

Paris, drafted: 9th Sept. 1988

Department of Economics
and Statistics

ANALYTICAL CLASSIFICATIONS OF SERVICES

Contribution to the Third Meeting
of the Voorburg Group on Services Statistics

by

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INTRODUCTION

Research work devoted to services has given rise to a great number and variety of classifications. They are a reflection of the diversity and heterogeneity of services, which range from very simple and traditional to highly sophisticated and newly-developed ones, and which serve numerous purposes. Classifications respond to diverse analytical requirements, stemming from theoretical research as well as from policy-oriented considerations (e.g. in the framework of policies aimed at promoting and liberalising trade in services).

The purpose of this study is to present a systematic - but not necessarily exhaustive - overview of published services classifications and to assess their analytical usefulness and statistical feasibility.

The concepts of services underlying the classifications reviewed are not homogeneous, and many borderline cases are treated differently (e.g. construction and utilities are considered as services in some classifications, but not in others). Nevertheless, practically all classifications broadly correspond to T.P. Hill's general definitions of a service production activity, which "is one in which the activity of the producer brings about an improvement in the condition of some other economic unit" (1).

As a rule, classifications cover all three aspects of services (2):

- a. service industries: they are the economic units that produce services;
- b. service activities: they represent the processes of production;
- c. service products (or commodities) are the results of service activities.

However, the classifications of services tend to focus on the nature of the activities by which they are produced rather than the products: a service considered as a commodity is normally defined as the output of a specific kind of activity (1).

The starting point of this study is the "Summary of alternate classification systems" elaborated by D.I. Riddle (3) which distinguishes between three categories of classifications:

- production-based
- consumption-based
- function-based.

This typology is enlarged by the addition of:

- object-based classifications
- classifications based on the relationship to goods
- classifications based on producer-user relationship⁵
- classifications based on trade and investment considerations
- classifications based on liberalisation strategy.

I. Production-based classifications

This category groups classifications which focus on the methods and conditions of production or on characteristics of producers.

I.1 Categories of producers in the System of National Accounts (SNA)

The SNA (4) of the United Nations distinguishes four categories of producers:

- a. The producers of government services furnish, but normally do not sell, to the community those common services which cannot otherwise be conveniently and economically provided, and administer the State and the economic and social policy of the community. Their activities therefore differ substantially in character, cost-structure and source of finance from the activities of industries. The activities of the government services are largely financed by the government itself; and they are consequently considered to be the final consumers of most of the services and goods which they produce. Their cost-structure does not contain an element of operating surplus, and is made up to a substantial

extent, of compensation of employees" (4). T.P. Hill (5) proposes to separate "pure public services" (consisting of public administration and defence), which require no act of consumption on the part of individual economic units, from other government services.

- b. Industries: they cover the establishments the activities of which are financed by producing goods and services for sale in the market at a price that is normally designed to cover the costs of production; they include government industries engaged in selling the kinds of goods and services which are often produced by business establishments though as a matter of policy the prices set for them may not approximate the full costs of production.
- c. Producers of private non-profit services to households: their role is in certain respects similar to some of the producers of government services, as they furnish social and community services to households on a non-profit basis; their activities are usually financed through dues of members, contributions, grants and endowments.
- d. Households: they provide domestic services to one another; the costs of their production consist of compensation of employees only.

I.2 Profit and non-profit sectors

A similar institutional breakdown is proposed by R. Dobell et al. (6). They distinguish between services provided by the non-profit sector of the economy which encompasses the government and private non-profit institutions, and the profit sector, consisting of enterprises and households.

I.3 Market and non-market production

Market services are produced by units whose resources are mainly derived from the sale of their output whatever the price charged may be called: selling price, fee, rate, toll, duty, etc. Non-market services are distributed free or almost free of charge. Non-market producers' resources

are mainly derived from sources other than the sale of output i.e. from government transfers, voluntary contributions from households in their capacity as consumers, or from property income. The distinction between market and non-market production cuts across institutional criteria. In fact, the market branches consist of all units of whatever institutional sector which sell their output. Non-market branches cover governments', private non-profit institutions' and private households' service production that corresponds to the non-market criterion.

The distinction between market and non-market branches and output is made in the European System of Integrated Economic Accounts (ESA) (7). ESA limits this distinction to certain services: refuse disposal and sanitation services, education, health, social services, recreational and cultural services, etc.

For all goods and the other services ESA applies conventions: (i) the production of goods is always deemed to be market production; (ii) the production of certain services is always deemed to be market production: wholesale and retail trade, lodging and catering, repairs, transport and communication, finance and insurance, business services, etc.; (iii) the production of certain other services is always deemed to be non-market production: services of central government, social work, services by membership organisations, etc.

The European Communities (30) defined "market services" as the sum of:

- a. Recovery and repair services;
- b. Wholesale and retail trade;
- c. Lodging and catering services;
- d. Inland transport services;
- e. Maritime and air transport services;
- f. Auxiliary transport services;
- g. Communication services;
- h. Services of credit and insurance institutions;
- i. Business services provided to enterprises;
- j. Renting of real estate;
- k. Market services: education and research;

- l. Market services: health
- m. Other market services.

I.4 Knowledge-based and tertiary services

This distinction proposed by the Office of Technology Assessment of the US Congress (8) focuses on the resources required for the production process. Knowledge-based services are characterised by: (i) they require high skill levels; (ii) the product or the production process depend on relatively advanced technologies; and (iii) the provision of the service often demands rapid response to shifting customer needs, both product and process can involve substantial customisation to meet market requirements, implying high information and knowledge content. Knowledge-based services are mainly banking, insurance, professional and technical services, information technology services, advertising, motion pictures, health care, education.

On the other hand, tertiary services respond to the following criteria: (i) they require low skill and educational levels; (ii) neither the nature nor the production process is affected by the technology in a fundamental way, and (iii) the service tends to be standardised, the production process more-or-less fixed and routine. Main tertiary services are: leasing, shipping and distribution, franchising, travel, recreation, much entertainment, some social services and most personal services.

I.5 The degree of processing of services

The idea of ranking services according to their degree of processing (9) focuses on the mode of supply and the factors used in the production of services. It bears some resemblance to the classification described in I.4. Services that contain a greater amount of knowledge would be considered as being more highly processed than services that can easily be performed by economic agents with a comparatively low level of skills. Providers of highly processed services embody a high share of fungible generalised knowledge and relatively small share of specialised, not easily transferable knowledge. This approach has led to the distinction between primary, intermediate and final services. Primary services are those that perform elementary linkage functions without particular reference to the scope

or purpose of the activity performed. They are, therefore, synonymous with unskilled labour in any type of occupation, which can easily be shifted from one type of occupation to another. These services tend more and more to be considered as production factor activities and to be excluded from the category of services. "Intermediate services, on the other hand, are service products made up of the three elementary production factors entering into the making of such products, namely human capital, labour, and physical capital, in contradistinction to primary services which are made up essentially of labour without any adjunction of human capital (or so little) and physical capital (or so little). Intermediate services are the products of often complex production activities involving the collection and application of data and the elementary organisation and structuring of these data into what is commonly known as information. The information produced in the form of intermediate service products is the true raw material of final service products, which involve a more or less elaborate degree of processing or manipulation of information designed to adapt the raw database to the requirements of specific functions performed by the service providers." (9)

I.6 Services in the production programme

The production of services represents for enterprises or establishments classified as service industries the principal activity. A wide range of services is, however, produced by enterprises or establishments whose principal activity is not in services, but in agriculture, mining and manufacturing. They represent "secondary services", if they are produced for third parties, and "support", "ancillary" or "in-house" activities if they are produced for the purposes of the producer (2). For example, the production of a software programme represents a principal activity, if it is produced by a software house; it constitutes a secondary activity if it is produced by a computer manufacturer; it is ancillary if it is produced by any other manufacturer.

Further differences between secondary and support services are (10): (a) secondary services are revenue generating, they are output items, they represent a diversification of the product line, and their selling price is stated separately; (b) support services are not revenue generating, but are input items, they reflect vertical integration, and their selling price is bundled with the product or service price.

II. Consumption-based classification

This category analyses services from the point of view of consumption and consumers. It distinguishes various types of consumption, different groups of consumers and focuses on services characteristics that are relevant for the consumers.

II.1 Intermediate and final services

The distinction between intermediate and final services emphasises the markets to which services are provided. Intermediate services are delivered to enterprises, final services to households (8). Intermediate services are input into the production of goods and services, final services are destined to definitive consumption (11). This distinction is essential for the input-output tables (12). In this context, the terms "intermediate" and "final" have a different meaning from the same terms used in classification I.1 (where they refer to production aspects). For intermediate and final services, two sub-categories have been put forward (13). Intermediate services are broken into (i) distributive services (wholesale and retail trade, transport and storage, and communication) and (ii) producer services (finance, insurance, real estate, legal and accounting services, data processing, advertising, leasing, engineering services). Final services are subdivided into (i) personal services, consumed by individuals and households as a part of private consumption (hotels and restaurants, cultural and entertainment services, domestic services, repair and laundry services) and (ii) collective services, consumed by groups of persons as part of public consumption (public services, sanitary and similar services, education, health, social services, research).

II.2 Services and stages of development

This approach, proposed by M.A. Katouzian (14), correlates services with different stages of development. He distinguishes three categories of services that are characteristic for the stages of development. The first category, the "old services" consists of those activities which flourished before industrialisation and whose importance and contribution has almost continuously declined since. The most important of this category are domestic

services and services of stable-keepers and cab-drivers. The second category "complementary services" includes services whose production normally takes a sharp turn with the rise of manufacturing; they are complementary to the process of industrialisation and expand in response to a rise in demand in a new productive situation. This category encompasses banking, finance, transportation and trade. The rate of growth of these services increased in line with the growth of industrial production. The third category, the "new services", includes all those services the consumption of which follows the mass consumption of manufacturing products. The demand for these services is highly sensitive to the growth of per capita incomes, and it is also an increasing function of the amount of per capita leisure-time. This category includes education, medical services, entertainments and tourism.

II.3 Perishability of services

In analogy to the differing degrees of perishability of goods, D.J. Riddle (3) proposes a classification of services on such a basis. Three categories are distinguished. Perishable services (of less than six months' duration) include cleaning, transportation and communication. Semi-durable services (of a life between six months and three years) encompass maintenance and professional services, and durable services cover research, education and government. T.P. Hill (5) suggests a distinction between two categories: permanent and temporary services, depending on the length of time over which the change effected may normally be expected to last.

III. Function-based classifications

This category of classifications emphasises the economic and societal functions of services. The first four classifications are very similar, with the same building blocks arranged somewhat differently. The two last ones are different in the sense that they attach a great importance to information and communication.

III.1 The Bank of England classification

This classification which focuses on the factors affecting the demand for services, distinguishes four categories:

- "a. Consumer services (which include the restaurant and hotel industries, household services and private transport): demand may be governed by price and personal income;
- b. Social services (which include health care and education): these services are often provided free or subsidised by the state and individual demand is therefore less constrained by price and personal income;
- c. Producer or intermediate services (which include consultancy contracting and banking): used largely in the production of final goods and services; demand is governed by output or investment decisions of enterprises;
- d. Distributive services: these contribute to both intermediate and final demand and include freight transport and wholesale and retail trade." (15).

III.2 Riddle's classification

D.I. Riddle (3) proposes a breakdown of total services into five categories which are defined in terms of the International Standard Industrial Classification (ISIC):

- a. Infrastructure services: they cover public utilities, construction and transport, storage and communication;
- b. Trade services include wholesale and retail trade, restaurants and hotels;
- c. Business services comprise financing, insurance, real estate and other business services;

d. Public administration and defence;

e. Social and personal services.

III.3 Classification by Stanback and others

This classification, proposed by M. Stanback, P.J. Bearse, T.J. Noyelle and R.A. Karasek (16), distinguishes six categories:

a. Distributive services: transportation, communication, utilities and wholesale trade;

b. Retail services;

c. Non-profit services: health and education;

d. Producer services: finance, insurance, real estate, business services, legal services, membership organisations and miscellaneous professional services;

e. Mainly consumer services: hotels and other lodging places, personal services, auto repair and other auto services, other repair services, motion pictures, amusement and recreation services, private household services;

f. Government and government enterprises.

III.4 Kakabadse's classification

M.A. Kakabadse (17) has elaborated a breakdown of services into seven categories:

a. Construction services: project planning, execution and management, consulting and training;

b. Distributive services: goods transport and storage, travel (passenger transport), shipping, retail and wholesale trade;

- c. Financial and insurance, brokerage, trusts and building societies;
- d. Commercial services: professional and business support services including accounting, advertising, design, technical and management consulting, legal services, computer services, translation, copying and temporary employment, architectural services, leasing, franchising and trade fairs; auto-rental agencies; real estate; repairs and maintenance, cleaning services; news and press agencies; motion pictures, printing and art work;
- e. Telecommunications and information services: telephone, telegraph, television, teledata transmission, data processing;
- f. Collective services: health, education, research, social welfare and government services;
- g. Personal services: hotel and catering services, tourism, leisure, recreational and cultural services, domestic services and personal care.

III.5 Classification of service activities in the socialist countries of Eastern Europe

Socialist countries apply a classification (29) which is similar to the distinction between producer and consumer services:

- a. Material production sphere (productive activities):
 - industrial services
 - construction services
 - agricultural services
 - sylviculture services
 - transportation and communication services
 - trade services
 - other material services
 - material utilities.

b. Non-material production sphere (non-productive activities):

- housing and non-material utilities
- science and technology services
- education services
- culture and art services
- health and social security services
- physical culture, sport and recreation services
- other non-material services
- state administration, defence and justice
- financial and insurance services
- services of political, professional and other organisations.

III.6 UNCTAD classification of producer services

UNCTAD (29) has elaborated the following classification of producer services - which it defines as services linked to production functions:

- a. Upstream: Service inputs prior to the production process. Such services include feasibility studies, product conception and design, market research;
- b. Onstream production: Service inputs integral to the goods-production process itself such as quality control, equipment leasing, logistics of supply, maintenance and repair;
- c. Onstream parallel: Service inputs necessary for the operation of any type of firm such as accounting, personnel management, personnel search, training, software, telecommunications, legal, insurance, finance, cleaning, security, catering, real estate;
- d. Downstream: Service inputs, post-production, necessary to the final sale such as advertising, transportations, distribution, and subsequent provision of services associated with the product, i.e. repairs, maintenance, client training, etc.; often such services must be provided in order for the good to be competitive.

III.7 Nusbaumer's classification

1. Nusbaumer (9) distinguishes between four functions:

- a. Knowledge-carrying functions: it represents the dissemination and transfer of accumulated knowledge and know-how; it covers education, consultancy, engineering, medical services, legal services, computer software and data-processing services, architecture and design, accountancy and audit, public administration, etc.;
- b. Linkage function: it relates to distance - reducing services such as transport including transport of voice and image over telecommunications and satellite networks, as well as services that support the market system such as financial services and insurance;
- c. Communication function: it provides the means for carrying information, such as telephone and telegraph, broadcasting and publishing;
- d. Information function: it consists of the collection and processing of raw data, such as databases, marketing, business services, etc.

III.8 Jonscher's classification

C. Jonscher distinguishes two main functions (18):

- a. Production: production services are those that are associated with the supply of goods (marketing, retailing, delivery, after sales services);
- b. Information: they consist of services directly provided by information workers (newspapers and broadcasting programmes, education, legal services) and information technology associated with the delivery or consumption of such services (telecommunication, television, radio).

IV. Object-based classifications

Since a service producing activity is designed to bring about an improvement in the condition of some other economic unit, classification of such activities can be linked to the objects whose condition is to be improved.

IV.1 Hill's distinction

In defining service activities, T.P. Hill distinguishes between two major categories (1):

- a. The improvement in the condition of some economic unit may take the form of a physical transformation of some good or goods owned by the consumer unit.
- b. The improvement may relate to the physical or mental condition of some individual person, or group of persons.

IV.2 McKellar's classification

McKellar (19) proposes a classification which bears some resemblance to T.P. Hill's distinction between services directed at persons and at goods, with services relating to goods being broken into several components. He distinguishes the following categories:

- a. Services directly related to people: health services, education services, cultural and recreational services, food and accommodation services, correctional services, employment services and others;
- b. Services for other living things (propagation and care of plants and animals): consulting services, health and nutrition services for plants and animals, services for plant propagation and harvesting; food, accommodation, propagation and miscellaneous services for animals;
- c. Services related to other natural resources (land, water, air and minerals): surveying, consulting and mapping services, renting,

buying and selling of land and natural resources, mining and well drilling services and other services related to land and the environment;

- d. Services related to buildings and other fixed assets: architectural, engineering, design, decoration and appraisal services for buildings and other fixed assets; renting, buying and selling of buildings and other fixed assets; repair, renovation and related construction services, buildings and other fixed assets; management and maintenance services, buildings and other fixed assets; other services related to buildings and other fixed assets;
- e. Services related to the manufacture and marketing of goods (except transportation): design and manufacturing services for transportable goods; storage of goods except live storage of vehicles; marketing and rental services of transportable goods; maintenance, repair and servicing of manufacturing goods; and services related to the manufacture and marketing of transportable goods, n.e.s.;
- f. Transportation services: air transport service, water transport service, rail transport service except urban transit , urban transit and other passenger transport services, truck transport services, pipeline transport service and other non-passenger transport and services incidental to transport;
- g. Services related to records and information: information originating services, information processing services, communication services, publicity services and other services related to record and information;
- h. Services of general application: management and administrative services, n.e.s.; legal, judicial and legislative services; protective services; insurance services; financial services; and miscellaneous services, n.e.s.

V. Classifications based on the relationship to goods

These classifications focus on the relationship between services and goods, in view of the fact that there exist multiple and divergent relationships between the two categories.

V.1 Directly-linked services and others

D. Blades (20) classifies total services into two main categories:

- a. Services directly linked to goods production: these are services "that are a necessary adjunct to the process of producing goods; many of these were, and often still are, provided by the goods producers themselves" (20). They cover wholesale and retail trade, real estate except dwellings, and business services.
- b. Free-standing services are bought by households in their capacity as final consumers. Although this category sometimes involves the consumption of goods (such as restaurant meals) their connection with the goods producing sector is much looser. They include dwellings, social and community services, recreational and cultural services, personal and household services.

V.2 Stern's classification

R.M. Stern (21) classifies services from the point of view of trade in goods into three categories:

- a. Services which are complementary to trade in goods, such as transportation and associate transportation services, merchandise insurance, export financing and advertising; they are natural by-products to merchandise exports;
- b. Services that substitute for trade in services or for local goods production, such as franchising, rental, leasing and chartering;

- c. Services without a direct relationship to goods, such as legal and medical services, life insurance, real estate, telecommunications, data processing and information services, and travel.

V.3 The classification of the Canadian Institute for Research on Public Policy

The Canadian Institute's classification (22) covers the same three categories that have been proposed by R.M. Stern (described under V.2), but adds a fourth category which comprises services embodied in goods. "Some services such as motion picture films, sound recordings, books and computer programmes are exported in a form embodied in goods. Sometimes this type of service is traded after the sale of the physical good. It is embodied with the physical good in the sense that both are "bundled" together at the time of sale, but the service dimension is drawn down (traded) over time. For example, sophisticated manufactured exports may require a continued service input to keep them in operation and continually useful as new innovations are introduced" (22). This category of services is embodied in, or complementary to, the physical good, while services of Stern's second category are complementary to the transaction or exchange rather than the good itself.

VI. Classifications based on producer-user relationships

Two very similar classifications are based on the different forms of relationships that exist between producers and users of services.

VI.1 Bhaqwati's classification (23)

This classification provides for a primary distinction into:

- a. Services for whose production physical proximity is essential;
- b. Services for whose production physical proximity is not necessary: they represent the "long-distance" services; the scope for such service transactions is a function of technology and shows a rising trend; although not being indispensable, physical proximity between

provider and user in many services does lead to substantially greater efficiency and may allow a wider range of possible transactions.

The first category is subdivided into three groups:

- a. Mobile provider, immobile user: this group of services requires that the provider moves to the user while the reverse mobility is physically infeasible; an example for this group of services are construction services;
- b. Mobile user, immobile provider: for this group the user must move to the provider; in this group some key elements of the production process are not transferable to the user's location (for example, accommodation for tourist, and hospital care for medical services);
- c. Mobile user, mobile provider: for this range of services, mobility is symmetrically possible; examples for these services are lectures and repairs.

VI.2 The Stern-Hoekman classification (24)

This classification does not provide a primary and secondary breakdown, but put all the four elements included in Bhagwati's classification on the same footing:

- a. No movement of providers or demanders: "separated", "disembodied", "long-distance" or "pure" services;
- b. Movement of providers only: demander-located services;
- c. Movement of demanders only: provider-located services;
- d. Movement of providers and demanders: "footloose", "non-separated" services.

VII. Classifications based on trade and investment considerations

This group of classifications considers services from the angle of international trade and investment.

VII.1 Tradeable and non-tradeable services

The distinction between tradeable and non-tradeable services is proposed by UNCTAD (25).

Tradeable services comprise:

- a. Services provided through direct export ("across-border" transactions). These activities involve the export of services by resident firms or individuals to non-resident firms or individuals abroad. Examples are air and ocean freight; passenger transport; international reinsurance; motion picture rental; communications; and consulting and engineering services provided by resident firms. The terms "resident" and "non-resident" are interpreted in this context in accordance with the "location" concept, which considers enterprises as residents of the country in which they are located and operate, irrespective of ownership considerations. A service transaction between a domestic and a foreign company located in the same country is accordingly a domestic activity, whereas a service transaction between a domestic company and its overseas subsidiary is an international activity;
- b. Services provided within national boundaries to non-residents: These are services that are provided by residents of a country and are consumed in the country by non-residents; they none the less constitute international service transactions. International tourism is one example; others are airport and seaport services rendered by resident companies to non-resident enterprises and the transport of foreign passengers by local airlines on domestic routes. In addition to expenditures made by private foreign visitors, such as tourists and business men, expenditures made overseas by diplomatic and military personnel would be included in

this category. Although these services are not exported as such, the transactions have direct balance-of-payments effects. The relevant expenditures represent a credit item for the economy in which they are made and a debit item for the economy in which the recipient individuals or enterprises reside.

Non-tradeable services cover:

- a. Services that are domestically oriented; they are necessarily produced and consumed in the same country, such as government and community services;
- b. Services provided through foreign affiliates. They represent services that can only be provided from within the country market and not through direct export. In such cases, a service enterprise establishes branches or subsidiaries abroad and the service is provided by the foreign affiliate rather than by the parent company. This is the case with hotel and motel services, where the service, by its nature, cannot be exported. The same is true for most aspects of commercial banking. Similarly, equipment leasing services must usually be set up in the market in which they are used. As certain service exports, such as air transportation or engineering consultancies, can require the maintenance of agencies or offices in foreign markets, a distinction needs to be made between affiliates as vehicles of direct investment and local agencies established in support of export operation. Examples include press agencies, such as those of newspapers, periodicals or television companies, purchasing offices such as airline agencies, supervisory offices of construction and engineering firms, representative offices or banks, and the like.

The borderline between tradeable and non-tradeable services is not invariable. In fact technological progress and the improvement of the international infrastructure have contributed to the development of activities which in the past were "non-tradeable" but have become more and more tradeable.

VII.2 Tradeability of services

J.B. Richardson (26) offers a breakdown of services that is slightly different from the UNCTAD classification. He distinguishes four categories:

- a. Services which can be traded wholly from a distance, such as information services and reinsurance;
- b. Services which are tradeable with the help of facilitation by means of a commercial presence in the importing country, e.g. transport and international finance;
- c. Services which are non-tradeable, for which foreign competition is only possible through labour movement, such as cultural and consultancy services;
- d. Services which are non-tradeable, and which are capable of exposure to foreign competition only through movement of capital or know-how.

VII.3 Trade and investment orientation

R.K. Shelp (27) applies, in the context of the analysis of national and international regulations, the following classification:

- a. Investment-related services: they are predominantly associated with investment, such as accounting, advertising, auto and truck leasing, banking, employment agencies, equipment leasing, hotels and motels, and legal services;
- b. Trade-related services: they are primarily associated with export trade (air and maritime transportation);
- c. Trade-and-investment-related services, such as communications, computer services, construction or engineering services, educational services, franchising, health services, insurance, and motion pictures.

VIII. Classification based on liberalisation strategy

H.P. Gray's classification of services (28) is based on the conclusion that, as a result of the heterogeneity of services, different liberalisation strategies are required for the individual categories of services. From this point of view, he distinguishes five categories:

- a. Services that are derivative from international trade in tangible goods (primary goods and manufactures). This category includes freight transportation of all kinds, insurance and related financing;
- b. Services where location-specific attributes are dominant. Tourism is the pre-eminent example here;
- c. Services which are location-joining. These will include passenger transportation and communication;
- d. Services which are usually provided in all nations. They can be consumed anywhere and by anyone and provided anywhere and by anyone. These services include such services as financial services (insurance and banking for example), professional services and international communications;
- e. Those services that derive from intra-firm relationships - usually between units of a multinational corporation. These transactions are usually conducted on the basis of hierarchical rather than arm's length pricing.

CONCLUSIONS

By way of conclusion, analytical usefulness and statistical feasibility of the classifications described in the main body of this study will be assessed. As there exist many similarities among the individual classifications, comparable classifications will not be examined separately, but grouped on the basis of common characteristics.

For a classification to be analytically useful, it has to "categorise data in mutually exclusive classes according to principles that aid in understanding the economic activities reflected in the data..., in the service sector, the primary function of classifying service industries is to help us understand the economic trends that underlie the apparent heterogeneity of the industries" (3). "Mutually exclusive" means that classes are defined in a way that ensures that individual units or transactions can be fitted into one and only one class. In addition, classifications must be jointly exhaustive, i.e. all units or transactions to be classified must be accommodated by the classification, it has to provide a complete coverage (19). This can be assessed by reference to international standards, such as the International Standard Industrial Classification of the United Nations.

Classifications I.1, I.2 and I.3 are very similar: in fact, market production as defined by ESA and applied by the European Communities is broadly equivalent to production by government and private non-profit institutions (in the SNA), and by the non-profit sectors. The distinction between market and non-market production is of fundamental importance, because there are substantial differences between them. The method of distinguishing the two sectors applied by the European Communities is meaningful, but it might be preferable to extend it to all activities (instead of treating, by convention, the production of all goods and certain services as being exclusively market production).

Classifications I.4 and I.5 have in common that they focus on knowledge and skills. Their usefulness is limited by the fact that they do not define knowledge and the hierarchy of skills (what are high and low skills?) and do

not propose a method to measure the knowledge content of services. It would be worthwhile to develop such a measure, e.g. by breaking the value-added or the production costs into their components. A hierarchy of skills could be derived from the International Labour Office's International Standard Classification of Occupations (ISCO) which emphasises skill levels and skill specialisation as classification criteria.

Classification II.1, III.1, III.2, III.3, III.4, III.6 and V.1 centre on the basic distinction between final and intermediate services and between personal and collective services; this distinction is developed in varying degrees. The most instructive approach appears to be to combine the breakdown market/non-market services with the distinction between final or consumer services and intermediate or producer services; for producer services the UNCTAD classification (distinguishing between upstream, onstream and downstream services) is very enlightening.

Classifications III.7 and III.8 focus on information services, but give them excessive weight; one of the consequences of this bias is that these classifications are incomplete, because they omit consumer and collective services. They cannot serve as a basis for a general classification.

Classifications IV.1 and IV.2 which emphasise the objects of service activities are difficult to apply to enterprises which are combinations of persons, goods and fixed assets. They are, however, relevant for classifying consumer services; T.P. Hill's distinction between services related to persons and to goods is essential for analysing them.

The classifications grouped in categories VI, VII and VIII are based on the fact that the provision of services requires variable degrees of physical proximity between producers and users. The extremes are non-tradeability and across-the-border-transactions comparable to goods trade, and part of services are demander-located and provider-located services; the borderline between these groups are variable and depend on technology, so that no comprehensive classification can be derived from these distinctions.

The attached "general services classifications" represents a summary of the classifications discussed, incorporating elements of production,

consumption- and function-based classifications. An attempt is made to classify the components of the Final Draft of the Revised International Standard Industrial Classification of all Economic Activities, Rev.3 on this basis.

The implementation of this classification requires, on the one hand, the availability of data reflecting all ISIC Divisions and several ISIC Groups and Classes. On the other, additional data would be necessary, involving the breakdown of several Divisions into market and non-market services (especially Divisions 73, 80, 85, 92 and 93), and a distinction between services provided to households and individuals (consumer services) and to enterprises (producer services); this relates particularly to transportation, post and telecommunications, financial intermediation and real estate activities.

AppendixA general services classification

<u>Items</u>	<u>ISIC Codes</u>
A. Non-market services	
1. Pure public services:	
Public administration and defence; compulsory social security	75
2. Other collective services:	
a. Research and development: non-market	73 (part)
b. Education: non-market	80 (")
c. Health and social work: non-market	85 (")
d. Sewage and refuse disposal, sanitation and similar activities: non market	90 (")
e. Activities of membership organisation n.e.c.	91
f. Recreational, cultural and sporting activities: non-market	92 (part)
g. Other service activities: non-market	93 (")
h. Extra-territorial organisations and bodies	99
B. Market services	
1. Consumer services	
a. Services provided to persons	
i) Hotels and restaurants: except business	55 (")
ii) Transport of passengers: leisure	60 (")
	+ 61 (")
	+ 62 (")
	+ 63 (")

iii) Post and telecommunications: households	64 (")
iv) Financial intermediation: households	65 (")
	+ 66 (")
	+ 67 (")
v) Real estate activities: households	70 (")
vi) Renting of personal and household goods n.e.c.	713
vii) Computer and related activities: households	72 (")
viii) Other business activities: households	74 (")
ix) Education: market	80 (")
x) Health and social work: market	85 (")
xi) Recreational, cultural and sporting activities: market	92 (")
xii) Hairdressing and other beauty treatment	9302
xiii) Funeral and related activities	9393
xiv) Other service activities n.e.c.	9309
xv) Private households with employed persons	95

b. Services provided to goods:

i) Maintenance and repair of motor vehicles: households	502 (")
ii) Maintenance and repair of motorcycles: households	504 (")
iii) Repair of personal and household goods	526

2. Producer services

a. Upstream services

i) Research and development: market	73
ii) Market research	7413 (")
iii) Architectural and engineering activities	7421
iv) Technical testing and analysis	7422

b. Onstream production services:

i) Renting of other machinery and equipment	712
ii) Quality control	
iii) Logistics of supply	

c. Onstream parallel services

i) Construction services	45
ii) Post and telecommunication: enterprises	64 (")
iii) Financial intermediation: enterprises	65 (")
	+ 66 (")
	+ 67 (")
iv) Real estate activities: enterprises	70 (")
v) Computer and related activities: enterprises	72 (")
vi) Legal activities	7411
vii) Accounting, book-keeping and auditing activities; tax consultancy	7413
viii) Business and management consultancy	7414
ix) Labour recruitment and provision of personnel	7491
x) Investigation and security activities	7492
xi) Building-cleaning activities	7493

d. Downstream services

i) Advertising	743
ii) Transportation: goods and business travellers	60 (")
	+ 61 (")
	+ 62 (")
	+ 63 (")
iii) Sale of motor vehicles, etc.	50
iv) Wholesale trade	51
v) Retail trade	52 except 526

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