GATS, THE MODES OF SUPPLY AND STATISTICS ON TRADE IN SERVICES

Philip Chang
Guy Karsenty
Aaditya Mattoo
Jürgen Richtering*

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Abstract: The objective of this paper is to assess how far currently available statistics can fulfil the needs of the General Agreement on Trade in Services (GATS). Commitments under the General Agreement on Trade in Services (GATS) have been scheduled in each of a wide range of sectors according to four modes of supply: cross border, consumption abroad, commercial presence and the presence of natural persons. To evaluate the results of the GATS and to set priorities for the coming negotiations, it will be necessary to assess, not only the relative importance of individual services sectors, but also the relative importance of modes of supply in each service sector. This paper reviews the current state of information in this area and identifies the main conceptual and statistical problems.

*WTO Secretariat, 154, Rue de Lausanne, CH-1211, Geneva 21, Switzerland. The views expressed in the paper are those of the authors and should not be attributed to the WTO

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I. Introduction

The General Agreement on Trade in Services (GATS), the first multilateral agreement to cover trade in services, has a unique and unprecedented structure.[1[1]] It defines trade in services as the supply of a service through any of four modes of supply: cross border, consumption abroad, commercial presence and the presence of natural persons. Each country has scheduled its commitments in individual sectors with respect to each mode, with the level and nature of commitment generally differing across modes. To evaluate the results of the GATS and to set priorities for future negotiations, it will be necessary to assess, not only the relative importance of individual services sectors, but also the relative importance of modes of supply in each service sector. There has so far been little research on such an assessment because of the paucity of statistics and the newness of the GATS.[2[2]]

This paper is best seen as part of a wider research programme, which will involve several tasks. One is a clarification of the GATS notion of trade and of the *conceptual differences* between the modes of supply, in general and in individual services sectors. The second task is an assessment, on the basis of available evidence, of the relative importance of services sectors and of the modes of supply in each sector. It is of course true that the *revealed patterns of trade* reflect not only the comparative advantage in services sectors and modes of supply, but also the sectoral and modal restrictions on trade. So a future task would be to carry out a comprehensive examination of the existing *restrictions on trade* by sectors and modes of supply.

The previous empirical research on trade in services is quite limited. One trend has been to use production and employment data as proxy indicators for trade specialisation of individual countries since trade data were either not available or were highly aggregated (see Browne, 1991; Gilmer, 1990). However, Hoekman and Karsenty (1994) have shown, using OECD statistics, that production- and employment-based measures of relative specialisation diverge significantly from

[1[1]] The GATS was one of the key results of the Uruguay Round of multilateral trade negotiations. It came into effect on 1 January 1995.

[2[2]] During the Uruguay Round, some such judgements must, presumably, have been made by negotiators when they sought specific concessions from their trading partners.

trade-based specialisation indices. Other research has focused on the importance of Foreign Direct Investment (FDI) as a mode of delivery of services in foreign markets (see UNCTAD and World Bank, 1994). Attempts have also been made to assess the relative importance of commercial presence (or foreign direct investment) by analysing the ratio of cross-border exports of services to sales of foreign service affiliates (see Kravis and Lipsey, 1988; Sauvant and Zimny, 1987). This ratio is found to vary significantly across industries, and commercial presence is the most important mode of delivering services for industries like accounting, advertising, insurance, investment banking and retailing. Hoekman's (1995) attempt to assign weights to the four modes of supply for each sector reflected only a "subjective assessment" of the relative importance of the modes. The present paper is more rigorous in its approach than Hoekman (1995) and wider in scope than Kravis and Lipsey (1988) and Sauvant and Zimny (1987). It also updates some of the statistics presented in the last two papers.

Section II below describes the modes of supply as defined in the GATS and explains the conceptual distinction between different modes. Section III presents an analysis of the relationship between the modes of supply and relevant statistical domains, i.e. the balance of payments (BOP) and foreign affiliates trade (FAT) statistics.[3[3]] Section IV presents a review of trade flows in services on the basis of balance of payments statistics. Section V examines the relative importance of modes in selected services sectors using sectoral trade statistics for the United States. Section VI presents some statistics which serve as indirect indicators of the importance of the presence of natural persons as a mode of supplying services. Section VII suggests areas for future work on services statistics.

II. Trade in services and the modes of supply

The GATS defines trade in services as the supply of a service through any of four modes:
(1) *cross-border supply*: from the territory of one Member into the territory of any other Member;
(2) *consumption abroad*: in the territory of one Member to the service consumer of any other Member;
(3) *commercial presence*: by a service supplier of one Member, through commercial presence in the territory of any other Member; and

[3[3]] The foreign affiliates trade (FAT) statistical framework is designed to provide information on the activity of enterprises located in foreign markets.

(4) *presence of natural persons*: by a service supplier of one Member, through presence of natural persons of a Member in the territory of any other Member.

"Scheduling of Initial Commitments in Trade in Services: Explanatory Note"[4][4] (henceforth, Explanatory Note), states that the "modes are essentially defined on the basis of the *origin* of the service supplier and consumer, and the degree and type of *territorial presence* which they have at the moment the service is delivered." The Explanatory Note provides certain criteria for distinguishing between the modes of supply (see Table 1). In the case of *cross-border supply*, the consumer and the service supplier each remain in their respective territories, while in *consumption abroad*, it is the consumer who moves to the territory of the service supplier. In the last two cases, the service supplier actually moves to the territory of the consumer, and delivers the service either through *commercial presence*, or through *presence as a natural person*. These general criteria are not always adequate to distinguish between modes, and conventions may need to be established for certain borderline cases.

Table 1: Modes of Supply

Supplier Presence	**Criteria**	**Mode**
1.Service supplier not present within the territory of the Member	1. Service delivered within the territory of the Member, from the territory of another Member	1. cross-border supply
	2. Service delivered outside the territory of the Member, in the territory of another Member, to a service consumer of the Member	2. consumption abroad
2.Service supplier present within the territory of the Member	3.Service delivered within the territory of the Member, through the commercial presence of the supplier	3. commercial presence
	4. Service delivered within the territory of the Member, with supplier present as a natural person	4. presence of natural person

[4][4] GATT Document MTN.GNS/W/164, 3 September 1993. The document warns that "the answers should not be considered as an authoritative legal interpretation of the GATS." It is, however, the basis on which many schedules of specific commitments have been drafted.

Source: Scheduling of Initial Commitments in Trade in Services, GATT, MTN.GNS/W/164.

Examples of the *cross-border supply* of a service given in the Explanatory Note are international transport, the supply of a service through telecommunications or mail, and services embodied in exported goods (e.g. a computer diskette, or drawings). The development of communication and transportation infrastructures has favoured the growth of cross-border supply even in sectors where it was hardly considered an option until recently.

Consumption abroad often involves the actual movement of the consumer, as in tourist services. However, the Explanatory Note states that activities such as ship repair abroad, where only the property of the consumer moves, or is situated abroad, are also covered. While in many cases, the distinction between cross-border supply and consumption abroad is easy to establish, in other cases, it may be somewhat fuzzy.[5[5]] This may create a problem, not only for statistical purposes, but for interpreting the precise scope of the commitments that Members have undertaken. For instance, commitments with respect to consumption abroad frequently tend to be more liberal than those with respect to cross-border supply, so the wider the definition of consumption abroad, the greater is the liberalizing content of commitments.

Commercial presence covers not only the presence of juridical persons in the strict legal sense, but also that of legal entities which share some of the same characteristics. It thus includes, *inter alia*, corporations, joint ventures, partnerships, representative offices and branches. Commercial presence may often be the only way to supply services, the production of which necessitates direct contact between the supplier and the consumer. In certain cases, commercial presence is used as a complement to cross border supply, such as in computer services, where the local presence of experts may be necessary for installation, adaptation, training, etc. Sometimes, the production of the service occurs in the foreign parent company, and the local agents acts as trade-facilitating intermediary, for instance, in travel; wholesale banking; reinsurance; auditing and consultancy (Sauvant and Zimny, 1987).

[5[5]] For instance, there is a certain ambiguity which arises in the case of financial services between whether certain forms of trade should be classified as cross-border supply and consumption abroad. Consider the purchase of insurance by an individual in one country from a firm in another country. Should the place where the service is purchased determine where it is consumed and supplied, or should it be the place where the claims are paid? The former notion suggests that consumption abroad is the relevant mode of supply, whereas the latter notion implies cross-border supply. Certain Members have chosen to resolve this ambiguity by introducing the notion of "solicitation" in their scheduled commitments. Thus if the supply of a service involves solicitation or active marketing, then presumably it would be treated as cross-border supply, whereas consumption abroad would cover purchases not prompted by solicitation. This criteria itself raises several issues, such as how solicitation is to be defined and identified.

The *presence of natural persons* can assume two forms under GATS.[6] The first relates to commercial presence, and includes the foreign employees of service suppliers, such as intra-corporate transferees (e.g., a foreign engineer temporarily transferred to a foreign branch from a parent construction company). In the country schedules, this aspect has been reflected in commitments for high level staff, such as managers, executives and specialists. The second form relates to the presence of foreign natural persons independently of foreign commercial presence. This could involve persons who are themselves service suppliers, and present on a temporary basis in foreign markets for the supply of their services, such as foreign consultants, or the employees of foreign services suppliers sent abroad to fulfil a service contract.

III. GATS Needs and Currently Available Statistics

In the GATS context, we encounter a crucial statistical problem: the framework of negotiated commitments does not match the existing structure of trade statistics. This is for three related reasons. First, the GATS definition of trade in services goes beyond the traditional notion of international trade, which refers to products crossing geographical boundaries, or to transactions between residents and non-residents. Thus, trade in services is defined as including local sales by foreign entities who would be considered "residents" by conventional statistical criteria and for whose activities adequate statistics generally do not exist. Second, the scheduled commitments are, in most part, made according to the Group of Negotiations on Services (GNS) sectoral classification[7] which is based largely, but not entirely, on the United Nations Provisional Central Product Classification (CPC).[8] However, the only services trade statistics available on a global basis follow the IMF Balance of Payments Manual classification which is less closely linked to the CPC. The third reason, related to the first, is the distinction made in GATS between four modes of supply: cross border, consumption abroad, commercial presence and presence of natural persons. In the country schedules, commitments in each service sector are specifically defined according to each mode of supply. This is a form of disaggregation for which only crude statistical approximations exist. For these reasons, statistical information currently available suffers from the following shortcomings.

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[6] The Annex on Movement of Natural Persons Supplying Services Under the Agreement applies to "natural persons who are services suppliers of a Member and natural persons of a Member who are employed by a service supplier of a Member, in respect of the supply of a service."

[7] GATT Document, MTN.GNS/W/120.

[8] The GNS Classification deviates from the CPC classification primarily in *telecommunications* and *financial services* and to a lesser extent in *transport services*. The CPC constitutes a complete product classification covering goods, services and assets. It was developed primarily to enhance harmonization among various fields of economic related statistics.

Gap in Coverage

Perhaps, most importantly, the divergence in definition of what constitutes an international transaction in services creates a gap in coverage from the GATS point of view. BOP statistics register transactions between residents and non-residents. According to balance of payments conventions, if factors of production move to another country for a period longer than one year (sometimes flexibly interpreted), a change in residency has occurred. The output generated by such factors that is sold in the host market is not recorded as trade in the BOP. Thus, transactions involving commercial presence and stay of natural persons for durations of more than one year are not covered by the BOP statistics. The implications for statistical coverage of individual sectors depends on the relative importance of these modes of supply in a particular sector. Sectors like *distribution services* and *financial services* are likely to be among the worst affected.

Limited Disaggregation

In the Fourth Edition of the IMF Balance of Payments Manual, there was no explicit identification of what constituted trade in services. Rather, the current account was divided between *merchandise* and *non-merchandise* items, the latter often being referred to as *invisibles*.[9[9]] The Fifth Edition of the IMF Balance of Payments Manual (1993) (BPM-5) introduces a relatively detailed classification pertaining to the services part of the current account. Some of the standard components of BPM-5 are further subdivided and may be included as supplementary information. This indicates what will be available in the near future for most countries.[10[10]] For some countries, more disaggregated data is likely to be available than is indicated by the BPM-5 classification.

The BPM-5 still contains a relatively limited disaggregation in comparison with the GNS classification. The greatest number of sub-divisions in the GNS classification are in *business*

[9[9]] The term invisibles generally referred to the sum of the following categories: shipment, other transportation, travel, investment income, other official goods, services and income, other private goods, services and income, and (optionally) private and official unrequited transfers . The definition of commercial services used in previous GATT publications included all the components of invisibles except investment income, other official goods, services and income, and private and official unrequited transfers. Starting with the 1995 issue of the Annual Report, the WTO decided to exclude labour income, which consists mainly of wages and salaries paid to seasonal and border workers, from the definition of commercial services. The reason for this exclusion is discussed in Section VI.

[10[10]] The IMF formally requested countries to start reporting according to the new classification from 1995 onwards. Many countries are already reporting according to the BPM-5 classification, and several others in a format close to the BPM-5 classification.

(46), *communication* (21), *financial* (16) and *transport* (33) services. If the IMF supplementary information section is excluded, then the number of subdivisions in the IMF classification for these sectors will be 2, 2, 2 and 9, respectively. The inclusion of supplementary information raises the number of *business* subdivisions to 8. Although the classification to be used for the collection of foreign affiliates trade (FAT) statistics at the OECD level is not yet defined, we can presume that it will not be far more detailed than the classification used for the collection of FDI statistics - which is itself a relatively aggregated classification.

Lack of Concordance

The problem of concordance is apparent when a comparison is made between the GNS classification and the BPM-5 classification. For statistical coverage *educational services* and *health related and social services* must rely on a disaggregation of personal travel expenditures provided only in the supplementary information section, and on non-separated ingredients of *other personal, cultural and recreational services.* The lack of a precise concordance is also a major problem for *computer and related services, environmental services, tourism and travel related services*, and *recreational, cultural and sporting services*. For example, in the IMF BOP classification, *computer and information services* include *news agencies services* which are part of *recreational and cultural services* in the GNS classification. FAT statistics, when they are collected, are likely to follow activity classifications which, by their very nature, are not directly concordable with a product classification such as the GNS (or the CPC, on which it is based).

Modes of supply

Since the commitments under the GATS are specified according to the four modes of supply, trade statistics for each service sector should ideally also be available according to each of the modes of supply. Thus, it would be useful to know the precise magnitude of trade between two countries in, for instance, legal services, that takes place through cross-border supply, consumption abroad, commercial presence and presence of natural persons. This would enable an assessment both of the relative importance of different modes of supply in a particular sector and of the impact of measures affecting each mode of supply.

As noted above, *cross-border supply* of a service implies reliance on a medium of transport, such as a telecommunication link or postal services. Furthermore, in many cases the service is embodied in a good, as for instance, software on a computer diskette. Thus, cross-border supply statistics would need to record the sale of such a service, net of the value of transport service and

net of the value of the good in which the service is embodied.[11][11] Statistics on *consumption abroad* would need to include, not only items such as the repairs of vessels undertaken abroad, but also the purchase by tourists of specific services, ranging from hotels and restaurants to photographic services. Statistics on *commercial presence* would cover, first of all, the capital flows that make such presence possible, and, second, the details of the activities of foreign service suppliers. Statistics on the *presence of natural persons* would include, first, those on the movement *per se* of natural persons, and, second, details of their activities. These would cover transactions of independent service suppliers, such as foreign doctors, and information on natural persons who are employed by service suppliers, such as the foreign employees of foreign-owned banks.[12][12] In the latter case, the service transaction would be attributed to the commercial presence mode, but the data required would presumably include the number of foreign employees and their income.

The limitations of the existing statistical domains in providing information on trade by different modes of supply are listed in Table 2. No clear distinction is made in BOP statistics between the modes that are covered, i.e. cross-border supply, consumption abroad, and presence of natural persons or commercial presence for less than one year. Consumption abroad of a service could, in principle, be covered by the BOP category *travel*. However, *travel* consists of all expenditures by travellers abroad, including those on goods, and is not subdivided into the different categories of services acquired by travellers. Furthermore, some elements of consumption abroad which arise when the property of the consumer moves or is situated abroad, as in ship repair services, are not recorded in *travel* but in other BOP categories.

Commercial presence could be covered by three kinds of statistics: (i) information on flows and stocks of foreign investment which make commercial presence possible, and are currently recorded in FDI statistics; (ii) information on market size in service sectors, which may be approximated using production statistics, such as gross output or value added; and (iii) information on the activity of foreign companies in domestic markets (such as turnover), which is to be recorded under the new statistical domain of foreign affiliates trade (FAT) statistics.[13][13]

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[11][11] The transporting service used must, of course, be recorded separately in the appropriate service category - postal, courier, telecommunication or transport services.

[12][12] The Annex on Movement of Natural Persons Supplying Services Under the Agreement applies to "natural persons who are services suppliers of a Member and natural persons of a Member who are employed by a service supplier of a Member, in respect of the supply of a service."

[13][13] Until recently, only one country, the United States, compiled data on sales of services abroad by foreign affiliates of resident companies and sales of services in the reporting country by resident affiliates of foreign companies. Many other OECD countries have now also begun to do so.

Current data on FDI do not meet the needs of GATS in several respects. First, the concept of ownership underlying statistical practices in FDI (10 per cent of shares or voting power) do not correspond to the GATS concept ("ownership" of more than 50 per cent of the equity interest or "control", i.e. the power to name a majority of directors or to legally direct actions). Second, variables such as output and sales are generally not included in existing questionnaires.[14][14] Third, the sectoral breakdown is limited. Production statistics are also not adequate since they do not distinguish between national and foreign production.

Table 2: Inadequacies of Statistical Domains with regard to Modes of Supply

Mode of Supply	**Relevant Data Source**	**Inadequacies**
Cross border supply	BOP service statistics (categories other than *travel*)	- BOP not distributed between *cross border supply*, *presence of natural persons* (individuals) and *commercial presence* for less than one year
Consumption abroad	BOP Statistics (mainly the *travel* category)	- *Travel* also contains goods, and not subdivided into the different categories of services consumed by travellers - Some transactions related to this mode of supply are also in other BOP categories
Commercial presence	Production, FDI and FAT statistics	-Production statistics do not distinguish between national and foreign firms - FDI statistics do not provide data on output (or sales); FDI definition does not match the definition of *commercial presence* - FAT basic concepts and definitions not yet internationally agreed

[14][14] OECD and EUROSTAT have issued a new joint questionnaire, relating to flows, stocks and investment income. However, it is not expected that all information will be reported by countries. It is also not clear when the information will be published. Furthermore, sales are not covered by the questionnaire.

Presence of natural persons (independent)	BOP Statistics (mostly categories other than *transport* and *travel*)	- BOP not distributed between *cross border supply, presence of natural persons* (individuals) and *commercial presence* for less than one year - natural persons who are residents are not covered
Presence of natural persons (employees)	Employment data from FAT statistics	- not yet available

It is intended that the new statistical domain of FAT statistics should remedy some of these deficiencies, but work in this area is only beginning. Until recently, only one country, the United States, compiled such statistics on a regular basis. Now more countries (including Denmark, Finland, France, Ireland, Italy, the Netherlands, Spain, Sweden and the United Kingdom) are beginning to address this issue. The establishment of international guidelines in this area is necessary, with a view to securing country comparability. Several issues still need to be resolved, including defining the statistical population (the companies covered), the classification to be used and the variables[15][15] to be collected. These issues are discussed in WTO (1995,1).

Presence of natural persons includes, first, service suppliers who are present for less than a year in foreign markets and are therefore considered non-resident in the BOP context. If such natural persons are themselves service suppliers, then their sales are captured in the relevant services categories of BOP statistics - but are not recorded separately from cross-border sales. Employees are covered by the GATS if they are employed by a service supplier of a Member. The earnings of such natural persons are an unidentifiable ingredient of the BOP category *compensation of employees*, which records the earnings of all natural persons established abroad for less than one year - regardless of the sector of employment.[16][16] There is no record in the BOP statistics of the activities of natural persons who are resident for longer than one year, except that *workers' remittances* and *migrants' transfers* record the transfers that they make. Complementary statistics on numbers of natural persons may be found in employment and migration statistics. Employment data from FAT statistics (such as number of employees and compensation of

[15][15] A consensus seems to be emerging in Eurostat on giving priority to data collection for turnover (sales) and value added. Data on employment, exports and imports would be a second priority.

[16][16] Starting with the 1995 issue of the Annual Report, the WTO decided to exclude compensation of employees, which consists mainly of wages and salaries paid to seasonal and border workers, from the definition of commercial services. The main reasons were that the former category measured income earned by temporary employees in both the goods and services sectors, rather than sales of services *per se*.

employees) would be relevant, when they become available, especially if they were broken down between "national" and "foreign" employees.

IV. A Review of trade flows in services sectors based on BOP statistics

As noted above, the Fifth Edition of the IMF Balance of Payments Manual introduced a more disaggregated classification for services statistics in 1993, but it was only since 1995 that a large number of countries have reported according to the new classification. Table 3 illustrates the level of detail at which different countries report to the IMF. The low number for 1996 reflects delays in reporting. Almost all of the IMF member countries report aggregate trade statistics for *transportation*, *travel*, *insurance*, and *other business services*. However, only a small number of the countries report disaggregated data for individual components of *transportation* and *travel*. Furthermore, fewer than half the IMF member countries report statistics separately for sectors like *construction*, *financial*, *computer and information*, and *personal, cultural and recreational services*.[17[17]] Even the statistics that are reported do not necessarily have the same coverage. For instance, the United States BOP figures for services sub-sectors other than *transport* and *travel*, only include transactions between unaffiliated companies, while those of other countries also include transactions between affiliated companies.

Table 3: Coverage: Number of countries reporting services trade data for specific services sectors, 1994-96

code	Service description	Imports			Exports		
		94	95	96	94	95	96
	Total services	147	117	46	146	116	46
1	**Transport**	147	117	46	141	113	46
1.1	Sea transport	48	48	27	42	44	27
1.1.1	Passenger transport on sea	18	19	14	13	15	13
1.1.2	Freight transport on sea	42	40	22	31	33	22
1.1.3	Supporting, auxiliary and other services	31	30	19	31	31	18
1.2	Air transport	48	46	26	49	48	26
1.2.1	Passenger transport by air	43	39	23	39	37	23
1.2.2	Freight transport by air	26	32	22	22	29	20
1.2.3	Supporting, auxiliary and other services	26	27	16	33	32	18
1.3	Other transportation	35	34	22	39	40	22
1.3.1	Passenger	19	19	10	22	21	11
1.3.2	Freight	27	26	17	28	29	17
1.3.3	Other transportation services	24	27	15	27	30	15
2	**Travel**	145	115	46	141	114	46

[17[17]] This paper relies on the statistics that have been published by the IMF. There are indications that certain countries have more detailed data at the national level.

2.1	Business travel	34	33	15	24	22	12
2.2	Personal travel	47	48	21	39	40	19
2.2.1	Health-related expenditure	13	15	6	4	7	4
2.2.2	Education related expenditure	25	23	8	10	14	7
2.2.3	Other personal travel	37	37	14	29	28	11
3	**Communications services**	57	60	33	57	62	32
4	**Construction services**	36	40	26	30	37	23
5	**Insurance services**	131	104	39	89	72	31
6	**Financial services**	40	44	23	38	43	24
7	**Computer and information services**	19	25	18	16	23	16
8	**Royalties and licence fees**	63	57	29	46	42	24
9	**Other business services**	143	116	44	134	110	42
9.1	Merchanting and other trade-related services	31	33	18	36	37	19
9.2	Operational leasing	29	30	21	20	25	19
9.3	Miscellaneous business, professional and technical services	66	62	33	64	61	31
9.3.1	Legal, accounting, management, consulting and public relations services	19	19	11	12	14	9
9.3.2	Advertising, market research and public opinion polling services	16	19	12	14	16	11
9.3.3	Research and development services	11	14	9	10	13	9
9.3.4	Architectural, engineering and other technical services	12	15	8	11	14	8
9.3.5	Agricultural, mining and on-site processing services	5	6	4	6	7	4
9.3.6	Other services	42	37	20	41	37	20
10	**Personal, cultural and recreational services**	27	30	17	20	24	16
10.1	Audio-visual and related services	16	19	12	11	14	11
10.2	Other personal, cultural and recreational	15	16	9	13	15	11

Source: Estimated by the authors from IMF Balance-of-Payments Statistics.

Importance of trade in services relative to trade in goods

In this section, using the recently available more disaggregated IMF BOP statistics on trade in services, we attempt to assess the importance of trade in services relative to trade in goods, the relative importance of individual services sectors, and the degree of concentration of services trade.

World trade in commercial services, *measured on a balance of payments basis*, accounted for around one-fifth of world exports and imports of goods and services in 1995 (see Table 4). There were some regional variations in this proportion. On the export side, North America and Western Europe recorded above-average shares of services in their total exports, while Latin America,

Africa and Asia recorded shares of services below the global average. On the import side, the picture is somewhat different: Africa, Asia and Western Europe recorded shares above the average while the Americas recorded shares below the average.[18][18]

Table 4: Share of goods and commercial services in total trade of selected regions and economies, 1995
(Billion dollars and percentage, based on balance of payments data)

	Exports			Imports		
	Total Value	Percentage share of Goods	Commercial Services	Total Value	Percentage Goods	share of Commercial services
World	6240	80.9	19.1	6130	80.3	19.7
North America	978	78.5	21.5	1075	85.3	14.7
Latin America	276	84.3	15.7	286	82	18
Western Europe	2764	79	21	2608	78.6	21.4
Africa	137	81.8	18.2	153	77.2	22.8
Asia	1668	84.1	15.9	1619	79.7	20.3
Memorandum item:						
European Union (15)	2523	79.5	20.5	2383	78.4	21.6

Source: WTO Annual Report 1997.

Relative importance of individual service sectors

Exports of commercial services were estimated to be $1,260 billion in 1996, an increase of 5 per cent over the previous year - much lower than the increase of 14 per cent recorded in 1995 (Table 5). In recent years, *transportation* accounted for at least a quarter and *travel* for around a third of all trade in commercial services. Over the last couple of years, the exports of *transportation* services increased less, while *other commercial services* (insurance, banking, telecommunication and so forth) expanded somewhat faster than total services.

Table 6 provides a more disaggregated picture of the relative importance of particular services within the category of *other commercial services*. One significant problem encountered was that not all countries report statistics for each sub-sector. Trade in individual sub-sectors for non-

[18][18] It must be emphasized that both the trade values and country rankings presented below, especially at the detailed sectoral level, should be viewed with a certain degree of caution, given the differences between countries in sectoral coverage, definitions and collection methods.

reporting countries was estimated on the basis of their share in total trade in commercial services. A second problem was that aggregate imports were not always equal to aggregate exports in particular sectors due to differences in reporting. Table 6, therefore, presents the average of imports and exports for each sub-sector. Subject to these qualifications, Tables 5 and 6 together reveal that trade in most sub-sectors is dwarfed by *transport* and *travel*.[19[19]] *Financial* and *insurance* services together constituted around a fifth of *other commercial services* in recent years. *Other business services* is a large category within other commercial services because it is a catch-all category for all unreported sectors. The relatively large category of *royalties and licence fees* is treated as part of services in IMF BOP statistics, but it is only the *franchising* component of this category which is relevant in the GATS context (as a sub-sector of *distribution* services).

Table 5: World trade in commercial services by category, 1990-96
(Billion dollars and percentage)

	Value	Share		Annual percentage change			
	1996	1990	1996	1993	1994	1995	1996
Exports							
All commercial services	1260	100	100	1	9	14	5
Transportation	315	28.2	25	0	10	13	2
Travel	415	32.5	32.9	1	8	14	6
Other commercial services	530	39.4	42.1	1	10	15	7
Imports							
All commercial services	1265	100	100	1	9	15	5
Transportation	375	31.7	29.7	0	10	15	1
Travel	390	31.3	30.8	-2	8	14	4
Other commercial services	500	37	39.5	4	8	16	8

Source: WTO Annual Report 1997.

Degree of concentration of services trade

The top 15 exporters and importers of commercial services accounted for around 72 per cent and 69 per cent of world exports and imports, respectively, in 1995 - the most recent year for which a

[19[19]] It is important to note that travel is a blanket category which covers all expenditure by travellers abroad, including therefore consumption abroad of other services like transportation and telecommunications.

sufficiently large number of countries have reported statistics. The leading exporting countries and the leading importing countries tend to be the same, for instance, United States, Japan, France, United Kingdom, Germany and Italy, though their relative importance in exports and imports differs somewhat.

Table 6: World trade in "other commercial services" by category, 1994-96 (Percentage)

	Share		
	1994	**1995**	**1996**
Other commercial services	**100**	**100**	**100**
Communications	5	5	5
Construction	7	9	8
Insurance	9	9	9
Financial	8	8	8
Computer and information	3	3	4
Royalties and licence fees	12	13	14
Other business	53	50	49
Personal, cultural and recreational	3	3	3

Source: Estimated by the authors from IMF Balance-of-Payments Statistics.

Table 7 provides estimates of the share of the top 5 and top 10 exporters and importers in reported trade in each sector. As noted above, not all countries report trade figures for each services category. The relative importance of the reporting countries in total trade in the relevant service is estimated on the basis of their share in total trade in commercial services. In so far as the reporting countries may be relatively more important traders in the relevant services category, their estimated share in world exports may be understated. It must be noted that there is virtually full reporting for the categories *transport*, *travel* and *other business services.* But the ingredients of other business services are likely to differ between countries in so far as they include data for all unreported sectors.

Any analysis of these figures must be qualified by the uneven reporting. We disregard *royalties and license fees*, of which only a small part pertains to services trade. One interesting feature of these statistics is that the degree of concentration does not seem to differ much between exports and imports. We can estimate the share of the top 5 (or 10) exporters or importers in world exports (or imports) as the product of their share in total reported trade and the estimated share of total reported in world exports (or imports). It emerges that there is no significant variation in the overall degree of concentration between different services sectors. In general, the estimated share

of the top 5 exporters is between 40 and 50 per cent of aggregate exports, and the top 10 exporters is between 60 and 70 percent. The overall picture does seem to be one in which the bulk of services trade is taking place between a small group of countries.

Table 7: Share of top five and top ten exporters and importers of commercial services in 1995
(Percentage)

Service Sector	Share of top 5 exporters in total reported	Share of top 10 exporters in total reported	Estimated share of total reported in world exports	Share of top 5 importers in total reported	Share of top 10 importers in total reported	Estimated share of total reported in world imports
Transportation	44	66	100	43	60	100
Travel	45	61	100	49	66	100
Communications	49	67	83	67	81	81
Construction	61	91	73	69	93	71
Insurance	69	84	94	60	72	93
Financial	61	92	81	71	87	72
Computer and information	70	98	49	71	96	50
Royalties and licence fees	89	97	83	60	81	84
Other business services	43	65	100	42	60	100
Personal, cultural and recreational services	82	93	76	61	88	75

Source: Estimated by the authors from IMF Balance-of-Payments Statistics.

V. Comparing BOP and FAT transactions for the United States

This Section attempts to examine the relative importance of the modes of supply in specific sectors, namely in *transportation* , *telecommunications*, *construction*, *insurance*, and *professional and other business services.* The statistics presented focus on the United States, the only country which collects statistics on the sales of foreign affiliates. The United States compiles data on

sales of services to foreign persons by Majority-Owned Foreign Affiliates (MOFAs) of U.S. companies, and on sales of services to U.S. persons by Majority-Owned U.S. Affiliates of Foreign companies (MOUSAs). MOFAs data are broken down by country of affiliate and MOUSAs by country of Ultimate Beneficial Owner (UBO). The U.S. data are particularly useful for comparing BOP-related and FAT-related sales, given that: (i) they are available for a number of service sectors and are broken down by partner country; (ii) U.S. FAT sales do not include sales to the country of origin, which prevents an overlap between BOP and FAT data; and (iii) U.S. sectoral BOP statistics are available for unaffiliated partners only, which prevent the double counting of particular transactions, such as when a service is exported to an affiliate which subsequently sells it on its domestic market. However, the fact that intra-firm transactions are not included is likely to induce a substantial undervaluation of BOP transactions in particular sectors such as in finance, accounting and advertising.

Comparisons of BOP and FAT statistics are affected by the fact that BOP transactions are mainly classified by type of service, whereas data on sales by foreign affiliates are broken down according to the primary industry of the affiliate.[20[20]] Furthermore, it is not easy to establish a clear concordance between these two classifications. Finally, these statistics may underestimate the commercial presence mode of supply since minority-owned foreign affiliates escape registration in FAT statistics and a number of minority-owned foreign affiliates are presumably controlled by the foreign parent company.

Table 8 presents aggregate figures for BOP transactions and foreign affiliates transactions for the United States between 1992 and 1994, the most recent year for which statistics have been published. The relative importance of the two types of transactions does not differ significantly at the aggregate level. However, while BOP exports tend to exceed sales through affiliates, purchases through affiliates tend to be more important than BOP imports by roughly the same extent.

Table 8: Total commercial services trade of the United States
(Million dollars and percentage)

	1992	1993	1994	Annual change 1992-93	Annual change 1993-94
BOP (exports)	164057	172139	182704	4.9	6.1

[20[20]] The activity of an affiliate is classified in the industry that accounts for the largest portion of its sales, and all data are shown in that industry whether or not the affiliate also has activities in secondary industries. This might be quite misleading, especially in service sectors such as professional services.

MOFAs sales	141585	142603	153541	0.7	7.7
BOP (imports)	103328	111016	121148	7.4	9.1
MOUSAs sales	126989	134700	144365	6.1	7.2

Source: Estimated by the authors from Survey of Current Business (1996, November).

Table 9 compares the receipts and payments for individual services from BOP transactions and foreign affiliates transactions for the United States for the years 1993 and 1994. The two types of transactions, correspond roughly to modes 1, cross-border supply, and 3, commercial presence. Thus, for instance, we may observe a relatively high degree of affiliates trade in a particular service either because cross-border supply is not feasible or because such supply is restricted by the government. It is notable that the relative importance of the two modes has not changed much in individual sectors between 1993 and 1994. Transport is the only sector in which cross-border trade is unambiguously more important than commercial presence on both the export and import side.[21[21]] In telecommunications, the same is true for imports, but on the export side, aggregate sales through cross-border trade and commercial presence are of roughly the same magnitude.[22[22]] In all other services for which statistics are available, commercial presence strictly dominates cross-border sales. Furthermore, with the exception of computer and data-processing services, commercial presence is of greater relative importance in exports than in imports. The relative importance of trade by different modes in a particular sector reflects the choices of economic agents given the constraints of both technological feasibility and policy restrictions.

Table 9: U.S. trade in commercial services
(Million dollars and percentage)

1993

Services	**BOP exports**	**MOFA sales**	**BOP imports**	**MOUSA sales**	**Ratio of BOP exports to MOFAs sales**	**Ratio of BOP imports to MOUSAs sales**

[21[21]] Freight and passenger transport (cross border supply by convention) accounted for a major part of BOP transactions.

[22[22]] The U.S. BOP classification provides a category for telecommunication services, but no category for other communications services. On the other hand, U.S. FAT statistics provide only for communications services as a whole. Despite the wider coverage of the FAT category, cross-border imports of telecommunication services in the United States are far more important than MOUSAs sales in the United States. Sales of MOFAs are close to cross-border exports for Europe and Latin America, but the sales of MOFAs dominate with respect to the non-reporting "other" countries. The relative importance of cross-border supplies and sales via commercial presence varies widely according to the partner country.

Transport	40505	6710	37641	8688	6.04	4.33
Telecommunications & communications	2785	2626	6365	970	1.06	6.56
Insurance	3981	27575	12093	44327	0.14	0.27
Computer and data processing services	3002	12675	414	2505	0.24	0.17
Advertising	338	3527	646	2551	0.10	0.25
Accounting, Management and related services	1454	5183	629	1414	0.28	0.44

1994

Services	**BOP exports**	**MOFA sales**	**BOP imports**	**MOUSAsales**	**Ratio of BOP exports to MOFAs sales**	**Ratio of BOP imports to MOUSAs sales**
Transport	42944	8740	40868	9551	4.91	4.28
Telecommunications & communications	2871	conf	6924	1057	conf	6.55
Insurance	4944	30941	13861	48666	0.16	0.28
Computer and data processing services	3837	16714	385	2944	0.23	0.13
Advertising	489	conf	725	3135	conf	0.23
Accounting, Management and related services	1792	5678	742	1606	0.32	0.46

Source: Estimated by the authors from Survey of Current Business (1996, November).

Consider first *telecommunications services*. Cross border supply is currently perhaps the most important mode of supply. However, with liberalization, it is becoming possible to establish commercial presence in more and more countries. Therefore, the importance of commercial presence relative to cross-border trade may well increase. The asymmetry between imports and exports in terms of the relative importance of modes reflects a number of factors. One is the comparative advantage of the U.S in telecommunication services generally and in the commercial presence mode of supply in particular. A second factor, is simply differences in demand, with U.S. consumers making more calls abroad than foreigners make to the United States. Finally, U.S. carriers, operating in a relatively competitive market, charge prices for termination services which are closer to costs than the prices charged by many of their foreign counterparts operating in monopolistic markets. It is also true that the relative importance of cross-border supplies and

sales via commercial presence varies widely according to the partner country. This probably reflects differences in the regulatory regimes of individual countries.[23][23]

In *transport services*, a convention has emerged, particularly in the maritime transport services negotiations[24][24], whereby international freight and passenger transport services are treated as cross-border supply. However, this classification cannot really be inferred from the criteria noted above. For instance, in the case of international passenger transport, the service, by definition, is delivered outside the territory of the consuming Member - otherwise the transport service would not really be international. The relative importance of the different modes differs with each transport service. Most international transport services by sea and air can be supplied cross border without the necessity of commercial presence. Nevertheless, commercial presence may be important in the marketing of these services, and eliminate the need for reliance on local agents. In the case of land transport services, geographic proximity may be an important determinant of the relative importance of modes of supply. Thus USITC (1995) provides the example of trucking services, which could be provided by a United States firm to Canada cross-border, but could only be effectively supplied in the European Union through commercial presence. The possibility for foreign service suppliers to provide local transport services is also likely to be contingent on the ability to establish commercial presence.[25][25] Statistics for the United States confirm the current dominance of cross-border mode of supply. Foreign affiliates trade in transportation services is overall less than one fourth of BOP transactions on the payments side, and one fifth on the receipts side.

In *financial services*, we abstract from these problem of modal distinctions and choose to refer to cross-border supply even when certain transactions may fall within the domain of consumption

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[23][23] In the telecommunication sector, and in basic telecommunication services in particular, limitations on foreign ownership are frequently encountered. Thus, many foreign affiliates are minority-owned and escape registration in FAT statistics. These statistics may underestimate the commercial presence mode of supply since there are presumably a number of minority-owned foreign affiliates (less than fifty percent foreign ownership) which are controlled by the foreign parent company. This suggests that there is a considerable potential for FAT sales to expand, in line with the liberalization which is currently taking place.

[24][24] The classification adopted in the model schedule of commitments which emerged in the maritime negotiations deviates in certain respects from the GNS/W/120 classification for the maritime sector.

[25][25] What do national regimes look like? This, of course, depends on the mode of transport. In air transport virtually all countries maintain restrictions on cross-border supply of international services by third countries, as well as stringent equity restrictions on foreign ownership of domestic airlines. The cross-border supply of international maritime shipping is generally more open, with the exception of a small number of countries which still maintain cargo sharing arrangements. However, the opportunities for establishing commercial presence in activities like port services, cargo handling and freight forwarding services are still limited.

abroad. Services supplied cross-border principally relate to reinsurance, large risks which cannot be insured locally, and to the worldwide insurance of multinational businesses. In those cases, insurers have little need for a foreign presence due to the limited number of transactors. The related movements of professionals sent abroad to analyze risks and establish contract terms, or to verify and settle claims is to be considered as factor cost to the insurer and not as movement of natural persons. This is also the case when a claim arises, and the insurer chooses to send an employee abroad to appraise losses and to verify and settle claims. Alternatively, when the insurer uses the services of a local claim agent, it gives rise to another form of cross border supply of insurance services which is recorded as auxiliary services in BOP. However, in cases other than reinsurance, large risks, and worldwide insurance of multinational businesses, a commercial presence is generally necessary to have direct contact with a multitude of clients, and/or to comply with government regulations which prohibit foreign insurance service suppliers from selling policies to residents from abroad.[26][26] As expected, Table 9 shows that in the U.S., commercial presence is by far the dominant mode of supply in insurance services.

In *professional services*, the production of a service often requires close cooperation between the client and the professional. Standardisation of the services frequently remains weak and mass production of the service is difficult. Commercial presence and movement of natural persons are, therefore, natural ways for producers to supply their services. Another element is that professional services are highly regulated in all countries. The effect of these regulations has been to keep national markets more or less independent of each other as a local licence is usually required to practice in any given country. One of the conditions frequently imposed on professionals to obtain the licence, is the existence of a local establishment. This regulatory requirement reinforces the tendency for commercial presence and movement of natural persons to be the dominant modes for the supply of professional services, and to render cross border supply of marginal importance. Cross-border supply has been developing, however, in a limited number of instances where a certain degree of standardisation has been achieved and there is repetition in the supply of the service.[27][27]

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[26][26] To a certain extent, the dominance of commercial presence is due to the present regulatory situation though the need for proximity between supplier and client, regardless of the regulatory situation, cannot be underestimated. With the expected liberalization of insurance markets and improvements in telecommunications as a mode of delivery of services, there is significant potential for cross border supply to increase.

[27][27] An example of a situation where it has been possible to supply professional services cross-border is Swissair's purchase of book-keeping services from India. There have been several contributing factors. First, book-keeping is not regulated in Switzerland. Secondly, accounting standards and the chart of accounts applicable are stable and constitute the framework within which the service has to be provided. Thirdly, the kind of operations in which Swissair is engaged are highly repetitive as is their accounting

Consumption abroad is an important mode for *medical and educational services*. Individuals from one country frequently travel to other countries to consume these services. Transactions related to consumption abroad of medical and educational services are recorded under travel in BOP statistics. BOP statistics also capture certain professional services delivered cross border and through the temporary movement of natural persons. It is, however, not possible to distinguish between BOP transactions related to the movement of natural persons (independents) and to cross-border supply.

Computer and data processing services are other examples of business services. Software installation often requires initial assistance from the provider and after-sales services often necessitate the local presence of experts. In addition, the whole software development process is often the result of a close cooperation with the client in identifying and analysing the user's requirements. Many applications such as payroll or accounting systems are country-specific since they must follow tax and other specific regulatory requirements. Thus, software producers often establish a commercial presence to have a direct contact with clients. Even when supplying generalized software, a local presence might be necessary to adapt the product to country-specific or client-specific needs, in which case commercial presence is a complement to cross-border supplies. In computer and related services, there is a degree of substitutability between the *movement of natural persons* and *cross border trade* modes of supply, as shown in the evolution of specialization of some developing countries in software development.[28[28]] From a technological point of view, many computer and data processing services can be supplied through *cross border trade* using the telecommunication infrastructure linked to the computer hardware, or simply through electronic recording media. Accordingly, remote programming, remote data entry, and remote data processing have been increasingly used. However, despite the expansion of trade through BOP-related modes of supply, for the reasons explained earlier, *commercial presence* remains the dominant mode of supply

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treatment. Finally, particular situations requiring an *ad-hoc* input of Swissair mainly occur four times a year when establishing the quarterly and annual accounts.

[28[28]] Noyelle (1990) states: "Until recently, the bulk of Indian software exports came principally from body-shopping, with Indian software firms sending large number of system analysts and programmers overseas to work on projects managed by clients... In recent years however, Indian software exporters have successfully repatriated some of these overseas assignments and have increased the share of contract programming assignments carried out locally on an export platform basis....The bulk of Filipino software exports involve contract programming services. While a share of the export revenue is generated by sending Filipino software professionals overseas, perhaps to a greater extent than India the industry tries to export principally by producing software locally on an export-platform basis."

VI. Estimating transactions associated with the movement of natural persons

To begin with, it must be recognized that no comprehensive statistics exist today on the extent of trade taking place through Mode 4, i.e through the presence of natural persons. This section examines certain indirect indicators of such trade. The BOP category *compensation of employees* records the earnings of all natural persons established abroad for less than one year - regardless of the sector of employment. Thus, this category measures income earned by temporary employees in both the goods and services sectors, rather than sales of services *per se*. Nevertheless, Table 10 presents evidence on compensation of employees since this is the closest indicator that can currently be found of the importance of Mode 4, subject to all the qualifications noted in Section III. The largest compensation of employees abroad was received by the Philippines which also recorded the fastest increase in such earnings in 1995. Switzerland made the largest payments of compensation to foreign employees in 1995, but the fastest growth in payments was recorded by Israel.

Table 10: Compensation of employees by originating and host country in 1994-95
(Million dollars and percentage)

Rank	Credit	1995	1994	Percentage change	Rank	Debit	1995	1994	Percentage change
1	Philippines	4928	3009	63.8	1	Switzerland	7054	6078	16.1
2	Belgium-Luxembourg	4513	3524	28.1	2	Germany	6350	5350	18.7
3	Germany	4480	4340	3.2	3	France	5362	4769	12.4
4	France	4460	3695	20.7	4	Belgium-Luxembourg	2507	1712	46.4
5	Italy	1934	1901	1.7	5	Japan	1820	1580	15.2
6	Thailand	1695	1281	32.3	6	Italy	1447	1922	-24.7
7	Switzerland	1233	1060	16.3	7	United States	1360	1330	2.3
8	Japan	1150	870	32.2	8	Netherlands	1083	760	42.5
9	Austria	973	845	15.1	9	Israel	650	268	142.5
10	Mexico	695	647	7.4	10	Bahrain	593	506	17.2
11	Netherlands	666	511	30.3	11	Russian Fed.	469	221	112.2

12	Denmark	523	439	19.1	12	India	419	351	19.4
13	Australia	431	387	11.4	13	South Africa	413	621	-33.5
14	Ireland	347	324	7.1	14	Austria	340	292	16.4
15	Greece	304	310	-1.9	15	Australia	306	235	30.2
16	South Africa	205	184	11.4	16	Greece	300	222	35.1
17	Czech Rep.	189	164	15.2	17	Sweden	289	203	42.4
18	Russian Fed.	167	108	54.6	18	Ecuador	255	210	21.4
19	Slovenia	166	153	8.5	19	Poland	251	130	93.1
20	United States	160	160	0.0	20	Brazil	218	190	14.7

Source: IMF Balance of Payments Statistics.

VII. Areas for future work

As noted in the Introduction, this paper is best seen as a first step in a wider research programme. We began by clarifying the GATS notion of trade and the conceptual differences between the modes of supply, in general and in individual services sectors. In the process, some areas of ambiguity, such as the distinction between the first two modes, were identified which will need to be addressed in the coming round of services negotiations. Then next step was to describe the relationship between the modes of supply and existing statistical domains, highlighting the limitations in the existing domains from the analytical and negotiating point of view. The paper then carried out an initial assessment, on the basis of available evidence, of the relative importance of services sectors and of the modes of supply in individual sectors.

The conclusion of a previous WTO Secretariat paper is still valid: "Improving services statistics is a long term process that depends primarily on efforts by national statistical agencies to employ the appropriate methodologies and a willingness on the part of governments to meet the resource costs involved. Without such efforts at the national level, better and more detailed statistics on services will not become available, despite the development of improved classification systems such as the CPC, the revised ISIC, or the OECD/EUROSTAT proposal for international transactions."[29][29] Nevertheless, national efforts will need to be complemented by work in international fora in at least three areas.

Harmonization of operational classifications is a priority from the GATS point of view. The difficulties created by variations in national classification schemes must not be compounded by the emergence of different international classifications schemes. No country would find it easy to collect data according to different and incompatible international classifications. How greater compatibility is achieved between the classification schemes for commitments and for trade statistics depends on the answers to two related questions: (i) How far should the GNS Classification, which emerged primarily as a negotiating list, be treated as immutable? Even though an element of irreversibility in the choice of classification scheme has been introduced because the Uruguay Round commitments have been scheduled according to this classification, could some changes still be considered? (ii) How far can organizations like the IMF and Eurostat be expected to respond to GATS needs since, given the current resource allocation, these organizations will continue to play the main role in collecting statistics?

[29][29] Availability of Statistics on Services, MTN.GNS/W/94.

To an extent, OECD and EUROSTAT have taken into account GATS needs, but the IMF, operating under the more severe constraints of global availability, has done so only to a limited extent. In general, the more economically sensible the classification, and the more statistically amenable the distinctions, the more likely it is that GATS needs will be eventually met. Hence it is essential to determine which regulatory distinctions between product categories are necessary, especially in the negotiating context. Once this has been done, it can be assessed how far other organizations can be relied on and whether there is a need for the GATS to create certain statistical notification requirements to fulfil its needs directly.

A second area of priority is, of course, to remedy the current ignorance on modes of supply not adequately covered by existing statistical domains, i.e. commercial presence and presence of natural persons. In the discussion on FAT statistics, it has already been indicated that certain definitional questions, which are important not only for statistical reasons, need to be addressed soon. For the moment, FAT statistics are only being collected by a few OECD countries. The question of how these efforts can be widened needs to be addressed. Collaboration between the WTO and the UNCTAD (Programme for Transnational Corporations) may be fruitful in this area. Similarly, the International Labour Organization and International Migration Organization may help in creating a better statistical picture about the presence of natural persons.

The third area of priority is to be able to distinguish between and to assess the relative importance of different modes of supply in specific sectors. This need can only be addressed by detailed sectoral studies. Data will need to be obtained from national and international sources. The WTO Secretariat could possibly create and manage a data base with detailed information on individual sectors in collaboration with specialized agencies like the International Telecommunications Union and the International Civil Aviation Organization.

For most purposes, statistics on trade in services will need to be complemented by information on measures affecting trade. Such information would be needed to facilitate future negotiations, to monitor implementation of the GATS, and to assess the benefits of liberalization. While the subject of this paper are trade statistics, it may be useful to briefly note the importance of work on trade measures. No comprehensive data base exists anywhere on measures affecting trade in services in different countries. It may also be useful to obtain and compile information on measures which affect trade in services but are not contained in the schedules of specific

commitments. Once the appropriate methodology has been developed concerning the quantification of such measures, further statistical analysis can be performed.

References

Hoekman, B. (1996), Assessing the General Agreement on Trade in Services, in Martin, W. and Winters, L.A., The Uruguay Round and the developing countries, Cambridge University Press, Cambridge.

Kravis, I.B. and Lipsey, R.E. (1988), *Production and Trade in Services by U.S. Multinational Firms*, NBER Working Paper No. 2615, Cambridge, Massachussets.

Noyelle, Thierry (1990), *Computer software and computer services in five Asian Countries*. Paper reproduced in *Services in Asia and the Pacific*, selected papers, UNCTAD, 1990, Geneva.

Sauvant, K.P. and Zimny, Z. (1987), *Foreign Direct Investment in Services: The Neglected Dimension in International Services Negotiations*, World Competition, vol. 31, pp. 27-55.

UNCTAD and World Bank (1994), *Liberalizing International Transactions in Services: A Handbook*, United Nations, New York and Geneva.

USITC (1995), General Agreement on Trade in Services: Examination of Major Trading Partners' Schedules of Commitments, Investigation No. 332-358, Publication 2940, Washington, DC.

Survey of Current Business, September 1994. U.S. Department of Commerce.

WTO (1995), *Trade in Services as defined in the GATS: Basis for a Statistical Framework*. WTO, Geneva.