from car dealers, gas stations, and automotive repair shops, each a separate 4-digit industry. Even though these establishments may be included in separate SIC industries, product data can be developed for those seeking information on the automotive services markets. Comparable data might be collected for environmental services, tourism, etc.

The ECPC is developing a product coding system for the nongoods producing industries that will provide detailed product data wherever produced for service industries, allowing data users to aggregate these data into marketing categories and to derive the information needed for demand-side studies (See ECPC Issues Paper No. 8 for a discussion of product codes).

6.6 The Current Approach to Services Classification

Understanding, measuring, and classifying service industries has been hampered in the past by lack of the data that have historically been available for the goods-producing sector. The 1987 SIC Manual lists 53 4-digit industries for Division H, Finance, Insurance, and Real Estate, and 150 for Division I, Services, but 459 4-digit industries for manufacturing.

For many services industries, data are collected in the United States only for employment, payroll, and gross receipts. For some industries (e.g., nonprofit), there are not even satisfactory measures for these. In addition, lack of extensive

commodity data has limited the delineation and reporting of services. For example, specialization and coverage ratios cannot be computed for service industries because the necessary commodity detail is not available for services on a "wherever made" basis.

The existing economic significance criterion also inhibits the formation of 4-digit service industries (see ECPC Issues Paper No. 4, "Criteria for Determining Industries"). The existing economic significance criterion causes service industries to be on average larger than those in manufacturing.

In the past, data users have made more proposals for revising goods-producing industries than for revising services industries. Though fewer services industry proposals may have been made by the public, statistics users have amply conveyed the need for more detail on services. Audrey Freedman, Chairperson of the Business Research Advisory Council to the Bureau of Labor Statistics, noted that "the SIC is crippled as to services. Services get ignored or mixed as ancillary to manufacturing" [7]. In his prepared remarks to a joint meeting of the Census Advisory Committees, Dale Mortensen observed that "On a practical level, [economic classification] comes down to the services sectors. It is a half century too late; there is still not enough data on specific products and technology" [13].

As the above citations show, services have been decried as being the most out-of-date sector, where the need to recognize newly-emerging industries is the most urgent. This suggests that

alternatives to the traditional sources for new industry proposals--public proposals for "new" SIC industries--must be sought in the case of services. The following sections detail particular issues and/or problems associated with services classifications in the current U.S. SIC.

6.7 Problems/Issues for Service Industries Classification

Laws (Regulations)

Should classification of industries be based on existing laws or regulations, which are subject to change by legislative bodies and regulatory agencies? Examples include the following:

- SIC 6798 (Real Estate Investment Trusts) is based on the Real Estate Investment Act of 1960 as amended;
- SIC 6021 (National Commercial Banks) are chartered under the National Bank Act; SIC 6022 (State Commercial Banks) are chartered by one of the states or territories; SIC 6029 (Commercial Banks, Not Elsewhere Classified) do not operate under Federal or State charter. Similar phenomena exist for the different industries in Industry Group 603 (Savings Institutions) and Industry Group 606 (Credit Unions); and
- The differences between SIC 8051 (Skilled Nursing Care Facilities), SIC 8052 (Intermediate Care Facilities), and SIC 8059 (Nursing and Personal Care Facilities, Not

Elsewhere Classified) is based, at least partially, on Medicare/Medicaid qualifications.

Most of the industries in SIC Division H, Finance, Insurance, and Real Estate, reflect the regulatory regimes that governed those industries in the past. In the 1987 SIC revision, commercial banks were assumed to operate differently from other depository institutions and to deliver different financial services because of the regulatory environment in which they operated. If the regulations that have kept commercial banks apart from other financial institutions are relaxed, should the classification system follow? To what extent does current or past financial regulation affect or determine the homogeneity of an industry?

Integration with Using Industries

Another problem/issue arises because many services industries are currently included in the division for which the services are performed. Thus, crop services such as aerial dusting and spraying are included in Division A, Agriculture, Forestry, and Fishing; oil and gas well drilling services are included in Division B, Mining; and services provided to the banking industry are in Division H, Finance, Insurance, and Real Estate.

Grouping the production of services with the <u>using</u> industry or sector seems inconsistent with either production-oriented or

market-oriented groupings (see ECPC Issues Paper No. 1). Because manufacturers, as well as other industries, are using and demanding more off-premise services, sometimes referred to as "contracting out," the issue of the logical placement of services is of increasing importance. Stanley Feldman (Williamsburg Conference [3], p. 221) proposed moving all service activities now in manufacturing, agriculture, mining, and construction to a business services SIC. Does separation of business services from using industries improve the usefulness of data published using the classification system, or is the present placement defensible?

Actual vs. Intent

Should classification be based on what occurred, rather than the intent? For example, confusion occurs when an establishment develops property, and then:

- Resells it on its own account--it belongs to SIC 1531; and
- Rents it--it belongs to Industry Group 651.

Depending upon the economic conditions, an establishment may change its method of operation. If there are no buyers for the developed property, it may rent it even though the original intent was to sell it. Should the establishment be reclassified each year, depending upon the final disposition of the property, or should the classification system be organized to recognize the business practices that occur and to accommodate the movement of

establishments between what appears to be quite different economic activities?

Actual vs. Perception

Should classification be based on what occurred, rather than how the "public" views the establishment? Examples of such problems in the designation of industries include:

- SIC 5912 (Drug and Proprietary Stores)--The "old-time" drug stores now sell a wide array of good. Prescription drugs and proprietary drugs are no longer the primary products (or even significant), yet the SIC description states, "... These stores are included on the basis of their usual trade designation rather than on the stricter interpretation of the commodities handled" ([23], p. 329).
- SIC 7933 (Bowling Centers)--Although the majority of revenue may be derived from the sale of meals and refreshments, according to the SIC if they are "known to the public as bowling centers or lanes" (ibid., p. 381), they are classified in SIC 7933.

Easily Understood vs. Technical Jargon

Should the industry description be easily understood by the public or be written using technical jargon? SIC 6726 (Unit Investment Trusts, Face-Amount Certificate Offices, and Closed-

End Management Investment Offices) text includes some very technical wording, such as "whose shares contain no provision requiring redemption...each of which represents an individual interest in a unit of specified securities..." (ibid., p. 350). Only people very knowledgeable of the industry understand this wording, which creates difficulties for users, and for classification.

Operating Income vs. Nonoperating Income

Should the classification be based on the initial activity (SIC 7929--entertainer being paid to entertain) or on basis of residuals received (SIC 6794--entertainer receiving royalties for past work)? The same question applies for inventors, etc.

6.8 Classification of Auxiliary Establishments

The 1987 SIC Manual defines auxiliary establishments as those "primarily engaged in performing management or support services for other establishments of the same enterprise," and an enterprise as one that "consists of all establishments having more than 50 percent common direct or indirect ownership" ([23], p. 13). The SIC Manual goes on to clarify that "auxiliary establishments are distinguished from operating establishments that primarily produce goods and from those that primarily provide services for personal or household use or for other

enterprises. Some examples of activities commonly performed by auxiliaries are management and other general administrative functions, such as accounting, data processing, and legal services; research, development and testing; and warehousing" (ibid.). Further explanation of how auxiliaries are defined, the exceptions, and borderlines can be found in the SIC Manual.

Currently, "auxiliary establishments are assigned 4-digit industry codes on the basis of the primary activity of the operating establishment they serve. In addition, they are subclassified further through the assignment of a 1-digit auxiliary code...based on the primary activity performed by the auxiliary establishment" (ibid., pp. 16-17). Therefore, a large manufacturing company that has a separate data processing office that primarily serves other establishments of the company is classified in the same industry as the manufacturing establishments it serves.

Over the past several years, arguments have been made for changing the classification of auxiliary establishments. In fact, as early as 1953 Maxwell Conklin and Julius Shiskin of the Census Bureau recommended that "auxiliaries that meet the definition of a separate establishment should be assigned industry codes according to products made or services rendered, and without regard to ownership" ([4], pp. 16-17). They argued that auxiliary activities have existed since the beginning of the Industrial Revolution, when the occurrence of manufacturing, retailing, repairing, etc., frequently were carried on all at the

same place. As industrial companies began to specialize, these auxiliary activities moved off-site and assumed an independent economic value, even though the practice of classifying them according to the product of the establishment serviced continued. The problem exacerbated, when the off-site auxiliary establishment began servicing more than one operating plant, and these operating establishments produced unrelated products or services. Today, many of these auxiliary establishments provide services not only to their own company, but also to outside customers [18].

Retail stores that primarily sell groceries are classified as Grocery Stores (SIC 5411). The establishment that provides the data processing service for a large grocery company also is classified as a grocery store, with a subcode identifying it as an auxiliary establishment even though the establishment sells no groceries. Employees at this data processing establishment do not "produce" groceries but rather "produce" paychecks for those employees that produce the groceries. Furthermore, the data processing establishment could and frequently does sell data processing services to establishments not owned by its parent company. The result of classifying the data processing establishment in the grocery industry is that data for SIC 7374, Computer Processing, and Data Preparation and Processing Services, is understated. Department of Transportation representatives to the Technical Committee on Industrial Classification, responsible for recommendations for changes to

the 1987 SIC, estimated that the trucking industry may be understated by as much as 50 percent due to captive trucking operations classified as auxiliary activities.

6.9 Collectibility of Data

The service sector is characterized by large numbers of small businesses. The recordkeeping practices of these small businesses vary greatly and may not allow for reporting of the kinds of detailed information necessary for accurate SIC coding. In addition, large numbers of these companies are not included in census surveys which collect detailed information needed for SIC coding. Rather, much of the SIC coding for these small businesses is done by the Internal Revenue Service and the Social Security Administration, based on written descriptions provided by the company. (See ECPC Issues Paper No. 3, "Collectibility of Data," for a discussion of the coding practices of these agencies.) This lack of detailed information on the activities of these small companies greatly increases the probability of miscoding.

During past SIC revision processes, proposals for many changes to service classifications have been rejected because of the difficulty of accurately coding the activities of the small businesses that dominate the sector. Any industry coding system must take into account the ability of small businesses to report

the required information and the ability of Federal Government agencies to code the establishment to the proper SIC.

For large multiestablishment service companies, an additional problem arises in providing data for industry classification. As discussed earlier, many of these companies do not separate revenue and expenses by location (see discussion in 6.8). These kinds of data are available only at a higher organizational level within the company such as the division, customer service location, etc. It may be necessary to treat these operations differently in a revised classification system.

The Census Bureau in its 1992 Economic Censuses recognizes these problems and has adjusted its data collection activity for industries such as banking, communications and public utilities. For multiestablishment banks, for example, revenue and expense data are not kept for each branch location. Rather this information is available for the main office only. For 1992, Census is collecting employment and payroll information for each branch location and total revenue and expense information for the main location.

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