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TELECOMMUNICATION SERVICES AND NEGOTIATIONS:

A FOCUS ON BOP AND FATS STATISTICS

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TELECOMMUNICATION SERVICES AND NEGOTIATIONS: A FOCUS ON BOP AND FATS STATISTICS

Summary and Conclusions

This paper examines how available data can be used to understand international developments in the telecommunication sector, and identifies priority needs for the international statistical agenda. It has been prepared to support discussions within the framework of the Task Force on Statistics of International Trade in Services.

In advocating the use of imports plus exports as a relevant statistical indicator for analysing international telecommunication services, the paper shows

- *that the increase in telecommunication traffic did not fully counterbalance huge price decreases as regards international BOP service transactions; and indicates;*
- *a strong switch of revenues from cross-border transactions (mode 1) to sales of telecommunication services through foreign affiliates (mode3).*

However, available statistics are rather sketchy and would need to be substantially improved to draw definitive conclusions or to support effectively trade negotiations. It is therefore recommended to reinforce data collection within the existing statistical framework:

- *Countries that report telecommunication services in their BOP statistics should provide information on coverage and methodology. These metadata should be disseminated along with the data and included in international publications such as the OECD's yearly publication on trade in services.*
- *Countries that currently do not report BOP statistics on telecommunication services should attempt to do so, whether in the context of the OECD/Eurostat joint trade-in-services classification, or in the context of the Extended Balance of Payments Services Classification (EBOPS), as proposed in the Manual on Statistics of International Trade in Services. The IMF should integrate the EBOPS classification in their data collection and dissemination framework.*
- *Further disaggregation of telecommunication services in the EBOPS classification (e.g., basic telecommunication services, value added telecommunication services and into on-line access services) would be of further assistance to trade negotiations.*
- *Trade volume or price series on telecommunication services would be extremely useful for the economic analysis of international transactions. However, during their absence, quantitative indicators, such as international telephone traffic minutes, can be used as a substitute.*
- *Given the broad structural changes in this sector, international transactions should be analysed in conjunction with investment and FATS statistics. Given the fast structural changes in the telecommunication sector, currently available FATS data are of limited use as they are only scarcely available and often out-dated. Countries should study ways and means to include the development of regular FATS statistics in their data collection frameworks.*

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A. Introduction

The telecommunication services sector has undergone rapid structural changes accompanied by significant economic growth, reaching revenues of US\$ 920 billion in 2000, up from US\$ 596 billion in 1995.¹ Such a remarkable growth is mainly due to technological innovation, structural changes, and increased competition. This sector has become a key determinant of growth in modern economies, whether for its contribution to GDP, or as an infrastructure promoting the production and transport of other services and reducing transaction costs of merchandise trade.

Given its impact on growth, many governments decided to open the telecommunication sector to competition to increase efficiency and promote technological innovation. Opening markets to foreign competitors was often considered a way to further promote investment, and, in the case of developing countries, technology transfers. In general, these governments decided to use the GATS as a tool to promote such investment and to regulate the conditions for foreign market entrants.

Telecommunication negotiations, that were extended beyond the Uruguay Round by more than 2 years, ended in 1997 with a complete success. Many national monopolies that have dominated the industry for decades have since been exposed to competitive market conditions.² In 1990, the top 20 carriers had a market share in world traffic of 86%. This share has since fallen to about 50% in 2000.³ In February 2000, 82 per cent of world revenues were subject to competition, and another 6 per cent were committed to competition on or before 2005.⁴

As a result of these developments, requests for statistical information on international transactions in telecommunication services have intensified. The inter-agency Task Force on International Trade in Services Statistics therefore decided to examine priority needs in this area. As a first step, this paper reviews currently available statistics on telecommunication services in the light of the needs arising from trade negotiations in telecommunication services.

To this end, Section B describes international trade negotiations in telecommunications and links them to statistical requirements. Section C reviews international statistical classifications with respect to telecommunication services. Section D carries out an analysis of currently available Balance of Payments (BOP) statistics, and discusses their significance, usefulness and reliability. It includes an estimate of world international transactions in telecommunication services, and describes the difficulties in using and interpreting current data in order to clarify priority needs in the statistical area. Finally, Section E reviews available data on Foreign Direct Investment (FDI) and Foreign Affiliates Trade in Services (FATS).

¹ Free Statistics, <http://www.itu.int/ITU-D/ict/statistics/>, International Telecommunications Union.

² It is sometimes argued that market opening in many countries might have occurred regardless of the GATS. Nevertheless, GATS commitments are important as a binding instrument, warranting predictability to foreign investors.

³ See Telegeography, 2001, Executive Summary, figure 4.

⁴ Telecommunication Services, WTO, S/C/W/74

B. Telecom negotiations and statistics

a) *Multilateral Trade Negotiations*

The first bid to include telecommunication services in multilateral trade talks was made during the negotiations of the Uruguay Round (1986-1993) within the framework of the General Agreement on Trade in Services (GATS). For negotiation purposes, telecommunication services were divided into *basic* and *value-added* telecommunication services. *Basic* telecommunications include all telecommunication services, public or private, that involve real-time, end-to-end transmission of customer provided information, e.g. voice or data, such as telephone calls, fax, telex, and telegrams as well as circuit transmissions. *Value-added* telecommunications imply services for which suppliers “add value” to the customer's information by modifying the form or content of the messages. Voice mail and electronic mail, electronic data interchange, and online transmission of data, are examples of value-added services.

Negotiations on basic telecommunications proved very difficult during the Uruguay Round because of the preponderance of monopoly enterprises world-wide. However, by the end of the Uruguay Round in 1994, WTO Members were able to agree to continue the negotiations on basic telecommunication so as to bring many new and anticipated reforms within the ambit of GATS commitments. Following a 10 month extension beyond the original 1996 negotiating guideline, the negotiations resulted in complete success by February 1997. At that time, sixty-nine WTO Member governments, representing more than 90 per cent of the world's telecommunication market, submitted their schedules of commitments on basic telecommunications. These commitments were annexed to the Fourth Protocol to the GATS, which entered into force on 5 February 1998.

Another important outcome of the negotiations was the *Reference Paper on Regulatory Principles in Basic Telecommunications*, specifying a set of general regulatory principles, which many Members included in their schedules as additional commitments. These principles cover matters such as competition safeguards, interconnection guarantees, transparent licensing processes, and the independence of regulators.

Following the extended negotiations, seventeen more governments, many of them under accession to the WTO, also undertook commitments in basic telecommunications, bringing the total number of WTO governments committed to eighty-six. Out of these, seventy-two allowed competition in voice telephony by two or more suppliers, either immediate or on a phased-in basis. Seventy-three have committed on cellular mobile telephony. Furthermore, around seventy governments have scheduled some commitments on value-added telecommunication services. Finally, ninety per cent of the Member governments who submitted schedules on telecommunications included the *Reference Paper* as a whole or with slight modifications.

In the context of the new round of negotiations on trade in services, which started in January 2000, a number of WTO Members have submitted proposals on telecommunication. They call for new or improved commitments in order to remove remaining access restrictions and accelerate liberalization. Furthermore, they seek to encourage hitherto reticent Members to make telecommunication commitments for the first time and to adopt the *Reference Paper*. With respect to scheduling commitments, many proposals stressed the importance of using the definitions agreed in the GNS120 classification (see Chapter C.1 for more details of this classification), combined with the so-called technology neutral approach.⁵

⁵ According to S/GBT/W/2/Rev.1, any basic telecom service listed in the sector column, unless otherwise noted:

- (a) encompasses local, long distance and international services for public and non-public use;
- (b) may be provided on a facilities-basis or by resale; and

The commitments undertaken by WTO Members are legal obligations between governments. For example, they specify the terms and conditions under which foreign suppliers of services are allowed to operate and supply services in a country's market. From a technical point of view, commitments are generally made at the detailed level of the GNS120 classification, and on the basis of four modes of supply (*cross border supply, consumption abroad, commercial presence, and presence of natural persons*). The use of GNS120 is however not mandatory. Examples of mode 1 -- cross border supply -- include international simple resale and some forms of satellite services, wherein the supplier need not be physically present in a country to serve customers. The sale by affiliates of foreign companies of local and international telephone services is an example of mode 3 - commercial presence.

The results of the telecommunication negotiations have created better or, at least, stable and predictable access conditions to foreign suppliers. However, many limitations do remain. Apart from large industrial countries, the commitments made often reflect the perceived need to keep some form of control on the number and nature of domestic operator(s). For example, in the case of voice telephony, a significant number of Members have retained the right to restrict the number of foreign companies or impose foreign ownership limitations. Box 1 below provides an overview of the most commonly used types of market access restrictions that have been scheduled.

Box 1: Examples of market access restrictions in telecommunications⁶

<i>Restriction</i>	<i>Basic telecommunications examples</i>
Limited number of service suppliers	<ul style="list-style-type: none"> - national and international long-distance voice services are supplied exclusively by two authorized enterprises. - local exchange service is provided on a <i>de facto</i> or <i>de jure</i> monopoly. - only two suppliers of mobile telephone services are allowed to operate.
Limited total value of services transactions or assets	<ul style="list-style-type: none"> - limitations on the total value of turnover for certain licenses
Measures that restrict or require supply of the service through specific types of legal entity or joint venture	<ul style="list-style-type: none"> - commercial presence required by law. - if the same holder is involved in providing both local and long distance public telephone services, it must do so through separate enterprises established as open corporations.
Percentage limitations on the participation of foreign capital, or limitations on the total value of foreign investment	<ul style="list-style-type: none"> - the maximum percentage share of foreign equity participation is 49.9 per cent. - domestic or foreign manufacturers of telecommunications facilities (i.e., switching equipment, cables) are not allowed to own more than 10 per cent of votes.

b) Negotiations and statistical requirements

The terms and conditions of market participation are normally negotiated bilaterally between interested trading partners. The results however are extended to all WTO Members on a non-discriminatory basis by virtue of the Most Favoured Nation (MFN) principle. In addition to statistics on market sizes and market potentials, statistics by origin and destination would assist individual Members in identifying commercially lucrative markets and defining their negotiating priorities. Also, as commitments are scheduled by mode of supply, it would be useful to dispose of statistical information broken down by modes of supply.

(c) may be provided through any means of technology (e.g., cable , wireless, satellites).

⁶ This non-exhaustive, illustrative list of examples is derived from an informal note by the WTO Secretariat for the Negotiating Group on Basic Telecommunications, on 14 February 1995. The examples were based on the replies to a questionnaire that was previously circulated to all participants of this Group.

However, it is well known that no country is in a position to provide such a comprehensive statistical framework at the moment, and no country even aims at doing so in the short- to medium-term. This is recognised in the Manual on Statistics of International Trade in Services. It recommends the implementation of the Extended Balance of Payments Services classification (EBOPS) which includes telecommunication services as a separate component - but not further broken down. In addition, statistics by origin and destination are only recommended for main types of services in BPM5, which is the case for communication services, but not for telecommunication services. Furthermore, the Manual promotes a phased approach to its implementation based on the progressive integration of EBOPS and FATS data rather than on modes of supply. A complete breakdown of statistics by modes of supply is only mentioned as the last step of the phased implementation process.

It should be recognised that BOP and FATS statistics are only part of a wide range of indicators that would be needed to effectively support trade negotiations. Other relevant indicators may include information on market size, market growth potentials, market penetration, prices and the so-called telecommunication traffic statistics. However, the focus of the present paper remains on BOP and FATS statistics.

C. Classifications

Rapid technological changes within the telecommunication sector over the last decade raised particular difficulties for both creating and maintaining up to date negotiating and statistical classifications. The following review of the relevant negotiating and statistical classifications reflects these problems.

a) *The GNS120 negotiating classification*

The classification used by most Members for the negotiations and scheduling of commitments in telecommunications, and in general for all commercial services, is known as the GNS120.⁷ This classification draws largely on the provisional version of the United Nations Provisional Central Product Classification.

According to GNS120, telecommunication services are a subsector of *communication* services, which also contain postal services, courier services, and audiovisual services. Telecommunication services are further broken down into 15 sub-components. Informally, seven of these are considered in WTO to represent basic telecommunication services (items "a" to "g"), seven to represent value added telecommunication services (items "h" to "n"), and a residual category ("o").

Box 2: Telecommunication services in GNS/W/120	
a.	Voice telephone services
b.	Packet-switched data transmission services
c.	Circuit-switched data transmission services
d.	Telex services
e.	Telegraph services
f.	Facsimile services
g.	Private leased circuit services
h.	Electronic mail
i.	Voice mail
j.	On-line information and data base retrieval
k.	electronic data interchange (EDI)

⁷ This classification can be found in document GNS/W/120. It is also reproduced in Annex VII of the MSITS Manual.

- | | |
|----|--|
| l. | enhanced/value-added facsimile services, incl. store and forward, store and retrieve |
| m. | code and protocol conversion |
| n. | on-line information and/or data processing (incl. transaction processing) |
| o. | other |

Ideally, statistics would be needed at the classification detail of the GNS120. As a matter of fact, although the type of commitments made by countries in value added services generally differ from those made in basic telecommunications, commitments within each subcategory are much more homogeneous. For example, in the case of value added services, the vast majority of countries have made one single set of commitments for all the individual items, from h) to n) of the GNS120. With respect to basic telecommunications, in almost 60 per cent of the cases, commitments were identical or very similar for all the items of this subcategory. This observation suggests that the provision of statistics by these two broad categories could be a first step towards an effective statistical support to negotiations.

Problems arise when trying to classify under the GNS120 relatively recent, but widespread forms of telecommunications. As a matter of fact, modern technological devices or services such as mobile/cellular telephones, satellite connections, or Internet access services, did not yet exist or were at a very early stage of development when the GNS120 classification was drafted. In the schedules, all these services are listed under the item "(o) other".

b) The Central Product Classification

The Provisional Central Product Classification was released by the UN in 1991. Telecommunication and related services in the provisional CPC are shown in Box 3. Although this classification is now outdated for statistical purposes, it is still important because many countries made binding commitments during multilateral negotiations on telecommunication services based on the GNS120 classification which is directly linked to the provisional CPC. However, there exists no 1:1 relationship between categories of the two classifications.

Box 3: Telecommunication and related services in the provisional CPC	
752	Telecommunications services
7521	Public telephone services
75211	Public local telephone services
75212	Public long distance telephone services
75213	Mobile telephone services
7522	Business network services
75221	Shared network services
75222	Dedicated network services
7523	Data and message transmission services
75231	Data network services
75232	Electronic message and information services
7524	Programme transmission services
75241	Television broadcast transmission services
75242	Radio broadcast transmission services
7525	Interconnection services
75250	Interconnection services
7526	Integrated telecommunications services
75260	Integrated telecommunications services
7529	Other telecommunications services
75291	Paging services
75292	Teleconferencing services
75299	Other telecommunications services n.e.c.

753	Radio and television cable services
754	Telecommunications related services
	7541 Equipment rental services
	7542 Equipment sales services
	7543 Connection services
	7544 Consulting services
	7545 Communications equipment maintenance services
7549	Other telecommunications services n.e.c

The classification breakdown for telecommunications and related services in the provisional CPC appears to be quite detailed. The subdivisions were made according to homogeneous types of services provided. It should be noted that telecommunication services are viewed in a wide sense, e.g., including audio-visual services, while they are listed separately in GNS120.

The provisional CPC was revised and replaced by the CPC Version 1.0 (CPC Rev.1) in 1998. In CPC Rev.1, the details provided for telecommunication services are very limited, and are driven by the underlying technological infrastructure rather than by the type of service provided. Telecommunications and on line access services in CPC Rev.1 are shown in Box 4.

Box 4: Telecommunication and on line Access Services in CPC Rev.1	
841	Telecommunications services
	8411 Wired telecommunications services
	8412 Wireless telecommunications related services
	8413 Satellite telecommunications services
842	On line access services

Agreement on further detail could not be reached in time for the issuance of CPC Rev.1. Work continued in this area and the UN technical sub-group on classifications recently proposed a major restructuring of CPC 841 and 842. The CPC will accordingly be updated in 2002. The distinction of items in this proposal is mainly based on the type of markets served, and in some cases, by speed of service. This restructuring is shown in Box 5.

Box 5: Proposal for a Revision of CPC Rev.1 on Telecommunication Services	
841	– Telecommunications and program distribution services
	8411 – Carrier services
	8412 – Fixed telephony services
	84121 – Fixed telephony services – Access and use
	84122 – Fixed telephony services – Calling features
	8413 – Mobile telecommunications services
	84131 Mobile telecommunications services – Access and use
	84132 Mobile telecommunications services – Calling features
	8414 – Private network services
	8415 – Data transmission services
	8416 – Other telecommunications services
	8418 – Program distribution services
842	– On-line access services
	8421 – Internet backbone services
	8422 – Internet access services
	8423 – Internet telecommunication services

One may ask whether this breakdown will still be relevant in the medium term. For example, Cryssanthou [2001] argues that technologies are converging, so that the distinction between fixed telephony, mobile telephony, the Internet and broadcasting segments is losing relevance. It should be noted however that the distinction between on-line access and other telecommunication services has been retained and even gained clarity in successive versions of the CPC.

A notable development, with regard to the GNS120, is that the provisional CPC, on which it was based, is now outdated which aggravates the difficulty to match this negotiating classification with relevant statistical data. However, Members are extremely hesitant to switch to CPC Rev.1, as existing commitments are generally based on GNS120 and, thus, the provisional CPC.

c) BOP transactions classifications

The category *communication services* appears as a standard service component in the fifth edition of the IMF Balance of Payments Manual (BPM5) in 1993. It includes telecommunication services and postal and courier services, but not as separate items⁸. However, these two items are shown separately in the *Joint OECD/Eurostat Trade-in-Services Classification*, as well as in the *Extended Balance-of-payments Services Classification (EBOPS)*, annexed to the Manual on Statistics of International Trade in Services.⁹ The identification of telecommunication services is one of the major improvements of these classification over the BPM5 classification.

In the Manual on Statistics of International Trade in Services, telecommunication services are defined as follows:

"Telecommunication services encompass the transmission of sound, images, or other information by telephone, telex, telegram, radio and television cable and broadcasting, satellite, electronic mail, facsimile services, and so forth, including business network services, teleconferencing, and support services. It does not include the value of the information transported. Also included are cellular telephone services, Internet backbone services and on-line access services, including Internet access provision. Excluded are installation services for telephone networks equipment (included in construction services), and database services and related computer services to access and manipulate data provided by database servers (included in computer and information services)."

It should be noted that Annex 5 of the Joint OECD/Eurostat Trade-in-Services Classification includes, as additional details requested by WTO, a breakdown of telecommunication services between basic telecommunication services and value added telecommunication services. This subdivision nevertheless has not become operational due to, on the one hand, the unavailability of a clear statistical definition of these services, and, on the other hand, the difficulties that national compilers would face in collecting the information at this level of detail.

⁸ Paragraph 253 of BPM5 states: "*Communication services* cover two main categories of international communications transactions between residents and nonresidents: (i) telecommunications ...; and (ii) postal and courier services ...".

⁹ Joint OECD-Eurostat Trade in Services Classification, STD/SERV(96)12/REV2, 21 October 1996, Paris, 2000. (Also in <http://www.oecd.org/std/TISclass.pdf>)

d) Economic activity classifications: ISIC and ICFA

Product-driven classifications, as discussed above, are generally used to measure product-related economic flows such as sales, exports, or imports. Conversely, activity classifications are used to classify companies or industry categories in order to measure their economic activity, e.g., turnover, value added, or employment.

The International Standard Industrial Classification of all Economic Activities (ISIC) is the international economic activity classification from which most national or regional economic activity classifications are derived.¹⁰ The activity classification of the Manual on Statistics of International Trade in Services to measure the activity of Foreign Affiliates has been designed so as to be fully compatible with ISIC, and at the same time, provide a meaningful basis for providing results which can be related to those provided with EBOPS. With regard to telecommunication services, the components of this classification (ISIC Categories for Foreign Affiliates, or ICFA) are the same as those of ISIC, as shown in Box 6 below.

Box 6: Telecommunication services components in ISIC and ICFA	
ISIC	ICFA
64. Post and telecommunications 641 Post and courier activities 642 Telecommunications	8.2. Post and telecommunications 8.2.1 Post and courier activities 8.2.2 Telecommunications

e) Concluding remarks

Telecommunication services have become a major component of classifications, whether they are for negotiating, product, activity, or international transactions purposes. However, as this sector has undergone large technological changes and will continue to do so, it poses particular challenges for maintaining these classifications up-to-date.

The inclusion of telecommunication services as a separate item in the *Joint OECD/Eurostat Trade-in-Services* and EBOPS Classifications is certainly decisive with regard to the current and future availability of international telecommunication data on international transactions. In the CPC, telecommunication services have been dramatically revised since the beginning of the decade, with three major revisions made on different reference criteria. This illustrates the difficulties in keeping classifications up-to-date. Although the latest CPC proposal brings improvements in adapting the classification to technology changes, it does move away from the GNS120 classification. While this proposal distinguishes more clearly between on-line access and other telecommunication services, it still ignores the distinction between basic and value added telecommunication services.

D. Balance of Payments statistics: Current State And Prospects

a) Data coverage and availability

Although *telecommunication services* are not part of the IMF classification as a standard category, the IMF provides a code for this item, and some countries do report it to the Fund. The monthly BOP CD-ROM disseminated by the IMF includes such data, even though they are not shown in the IMF Balance of Payments Statistics Yearbook.

¹⁰ See ISIC Rev.3 in the Bibliography. For example, the European NACE is derived from, and compatible with the ISIC Rev.3.

The OECD specifically includes this category in its yearly publication *OECD statistics on international trade in services*. However, given its wider country coverage, data from the IMF CD-ROM are used in this Section. In any case, countries that report this item to the OECD also report it to the IMF.

Telecommunication services, as part of the BOP current account, cover payments between residents and non-residents. Thus, a substantial part of these transactions relate to settlement payments between telecommunication carriers. When an international call originates in a country (say country A), a national telecommunication carrier of this country (say A-Carrier) bills the customer. This is a domestic transaction between two residents and it is not recorded in BOP statistics. However, A-Carrier needs a foreign carrier (say B-Carrier) to terminate the call. A-Carrier owes a settlement payment to B-Carrier, and this is recorded in BOP statistics as a transaction between a resident and a non-resident.

One implication is that BOP figures do not directly relate to GATS commitments, which, in general, exclude termination services. Also, BOP figures are only of limited use in drawing conclusions on competitive advantages. For example: in 1999, US BOP receipts in trade in telecommunication services amounted to US\$ 3.9 billion, while US BOP payments exceeded US\$ 6 billion, the result being a deficit of US\$ 2.1 billion.¹¹ In fact, this imbalance is the result of the fact that there were more calls (and they lasted longer on average) originating in the United States (generating settlement payments) than calls terminated in the US and originating in other countries (generating settlement receipts).¹²

High income in the US is certainly a determinant factor of the high consumption of international telecommunication services that originate in the U.S. The US competitiveness in telecommunication services is another key factor in this respect: the relatively low international calling prices of these services lead US consumers to place more calls than they receive. In short, in the US case, balance of payments deficits reflect a comparative advantage of the US industry in this sector.

There is certainly a relation between BOP figures and revenues of telecommunication carriers from international calls. For example, in the US, the settlement payments (imports) represent less than half of the billed revenues, and this is believed to be the case for most countries. In other words, the retained revenues, i.e., the net revenues after deduction of payments to foreign operators, are at least equal to settlement payments (imports). Exports are in fact revenues of a different nature. They represent, in most parts, settlement receipts to terminate calls originated in foreign countries. Therefore, we may assume that, for a given carrier, or country, the total revenues are higher than the sum of the settlement payments (proxy for retained revenue from originating calls) and the settlement receipts (revenue for terminating calls). Thus, at the country, regional, or world level, BOP *imports plus exports* is a much more meaningful indicator for contribution to GDP than imports or exports alone.

BOP figures also contain other international services subject to different invoice processes. For example, the connection and use of Internet networks are not subject to termination charges. International transactions in these cases reflect the fees paid for interconnection between network operators such as ISPs and backbone operators. These fees do not reflect, in general the volume, nor duration or distance of the information conveyed.

¹¹ In addition, it is believed that these receipts include a substantial amount for Internet connectivity; thus receipts from services comparable to those included in imports are even lower.

¹² In 1999, 28.4 billion minutes of international traffic originated in the U.S., while only 10.4 billion minutes originated in other countries for termination in the US. Furthermore, on average, the former lasted 5.4 minutes, and the latter 4 minutes. [Blake and Lande, 2001, Table 3].

To sum up, *imports plus exports* as one indicator provide an aggregate measure that reflects a wide range of international telecommunication services. It can be used to analyse the broad levels and trends of these services.

b) Magnitude and trends of international telecommunication service transactions

Rough estimates of world international telecommunication services transactions have been carried out using the following methodology. Exports (credits) of telecommunication services for the period 1995-2000 were extracted from the IMF BOP CD-ROM.¹³ For these reporting countries, we calculated the share of exports of telecommunication services in total exports of *other commercial services*.¹⁴ We assumed that this share was the same for non-reporting countries, and we applied it to the estimate of world exports of *other commercial services*.¹⁵ The same methodology was used to estimate world imports (debits) of telecommunication services. Finally, we computed world international telecommunication services transactions as the sum of world estimated exports and imports.

For example, in 1998, 31 countries reported their exports in telecommunication services. On the import side, data were available for 30 countries. These countries represent only 16% of the total number of countries in the data set, but their weight in world trade of *other commercial services* is roughly 40%. For these countries, *telecommunication services* represent about 5% of exports in *other services*, and 6.5% of imports. Assuming that this share is the same for non-reporting countries, world international telecommunication services transactions in 1998 would amount to *US\$ 64 billion*.

These estimates are shown in Table 1 below, together with international telephone traffic. We can see that although international telephone traffic increased from 63 billion minutes in 1995 to 110 billion in 2000, world trade expressed in current US\$ expanded from 1995 to 1997, but then seems to halt and even decrease in 1999 and 2000.

Table 1: World international telecommunication services transactions and international telephone traffic
US\$ Billion and billion of minutes

	1995	1996	1997	1998	1999	2000
International telecommunication services transactions ^a	50	56	64	64	63	57
International telephone traffic ^b	63	71	79	89	99	110

a See text (WTO Secretariat estimate)

b Free Statistics, <http://www.itu.int/ITU-D/ict/statistics/>. International Telecommunications Union.

Unfortunately, it is very difficult to assess the reliability of these figures, since too few countries report telecommunication services in their BOP statistics (as mentioned above, the weight of reporting countries in world trade of other commercial services is only 40%, which is rather low). In addition, available BOP data on telecommunication services are generally not documented. In the absence of information on coverage we cannot assess raw data reliability and the extent of country comparability. Increased country

¹³ Data refer to the September 2001 CD-ROM.

¹⁴ *Other commercial services*, in WTO publications, is equivalent to the IMF service series (e.g., as in the IMF BOP yearbook), excluding transport, travel, and government services.

¹⁵ The WTO Secretariat regularly provides estimates of world trade in *commercial services*, and for its three components: transport, travel, and *other commercial service*. See, for example, the WTO International Trade Statistics Report, 2001.

coverage and collection and dissemination of metadata would be a prerequisite to allow more meaningful estimates of the magnitude and trends of international telecommunication service transactions.

Table 1 suggests that the increase in consumption of international telecommunication services (consumer's welfare) did not compensate for the decrease in the price of services, as far as flows recorded in Balance of Payments are concerned. For example, in the U.S., settlement payments per minute of U.S. generated traffic dropped from 0.48\$ in 1995 to less than half (0.22\$) in 1999. However, the increase in minutes of U.S. generated traffic in the same period was comparatively lower, from 16 billion minutes in 1995 to 28 billion in 1999.¹⁶

It should be clear that these results do not imply that income of the telecommunication services sector was reduced. First, as was mentioned in the introduction, total revenues of the telecommunication services sector increased from US\$ 596 billion in 1995 to US\$ 920 billion in 2000.¹⁷ Furthermore, telecommunication services revenue (retail revenue) increased at a regular pace, from US\$ 53 billion in 1995 to US\$ 60 billion in 2000. Second, the structure of international revenues has dramatically changed in the period considered. At the beginning of the period, most international revenues of telecommunication services providers came from international telecommunication traffic, while now, as illustrated in the next Section, most of it comes from the operation of foreign affiliates. Third, transactions recorded in BOP statistics mostly reflect services that are intermediate services, and thus, a decrease of these flows mostly indicate price decreases, and a reduction of intermediate costs.

It appears from the above discussion that BOP figures need to be used in conjunction with quantitative indicators, such as number of minutes of international traffic. It is difficult to draw definitive conclusions without trade volume or price series in telecommunication services.¹⁸ Furthermore, given the wide structural changes that have arisen in the telecommunication sector, BOP figures cannot be analysed separately from FATS statistics.

E. Foreign Investment and Foreign Affiliates Trade

Former national monopolies are increasingly facing competition and privatization in their home market. For example, more than seventy-two countries bound under GATS their markets opening on fixed public voice telephony to competition—mostly through the establishment of a commercial presence of foreign companies. In particular the "developing countries' commitments under commercial presence were striking, clearly aiming at attracting foreign direct investment and enhancing competitive market structures."¹⁹

Do existing statistics allow one to show how these commitments changed telecommunication markets? What impact did liberalization have on the size and structure of telecommunication markets? In particular, to which extent have markets been penetrated by foreign-owned companies?

The telecommunication market has seen a wave of mergers and acquisitions over the last 2 to 3 years. For example, NTT acquired a 16% share of AT&T Wireless in 2000. In Europe, the most notable case was the

¹⁶ See Blake and Lande, 2001, Table 3.

¹⁷ Free Statistics, <http://www.itu.int/ITU-D/ict/statistics/>

¹⁸ Price and volume measures can only be computed at a more disaggregated level, e.g. for telephone services and on-line access services. These two broad categories correspond to different business practices and price determination processes.

¹⁹ WTO, 2001, pp. 109-111.

cross-border acquisition of Mannesmann by VodafoneAirTouch.²⁰ That is, national monopolies not only have been broken up, but foreign suppliers have effectively accessed foreign markets through acquisitions. These structural changes have, of course, implications on the mode through which services are supplied: company data suggest that the revenue structure of companies is changing. In 1999, Telefonica SA held 38% of its assets abroad resulting in 41% of its sales coming from abroad²¹. Another impressive example is TeleDanmark, whose share of revenues from foreign sources increased from 2% in 1995 to 42% in 1999.²²

Foreign Direct Investment (FDI) statistics also tend to confirm this trend. Direct investments abroad normally have as an objective a "lasting interest in an enterprise resident in another economy." Information on flows and stocks of FDI can therefore be used as an indication of the activities of foreign-owned enterprises even though these statistics do not generally provide information on sales or output, which would be more relevant indicators for mode 3 – commercial presence.

For example, EU inflows of foreign direct investment in telecommunication services increased from US\$ 0.6 billion in 1995 to almost US\$ 8.5 billion in 1998.²³ Outflows increased from around US\$ 4.5 billion to slightly more than US\$ 7.5 billion in 1998. These big increases of FDI flows confirm that liberalization and opening up of markets has definitely taken place. However, they do not give precise indications in terms of revenues gained abroad.

The assessment of market structures on a large scale would require up-to-date statistics on the operation of foreign-owned or controlled firms. These statistics on majority-owned foreign affiliates of the compiling country (outward FATS) or of foreign affiliates in the compiling country (inward FATS) are recommended by the Manual on Statistics of International Trade in Services.

The US has the longest history in publishing data on foreign affiliates trade. The OECD and Eurostat have also started to collect and disseminate statistics on foreign affiliates for their Member countries. However, these statistics are published with a considerable time lag, dating back to 1997 and 1998.²⁴ As telecommunication markets have drastically changed since then, these data are only of limited use.

Furthermore, comparing data of unaffiliated trade with foreign affiliates requires a comparison of cross-border trade between residents and non-residents following the BPM5 classification with sales of foreign affiliates classified according to an activity classification – in the case of the US, the SIC.²⁵ The data may therefore not be fully comparable.

However, it is interesting to note that for the United States, trade of foreign affiliates in the telecommunication sector is largely outpacing cross-border trade – in 1998 sales of foreign affiliates (outward FATS) reached 14.9 billion dollars. Cross-border trade (unaffiliated) reached only 5.5 billion dollars.

²⁰ UNCTAD, WIR, 2001, p.15.

²¹ See UNCTAD, WIR, 2001

²² See OECD 2001.

²³ Eurostat, European Union Direct Investment, Data 1988-1998

²⁴ See Eurostat, Foreign owned enterprises in the EU, Data 1997, 2001 Edition and OECD working paper DSTI/EAS/IND/SWP (2001)8. Unfortunately, the latest OECD data were not available to the authors at the time of writing this note.

²⁵ Survey of Current Business, 10/2000, U.S. International Services, p.128

In addition, the US foreign affiliates' sales increased by a dramatic 80% in 1998 which may be partly explained by the implementation of the Fourth Protocol in 1998.²⁶ Although this huge increase may partially be biased through classification issues, it still shows the increasing importance of foreign affiliates sales.

Looking at the reverse side, that is, inward FATS, OECD data suggest that already before the implementation of the Fourth Protocol the US had a more open telecommunication market than its European counterparts. The penetration rate of foreign-owned companies in the US market in 1997 – measured in terms of turnover – was more than 10% whereas penetration rates for EU Member's markets varied considerably between roughly 1% (France) up to some 5% for the UK to almost 10% for Sweden and Portugal.²⁷ Unfortunately, as mentioned above, these data are too old.

Assessing market structures with only a few data at hand is very difficult. However, the available data, from statistics on mergers and acquisitions over foreign direct investment to individually available country data on foreign-owned activity show that as of 1998, the telecommunication market has undergone a considerable structural change. The opening up of the sector caused companies to move abroad, establish a commercial presence, merge with or acquire other companies. Hence, the exchange of telecommunication services through cross-border transactions (mode 1) has been shifted towards supplying services through foreign affiliates (mode 3).

It is clear that the availability of FATS statistics for a significant number of countries, relatively up to date and covering a meaningful period (e.g., 1995-2000) would be necessary to really grasp the economic developments in telecommunication services, and in particular, the role of foreign affiliates in this sector.

²⁶ See also footnote 2.

²⁷ See footnote 19

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