

EMBARGO
The contents of this Report
must not be quoted or
summarized in the print, broadcast
or electronic media before
16 November 2006, 17:00 hours GMT

United Nations Conference on Trade and Development

INFORMATION ECONOMY REPORT 2006

The Development Perspective



United Nations

outsourcing. Between the early 1970s and the mid-1990s this evolution reflected the outsourcing of manufacturers' service activities previously produced in-house (OECD, 2003). Japan, the United States, Australia, France and Germany had the highest percentage of services consumption in the manufacturing sector (above 25 per cent) in the late 1990s. Business services, a champion sector in ICT-enabled outsourcing, had a particularly high intermediate consumption in the manufacturing sectors of France and Germany, while trade and transport had relatively higher shares in the manufacturing sectors of Australia and the United States.

D. Trade in ICT-enabled services

ICTs make services more easily tradable all over the world. They do so in two ways: by facilitating transactions with traditionally traded services and, at the same time, by making previously non-tradable services tradable. Better access to information and lower communication costs have reduced existing barriers to trade, sometimes from prohibitively high starting levels. Additionally, the new technologies have generated an array of completely new services such as application service providers, data warehousing, web-hosting and multimedia services.

The decline in trade costs in services has given rise to new international business opportunities, notably for developing countries. The "slicing-up of the value-added chain" (Krugman, 1995) has been extended to also take into account the services industry and the delocalization to lower-cost markets. More standardized services such as customer services, human resource management or software consultancy no longer have to be provided in-house. Through outsourcing and offshoring,²⁸ services can be provided from a distance by more cost-effective suppliers. At the international level, the result is a deeper specialization that is bound to benefit all parties involved, with more productivity-driven gains on the outsourcers' side, and more employment-driven gains in the host country. Developing countries that are receivers of offshoring are given the possibility to complement their development policies with a services-based strategy.

Estimates of IT and business process outsourcing and offshoring are reflected only to a small extent in developing countries' statistics of trade in ICT-enabled services. Outsourcing and offshoring of ICT-

enabled services have a substantial growth potential and some countries are not yet involved in the process. According to Chakrabarty, Ghandi and Kaka (2006), by 2005 service providers had captured only 10 per cent of the potential market to be offshored, valued at \$300 billion. The United States was the world's leading offshorer, responsible for an estimated 70 per cent of the offshored market (McKinsey Global Institute, 2003). Additionally, offshoring continued to have a relatively small proportion in the balance-of-payments statistics of trade in services. The value of offshored IT and business service activities represented only about 5 per cent of the world exports of ICT-enabled services in 2001 (OECD, 2005b).

World exports of ICT-enabled services had an accelerated growth in 2003. This was mainly due to the above-average 20 per cent growth rate of developing countries' exports, for the first time surpassing developed countries' performance after the slow down in 2000. However, developing countries only exported 16 per cent of world ICT-enabled services in 2003, with a small decline from the 18 per cent they accounted for in 2000.

Which are the main exporters and importers of ICT-enabled services? To what extent and in what way can ICTs enhance developing countries' export capacity in services? The answers to these questions encompass the full complexity of exporting and importing operations in which outsourcing and offshoring play a limited role. This section tries to answer the above questions and provides developing countries with the necessary information to be able to evaluate their export growth potential in ICT-enabled services.

The first part proceeds with a conventional analysis of trade in ICT-enabled services. It focuses on trends, values, driving sectors and leading countries, while highlighting the development perspective of ICT-enabled services trade.

The second part takes into account the more comprehensive framework of trade in services by delivery modes (cross-border, consumption abroad, commercial presence and presence of natural persons). This approach follows the logic set out by the WTO General Agreement on Trade in Services (GATS), which allows trade policymakers to liberalize services according to the above-mentioned modes of service delivery. Within this framework, the second part looks at the effects of ICTs on delivery modes. It shows that ICTs brought about a more substantial boost in services delivered across borders and by consumption

abroad as opposed to those delivered through commercial presence. This finding is in line with ICTs' cost reduction and trade liberalization effects.

The last part concentrates on computer and information services, as the most dynamic ICT-enabled service component. A detailed presentation of the WTO GATS commitments corresponding to this sector helps to build the link between countries' positions and opportunities within the WTO negotiations on liberalization.

1. Trends of exports and imports: An analysis of the BOP data

ICT-enabled services definition

To date, global definitions of ICT-enabled services still oscillate between broader and narrower frameworks. While clearly some services are more closely related to ICT use and adoption, it is not obvious where to draw the line between sectors. Building on the balance-of-payments (BOP) standard services classification, the *E-commerce and Development Report 2002* identified seven

sectors that were mostly influenced by the adoption of ICTs. Following the same approach and definition, the present analysis considers the ICT-enabled services as the highlighted BOP components in table 1.8.

Box 1.5 summarizes information on data sources, data availability and classifications.

ICTs facilitate trade in services

Exports of ICT-enabled services grew faster than total services exports during 2000–2003 (chart 1.18). Over this period, every percentage increase in the world exports of services was accompanied by a 1.6 per cent rise in ICT-enabled services exports. As a result, in 2003 the \$836 billion value of the ICT-enabled sectors represented about 45 per cent of total services exports. This share has had a steady positive evolution over the past years, rising from approximately 37 per cent in 1995. A similar trend was found for “other services”,²⁹ with a rising share in total service exports by a closely matching 6 percentage points over the 1995–2003 period, from 44 to 50 per cent.

Table 1.8
Components of ICT-enabled services

Balance-of-payments standard classification components of services		ICT-enabled services
Transportation		
Travel		
Other services ^a :	Communication services	Include postal, courier and telecommunications services
	Construction services	
	Insurance services	Include life insurance, pension funding, freight insurance, other direct insurance, reinsurance and auxiliary services
	Financial services	Include financial intermediation and auxiliary services
	Computer and information services	Include computer, news agency and other information provision services
	Royalties and licence fees	Include franchises and similar rights, plus other royalties and licence fees
	Other business services	include merchanting, ^b trade-related, operational leasing, legal, accounting, management consulting and public relations, advertising, market research and public opinion polling, research and development, architectural, engineering, agricultural, mining, and other on-site processing and services between related enterprises ^c
	Personal, cultural and recreational services	Include audiovisual and related services plus education and health services provided online or onsite.
Government services		

Notes:

^a This is not a standard component but is provided by the IMF as total services minus transportation and travel.

^b E.g. commodity arbitrage and wholesale trading.

^c E.g. payments between subsidiaries and the parent companies to cover overhead expenses.

Source: IMF CD-ROM and UNCTAD (2002).

Box 1.5

Note on balance-of-payments data availability

The balance-of-payments trade in services data is gathered by the International Monetary Fund and provided usually by national central banks. The different service sectors are categorized following the standardized Extended Balance of Payments Services Classification. Many developing countries (e.g. South Africa, Thailand, Swaziland, India, Indonesia) and some developed countries (e.g. Denmark and Switzerland) do not provide complete data sets for all relevant ICT-enabled service sectors. Therefore, the analysis of ICT-enabled services, as defined here, was sometimes complemented with data on the “other services” category, for which reporting was more consistent. Within the “other services” category, ICT-enabled service exports represent about 85 to 90 per cent, the rest being allocated between “construction” and “government services” exports. 2003 was the latest year with available data for all the major exporters of ICT-enabled services.¹

Comparing ICT-enabled service exports’ share in total services with the “other services” share reveals different trends only for the 1999–2000 period (chart 1.18). One interpretation is that, for this specific period of time, the growth of ICT-enabled services was rather due to an improvement in developing countries’ data reporting. For example, that year corresponded to a change in the classification base on which Indian data were reported to the IMF.² Also, other countries provided more detailed sectoral data starting with the year 2000. Therefore, this chapter focuses on the 2000–2003 evolution.

The lack of internationally comparable price data for services prevents the comparison of real trade flows. Moreover, data on trade in services are limited to global flows. Often the bilateral flows of trade in ICT-enabled services are not published. Exceptionally, for some countries bilateral trade in services data are gathered by the OECD.³

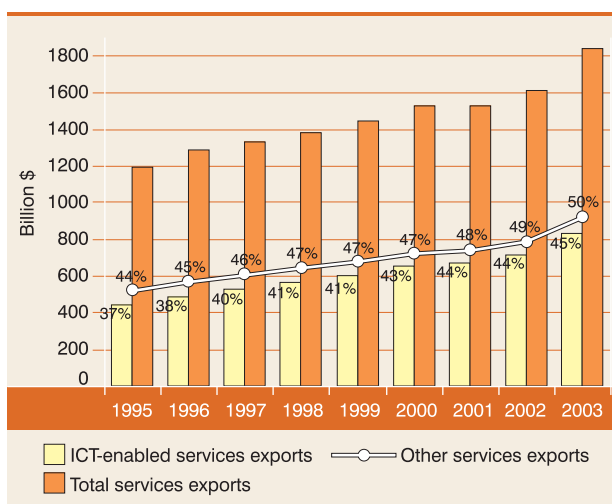
¹ 2004 data were missing for most developing countries of Asia.

² Computer and information services started to be reported separately from other business services.

³ OECD Statistics on International Trade in Services: <http://caliban.sourceoecd.org/vl=16644819/cl=18/nw=1/rpsv/~4260/v239n1/s4/p1>.

Chart 1.18

ICT-enabled services’ share in total worldwide services exports



Notes: Percentage figures represent the yearly share of the ICT-enabled services (below)/“other services” (above) in total services exports. “Other services” are the following: communication, construction, insurance, financial, computer and information, royalties and licence fees, other business, personal, cultural and recreational and government services.

Source: IMF BOP data.

The faster growth of the ICT-enabled cluster within services trade confirms that these services are more easily tradable. Empirical research quantifies the positive effect of ICTs on services trade. Using United States bilateral balance-of-payments trade data from 14 service sectors, Freund and Weinhold (2002) estimated that a 10 per cent increase in the number of Internet host sites³⁰ in a partner country brought about a 1.7 percentage point boost in the country’s exports to the United States. The sample covered United States imports and exports from a panel of 31 partner countries, including 17 developing ones, from 1995 to 1999. The same analysis showed that ICTs’ effects on trade are visible on both the import and the export side with a similar impact and intensity.

While it is true that improved access to and use of ICTs have the potential to boost trade in services, there are other factors that play an equally important role both in international trade and in offshoring. ICTs cannot be used only as “plug and play” technologies. The legal and regulatory environment, the level and type of education of the people, the transparency of the political system and various cultural aspects can scale up ICTs’ impact on trade. For that purpose, Governments have to ensure that the right ICT strategies are put in place, then evaluated and eventually redesigned to extend access to, and efficient use of, ICTs.³¹

Table 1.9
Trends in world services trade

	2003 BOP data aggregation (billion \$)	Annual growth rates (%)				2003–2004 WTO (2005) estimates
		1999–2000	2000–2001	2001–2002	2002–2003	
Transport	397.3	7.1	-1.7	4.1	13.9	23
Travel	520.4	4.0	-2.8	4.7	10.2	18
Other services	919.1	6.5	2.4	7.2	16.2	16

Note: “Other services” are communication, construction, insurance, financial, computer and information, royalties and licence fees, other business, personal, cultural, recreational and government services.

Source: IMF BOP data, UNCTAD calculations and WTO (2005) estimates for the 2004 values.

In 2002, the expansion of services exports was driven by the “other services” category, corresponding to the ICT-enabled cluster. However, during 2003 and 2004 the “transportation” and “travel” exported values picked up as well (table 1.9). Moreover, WTO (2005) estimates suggest that the latter may have outpaced the “other services” growth rate in 2004. Real trade flows could not be compared because price data for services were not available for most countries. However, according to the same source, price increases rather than volume were the main cause of the change in exports’ sectoral growth pattern. For example, higher oil prices may have led to a greater number of “transportation” services exports.

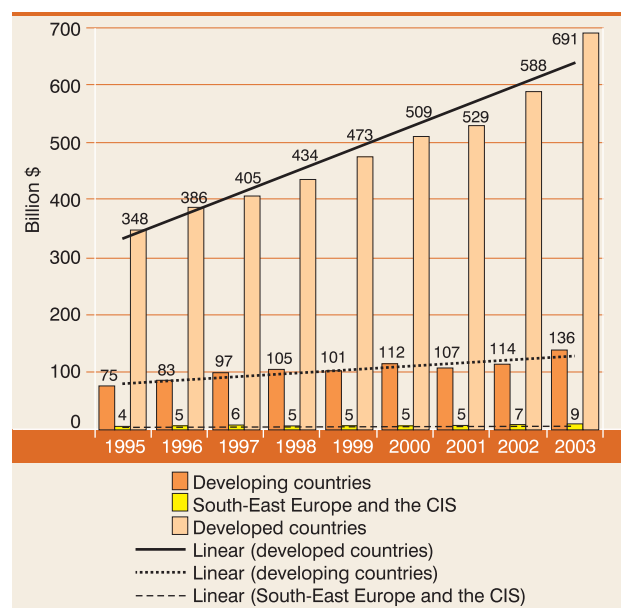
An analysis of developed countries’ exports of ICT-enabled services reveals that the European Union 15 (EU-15) as a group was the world’s largest and most dynamic exporter in 2003 (chart 1.20). The European Union still featured as a major world trader even when the high share of intra-EU-15 trade is subtracted. Moreover, during 2000–2003, the EU-15 improved its competitive position mainly outside the European markets. Estimations using Eurostat data show that the share of intra EU-15 trade in “other services” exports had declined in recent years, to reach 52 per cent in 2003. It follows that most of the growth

Developed countries still in the lead

As shown by the linear trends in chart 1.19, both developed and developing countries have seen their ICT-enabled services exports expand over the past ten years (1994–2004).³² This growth gained momentum in the aftermath of the year 2000. However, developed countries were still leading the global market of ICT-enabled services (as for total services in general) in terms of both value and growth rates. Developed countries’ contribution to world ICT-enabled service exports remained high in 2003 at around 83 per cent. During 2000–2003, developing countries lagged behind the world compound annual growth rate (CAGR) of 10 per cent, with 7 per cent annually. Among the developing economies, some had exceptionally high growth rates. Over the same period, South-East Europe and the Commonwealth of Independent States (SEECIS) achieved the highest growth rate (19 per cent annually), but their ICT-enabled exports only amounted to 1 per cent of the global value.

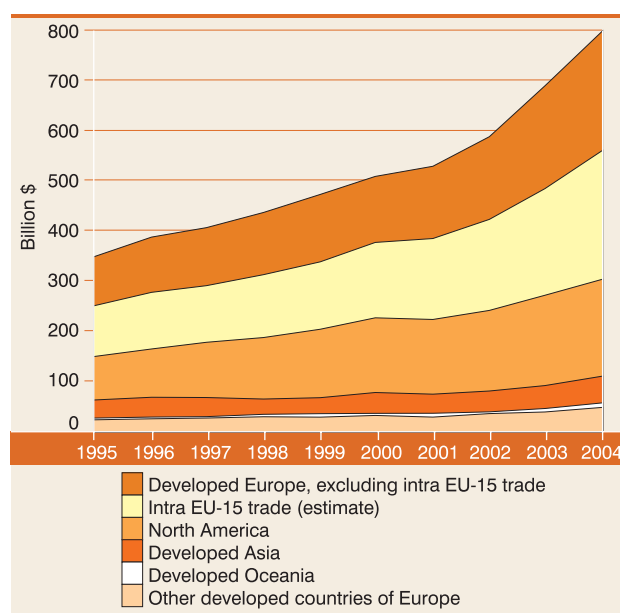
Chart 1.19

ICT-enabled services exports, by broad development categories



Source: IMF BOP data.

Chart 1.20
ICT-enabled services exports of developed countries



Note: The share of intra EU-15 trade was approximated by the Eurostat estimations corresponding to the “other services” exports.
 Source: IMF BOP data and Eurostat.

in EU-15’s exports of ICT-enabled services went to outside markets, where the European exporters improved their position to the disadvantage of their competitors. At the same time, the EU-15 markets of ICT-enabled services were increasingly catered for by other exporters, including those from developing countries.

The EU-15’s exports of ICT-enabled services with the highest four-year (2000–2003) increases were insurance services and computer and information services, with 30 and 16 per cent annual growth rates respectively. Exports of insurance services have also driven the expansion of the ICT-enabled cluster in the developed countries of America and Asia, but with less substantial growth rates of 14 and 19 per cent respectively. Developed Oceania’s exports of ICT-enabled services evolved moderately across the seven sectors analysed, with computer and information services in the lead (10 per cent annually) and personal, cultural and recreational services suffering from a pronounced downturn (-19 per cent).

In terms of absolute exported value, the European developed countries were rather specialized in “other business services”, which made up as much as 55 percent of the their ICT-enabled services in 2003. The developed American and Asian exports were concentrated more in royalties and licence fees,

with an approximately 29 per cent market share for both regions, as against only 6 per cent in the EU-15. Developed Oceania had a more balanced market structure across the seven sectors, with relatively higher shares of the communication and computer and information services.

Table 1.21 in the statistical annex shows country exports and growth rates of ICT-enabled services from 2000 to 2003.

Developing countries’ export recovery in 2003

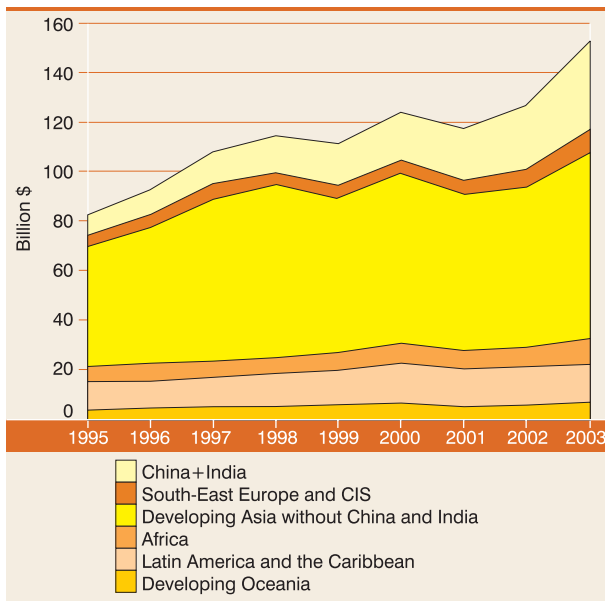
In 2003 developing countries’ exports of ICT-enabled services recorded an annual growth rate of 20 per cent, surpassing developed countries’ performance (17 per cent) for the first time since the 2000 dot-com crash. Developing countries took longer to regain high dynamics in their ICT-enabled services exports, but trade statistics suggest a strong recovery after the 2000–2003 period.

Developing and SEECIS countries’ exports of ICT-enabled services came mostly from Asia (chart 1.22), which held the lion’s share with 77 per cent. It was followed by America with around 10 per cent, Africa with 7 per cent and the SEECIS with around 6 per cent of ICT-enabled services exports in the sample of developing and transition economies.

Asian developing economies’ exports of ICT-enabled services taken together had moderate growth rates over 2000–2003 (8 per cent CAGR). However, chart 9 reflects the large imbalance in growth rates between India and China on the one hand (22 per cent CAGR) and the other developing Asian economies on the other hand (3 per cent CAGR). Past figures show that the ICT-enabled services exports of India and mainland China taken together grew faster and recovered more rapidly in the aftermath of 2000. Despite this past imbalance, in 2003 all Asian developing countries’ exports of ICT-enabled services experienced a significant increase, suggesting that more recently all were able to benefit. The exceptional 2003 growth rates are also related to the South–South trade opportunities and the positive economic developments, particularly in China and India. The Asian exported services expanded faster than the world average in the computer and information and royalties and licence fees sectors.

The SEECIS region accounted for one of the highest compound annual growth rates over the period 2000–

Chart 1.21
ICT-enabled services exports of developing countries



Source: IMF BOP data.

2003 (19 per cent). Three sectors had particularly high growth rates: computer and information, personal, cultural and recreational, and insurance services.

Notable also was Africa's constantly increasing annual growth rate of approximately 8 per cent. After a period

of negative growth in 2000–2003, Latin America and Caribbean exports of ICT-enabled services picked up again in 2004 to regain the 2000 values. Owing to lack of data, the service exports of developing Oceania cannot be assessed.

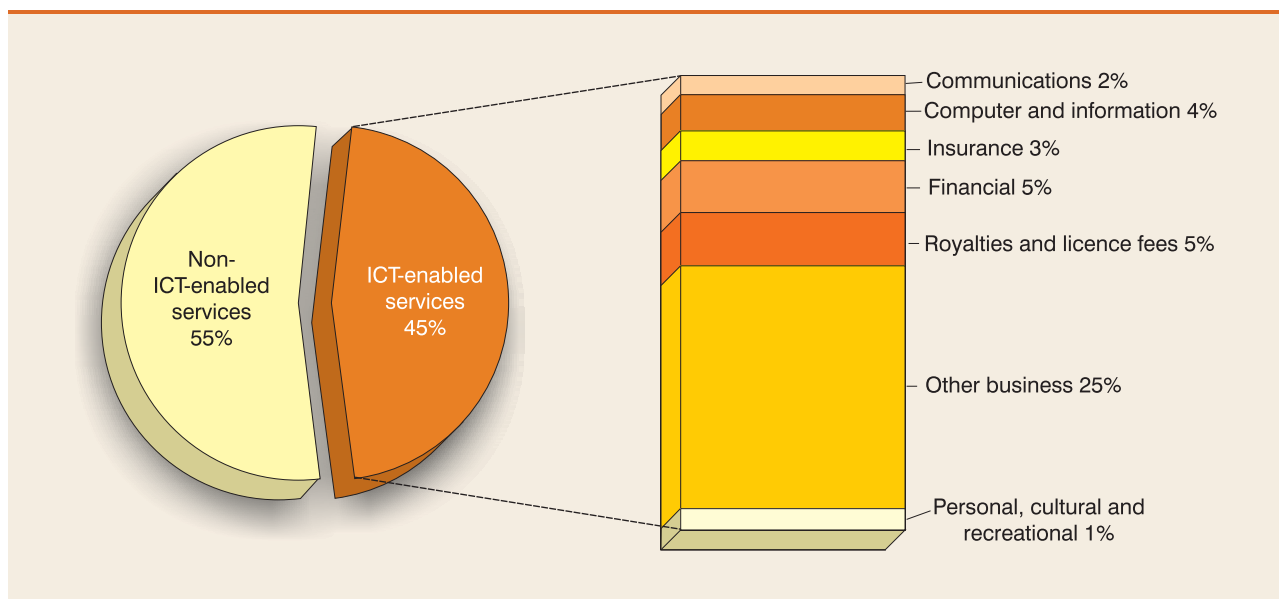
ICT-enabled service exports by sectors

ICTs persistently reshape services industry boundaries and as a side effect, they make classification attempts look obsolete or sometimes overlapping. On the balance-of-payments classification scale, the “other business services”³³ represented the highest share of ICT-enabled services, with a quarter of the world exported value of all services (chart 1.22). However, this category decreased in importance as a share of total ICT-enabled services from 61 per cent in 1995 to 54 per cent in 2003.

The positive trend in the ICT-enabled cluster was also found in most of the seven sectors analysed. Three sectors were exceptionally dynamic: computer and information, insurance³⁴ and financial services.

Computer and information services recorded the highest growth rate in the sample.³⁵ Over the nine years taken into consideration (1995 to 2003), every percentage point increase in total services exports was accompanied by an almost 5 per cent rise in “computer and information” exports.

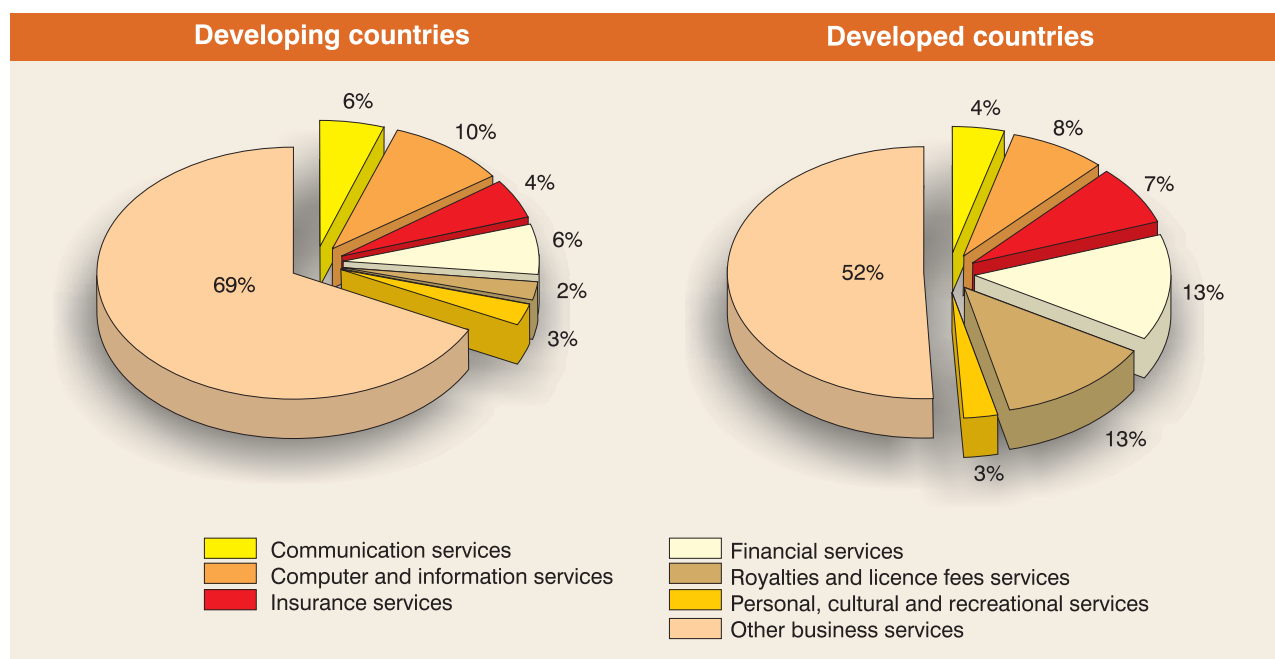
Chart 1.22
Share of ICT-enabled services sectors in the export market, 2003



Source: IMF BOP data and UNCTAD calculations.

Chart 1.23

Share of ICT-enabled services sectors in the export market, developed and developing countries, 2003



Source: IMF BOP data and UNCTAD calculations.

While before the year 2000, financial services recorded the second highest growth rates, in the aftermath of the dot-com crash, world exports in this sector had not recovered their 2000 value by 2003. The development of insurance services showed the reverse image of financial exports, with modest increases before 2000 and a strong recovery afterwards, culminating in the highest 2002 growth rate of all ICT-enabled services (48 per cent).

When the 2003 market structure of ICT-enabled services is compared by level of development (chart 1.23), it emerges that developing countries' export pattern is much more concentrated in "other business services", with 69 per cent of the market share in this sector as compared with only 52 per cent in developed countries. At the same time, however, communication and computer and information services had higher market shares in developing countries' exports of ICT-enabled services; this suggests a relative specialization. Developing countries exported fewer financial and insurance services and royalties and licence fees and therefore most world exports in these sectors came from developed economies. The same year, the structure of ICT-enabled services exports in South-East Europe and the Commonwealth of Independent States was similar to that in the developing countries, except for a much larger share of communication services (16 per cent of ICT-enabled services exports).

During 2000–2003, developing countries continued to specialize in computer and information services, with a 33 per cent compound annual growth rate (CAGR).³⁶ Royalties and licence fees were the other service sector where developing countries' exports attained above-average increases for the same period of time. While holding only a small 2 per cent of their export market share, credits corresponding to royalties and licence fees grew at 18 per cent CAGR in favour of developing economies' balance of payments. Arguably, this evolution could reflect the activity of developing country-based multinationals abroad. The moderate dynamics of the remaining export sectors justify developing countries' overall modest growth performance. More specifically, lower growth rates were calculated for developing countries' exports of "other business" and communication services, which together represented 75 per cent of their ICT-enabled services market.

Chart 1.24 compares the evolution of developing countries' exports of ICT-enabled services located in different regions. Each sector's CAGR is benchmarked against the developing countries' average growth in the ICT-enabled cluster (6.7 per cent for 2003–2000). Larger spheres indicate higher 2003 exported values across both country groupings and sectors. As shown in the chart, developing Asia's exports of ICT-enabled services grew mainly through the computer and

information sector, which had acquired both a large export market value and a high growth rate. Unlike in other developing regions, exports of royalties, licence fees and insurance services have complemented the growth of Asian ICT-enabled services.

A different story is revealed by a similar analysis of the Latin American and Caribbean economies. There, despite a confirmed above-average performance of the computer and information sector, the other ICT-enabled services still lagged behind in terms of growth rate. However, early 2004 export figures show that Latin America and the Caribbean recovered the 2000 value in terms of ICT-enabled service exports, with a significant increase in computer and information, personal, cultural, recreational and “other business” services.

Africa stands out with a highly dynamic evolution of its personal, cultural and recreational exports, as well as its financial services exports³⁷ (chart 1.24). This happened against the background of a relatively

smaller size of the ICT-enabled service sector in Africa. The export expansion was sustained by a good growth performance of “other business services”, the sector with the largest export market share. Insurance was the main weak export sector of both American and African developing countries as shown by the deteriorating growth rate.

Table 1.22 in the statistical annex shows 2003 country exports of ICT-enabled services by sectors.

Main exporters and importers

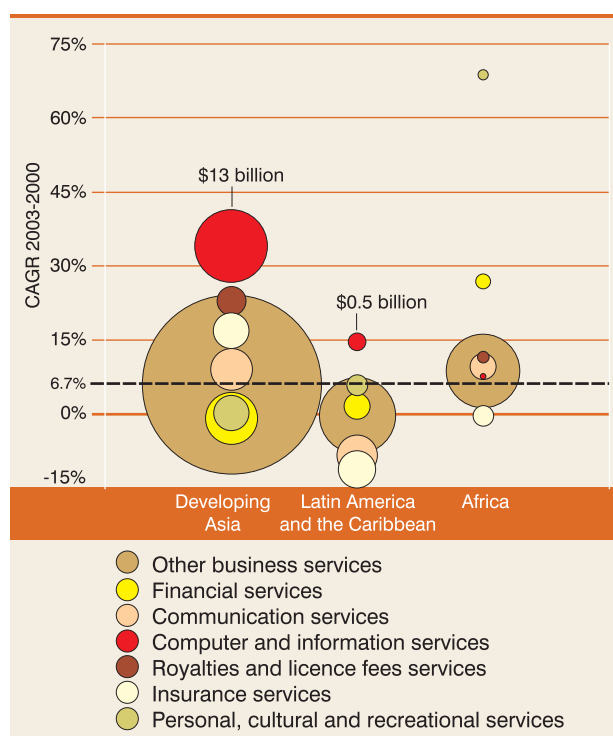
ICT use played a positive role in enhancing both imports and exports of services. In most countries analysed, increases in ICT-enabled exports were accompanied by similarly sized rises in ICT-enabled imports.

Despite this observation, the developed countries of Europe and America remained on average the world net exporters of ICT-enabled services, while most developing countries were still net importers. Communication services were the only notable exception where developing countries as a group and by geographical locations (America, Africa, Asia, Oceania and South-East Europe) were net exporters, while developed countries tended to be net importers. Overall, Asian developing countries also managed to build up a net exporter position in computer and information, financial and “other business” services. The developed countries of Europe were the only net exporters of insurance services, while developed America had an uncontested net exporter position in royalties and licence fees and personal, cultural and recreational services.

Chart 1.25 identifies developed countries’ ICT-enabled service imports with the largest values and the highest growth rates.³⁸ As suggested before, developed countries’ high growth rates in exports of insurance and computer and information services corresponded to similarly high rates in imports of these sectors. European countries appeared again to be more dynamic importers of ICT-enabled services than their other developed counterparts. As a distinct feature, Europe had a higher and faster growing demand for communication service imports. On the other hand, the developed countries of Asia and Oceania stood out with faster growing imports of financial services.

Comparison of the top ten importers and exporters of ICT-enabled services shows imports to be more evenly distributed across the leading countries (chart

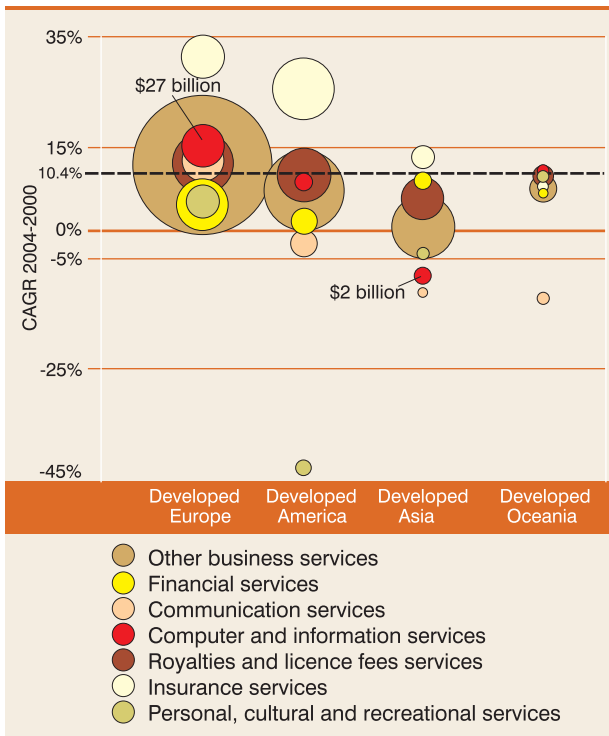
Chart 1.24
Developing countries’ exports of ICT-enabled services, 2000–2003



Note: The size of the spheres represents the exported value in 2003. Larger spheres stand for larger exports of a given region and of a given sector. The figure of 6.7 per cent is the benchmark given by developing countries’ average 2003–2000 CAGR of all ICT-enabled services exports.

Source: IMF BOP data and UNCTAD calculations.

Chart 1.25
Developed countries' imports of ICT-enabled services, 2000–2004



Note: The size of the sphere represents the imported value in 2004. Larger spheres stand for larger imports of a given region and larger imports of a given sector. The figure of 10.4 per cent is the benchmark given by developed countries' average 2004–2000 CAGR of all ICT-enabled services imports.

Source: IMF BOP data and UNCTAD calculations.

1.26). In 2003 the United States remained the world's largest exporter of ICT-enabled services, while Japan remained the largest importer. The developed European countries entering the two rankings, both on the import and on the export side, had higher growth rates. Among them, Ireland stood out as one of the countries with the highest growth rates in ICT-enabled services trade. Hong Kong (China) was the only developing economy featuring among the top ten exporters of ICT-enabled services. No developing economy achieved a similar performance in terms of imports, despite the average developing country being in a net importer position. This suggests that most trade in ICT-enabled services was carried out between developed country partners.

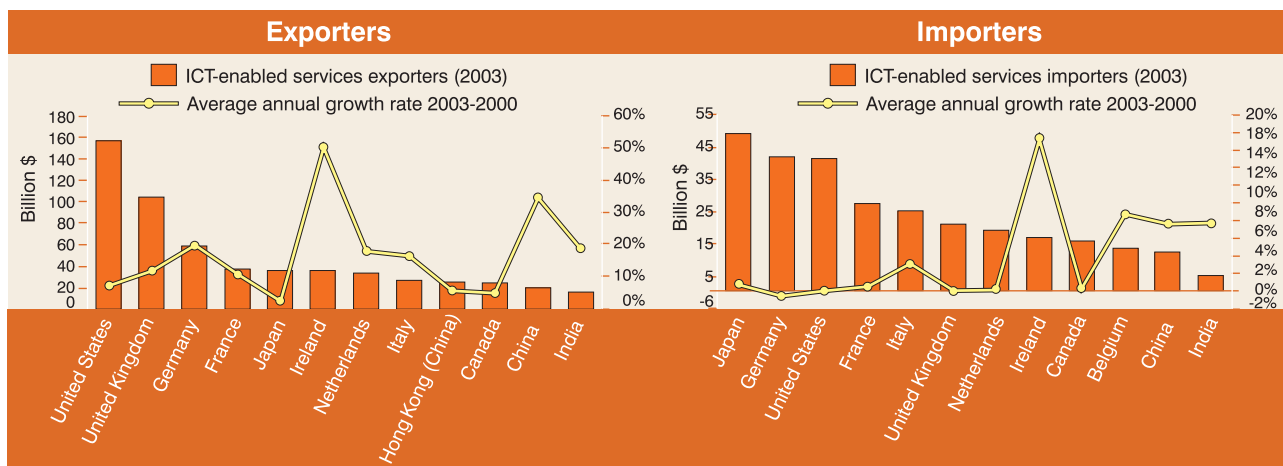
Adding China and India to the top ten rankings presented in chart 1.26 shows how close these countries have come to the world's largest exporters and importers. Their high growth rates also imply that should trade continue to evolve at the same pace, China and India will soon make their way into the top 10 rankings.

On the basis of each sector's ranking, there were eight developing economies among the top ten exporters of the different ICT-enabled service sectors:

- China for "other business" services;
- Hong Kong (China) for financial and "other business" services;
- India for computer, information and communication services;
- The Republic of Korea for royalties and licence fees;

Chart 1.26

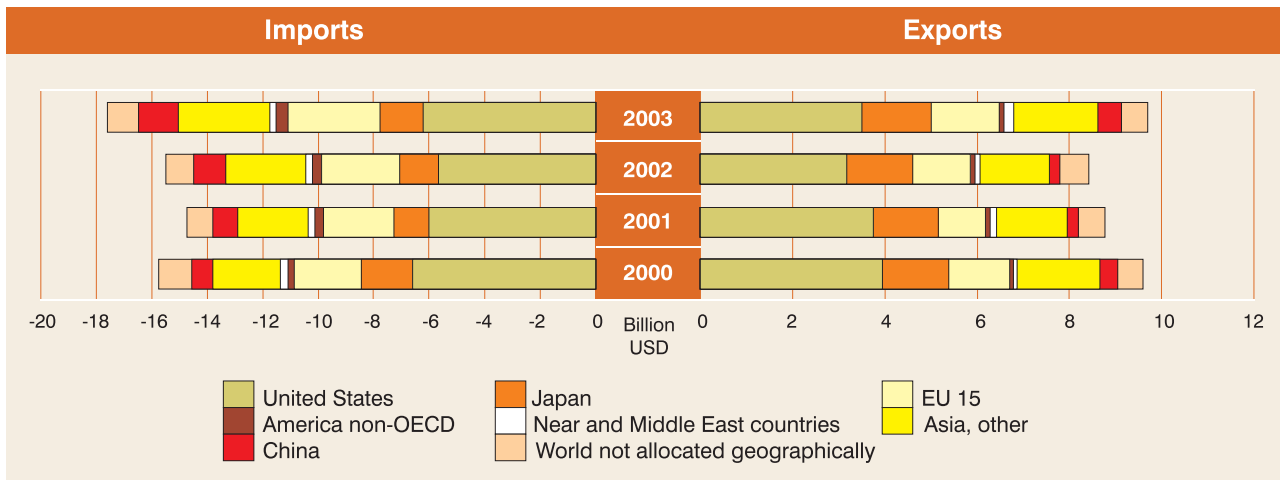
Top 10 ICT-enabled services exporters and importers, plus India and China, 2003



Source: IMF BOP data and UNCTAD calculations.

Chart 1.27

Republic of Korea: Bilateral imports and exports of “other commercial services”



Source: OECD balance-of-payments data.

- Malaysia and Turkey for personal, cultural and recreational services;
- Singapore for financial and insurance services;
- Mexico for insurance services.

From a dynamic perspective, in the ICT-enabled service sectors, higher export growth rates often matched with higher import increases. While firms in some developing countries have already specialized in exporting large sector-specific values, higher imports of other ICT-enabled services benefited their consumers.

Regional trade in ICT-enabled services

ICTs' role as trade facilitators is further enhanced when complemented with trade policy actions and favourable external factors. Regional trade agreements, as well as existing cultural awareness and affinities between geographically close countries, can compound ICTs' effect of reducing trade barriers. Unfortunately, bilateral trade in services data covering developing countries' flows are available only for very few countries.

Most trade in ICT-enabled services takes place between developed countries. For example, in 2002, the latest year for which bilateral data were available, 85 per cent of EU-15's imports of services and 64 per cent of Japan's came from OECD countries. In the same year, only 2 per cent of the European Union's imports of services and 11 per cent of Japan's came from India, China, Taiwan Province of China and Hong Kong

(China) taken together. However, the high growth rates for developing countries' exports and imports suggest the great potential of South–South trade in this field.

The Republic of Korea is one of the few developing countries for which bilateral trade data are available. Its exports and imports of “other commercial services”³⁹, by its main trade partners, are shown in chart 1.27. The evolution of China is noteworthy on both the imports' and the exports' side, as an emerging world major buyer and supplier. The Republic of Korea's imports from China increased by an annual 22 per cent CAGR between 2000 and 2003 and attained the fastest growth rate among its import partners. China's exports market share in the Republic of Korea improved by 4 percentage points from 5 to 9 per cent. This value was still far below the calculated 52 per cent of intra-EU-15 “other business services” trade in the regional group with the highest degree of trade integration.

2. The broader concept of ICT-enabled trade in services

When analysing trade in ICT-enabled services, one can take into account the more broadly established concept of international trade in services. This not only comprises trade flows between resident and non-resident entities as registered in the International Monetary Fund Balance-of-Payments (IMF BOP) statistics, but also covers other modes of delivering services abroad. The approach is based on the

recommendations of the Manual of International Trade in Services Statistics (2002), co-developed by UNCTAD.⁴⁰ The manual sets out an internationally accepted framework for reporting statistics of international trade in services in a broad sense. It recommends that countries progressively expand and configure their trade in services statistics in line with the broader structure. This methodology allows the measurement of trade statistics along the four modes of service delivery as defined in the GATS.

Depending on “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” (WTO, 2001), the GATS identified four modes of delivery for international services trade: cross-border (Mode 1), consumption abroad (Mode 2), commercial presence (Mode 3) and presence of natural persons (Mode 4). The data sources for international trade in services statistics, detailed by modes of delivery, are presented in table 1.10.

Box 1.6 presents information on the data sources, data availability issues and classifications for the foreign affiliates’ trade statistics (FATS).

The composition of international trade in services is dominated by deliveries through forms of commercial presence (Mode 3) (see estimates in table 1.10). The prominence of Mode 3 can be explained by the non-tradable nature of services. Private firms expanding activity in new markets can only export small quantities across borders because they have to face high trade barriers. Services are exported on a large scale by establishing commercial presence abroad and thus avoiding part of the trade costs. Owing to aspects such as the use of an appropriate language, cultural differences and the variety of standards and regulations, only highly standardized services can be exported from a distance (Mode 1). Most services traded today are market-targeted and culturally adapted and therefore better provided through the establishment of commercial presence (Mode 3). Apart from the cost issue, only large and efficient firms can afford to set up foreign affiliates abroad, while the smaller firms have to opt for other contract arrangements to ensure service delivery in foreign markets. Most Mode 3 deliveries originate in developed countries and go hand in hand with a certain level of capital export. However, foreign investment data show that developing and SEECIS countries’ role in this field has increased substantially in recent years (UNCTAD, 2005). Moreover, ICTs

Table 1.10. Statistical coverage by modes of supply

WTO GATS Classification	Practical example	Sources of statistics	Estimated share in world trade in services
Mode 1 Cross-border supply	An Indian software consultant providing services electronically to a British consumer in the UK	Balance of payments: <i>transportation</i> (most of), <i>communications services</i> , <i>insurance services</i> , <i>financial services</i> , <i>royalties and licence fees</i> ; part of <i>computer and information services</i> , <i>other business services</i> , and <i>personal, cultural, and recreational services</i>	35%
Mode 2 Consumption abroad	An Indian software consultant providing services to a British consumer in India	Balance of payments: <i>travel</i> (excluding goods bought by travellers); repairs to carriers in foreign ports (goods); part of <i>transportation</i> (supporting and auxiliary services to carriers in foreign ports)	10–15%
Mode 3 Commercial presence	An Indian software consultancy resident in the UK and providing services to a local British consumer	Foreign Affiliates Trade Statistics (FATS)	50%
Mode 4 Presence of natural persons	An Indian software consultant temporarily employed by a firm located in the UK and providing services to the locals	Balance of payments: part of: <i>computer and information services</i> ; <i>other business services</i> ; <i>personal, cultural and recreational services</i> ; and <i>construction services</i> ; FATS (supplementary information); foreign employment in foreign affiliates’ balance of payments (supplementary information); labour-related flows.	1–2%

Source: Manual of International Trade Statistics (2002) for the statistical coverage; International Trade Statistics (WTO, 2005) for the estimated share in world trade and Wunsch-Vincent (2005) adapted for examples.

Box 1.6

Sales by foreign affiliates in the service sector: Data considerations

When the broader definition of international trade in services is applied, not all relevant flows are recorded statistically in the same way. The main distinction occurs along the line of residence. Transactions between residents and non-residents appear in the IMF Balance-of-Payments (BOP) statistics and are usually referred to as exports and imports. Sales made by foreign affiliates of transnational companies (considered resident in the host country) are recorded separately under the Foreign Affiliates Trade Statistics¹ (FATS). For some economies, separate supplementary data on the value of services supplied by professionals temporarily working abroad is also recorded under the FATS.

Following the Manual of International Trade Statistics' description, the IMF BOP exports and imports of ICT-enabled services correspond to Mode 1, Mode 2 and marginally Mode 4² deliveries. The sales of foreign affiliates correspond to Mode 3 deliveries³ and are referred to as outward and inward flows. Most foreign affiliates' trade statistics follow the ISIC Rev.3 classification. Using the established correspondence between BOP and FATS classifications (The Manual, 2002), equivalents of the ICT-enabled service aggregate were constructed for sales through commercial presence⁴ (Mode 3).

FATS availability is limited to some developed countries and data are only provided separately, in a decentralized manner by national institutions. Additionally, among the 24 countries that publish foreign affiliates' trade statistics,⁵ only a few have separate data on services. In this chapter the analysis of Mode 3 ICT-enabled service trade was restricted to data from Austria, Canada, Finland, France, Germany, Japan, Portugal and the United States.

¹ For example, the US Bureau of Economic Analysis defines the sales of services through foreign affiliates of multinational companies as sales in international markets through the channel of direct investment.

² Services delivered electronically could fall under both Mode 1 and Mode 2 obligations, although an agreement has not been reached on this issue. For a detailed discussion see the WTO's secretariat note on «Technical Issues Concerning Financial Services Schedules», S/FIN/W/9, 29 July 1996.

³ However, FATS underestimate Mode 3 deliveries for two reasons. First, the WTO and FATS definition do not match perfectly. A certain percentage of foreign ownership is required for a company to appear as a foreign affiliate in the FATS data, while no such limitation applies to the WTO Mode 3 definition. Second, FATS in the tertiary sector only cover businesses registered as services and therefore do not take into account sales of foreign affiliates registered in the primary or secondary sectors, which sell services occasionally (The Manual of International Trade Statistics, 2002).

⁴ The broad International Standard Industrial Classification (ISIC Rev 3) categories included as ICT-enabled services were trade, post and communications, finance (including insurance), business activities, and community, social and personal services.

⁵ Austria, Belgium, Luxembourg, Denmark, Finland, France, Germany, Ireland, Italy, Portugal, Sweden, United Kingdom, Norway, Canada, United States, Japan, China, India, Singapore, Madagascar, Slovenia, Czech Republic, Hungary and Poland (UNCTAD FDI/TNCs database (www.unctad.org/fdistatistics)).

can lower transaction costs and thus increase services' tradability across borders.

The persistence of Mode 3 as the primary delivery mode in international services trade relates also to the existence of relatively higher trade barriers in the other modes. For example, service deliveries through the movement of natural persons abroad are substantially limited by migration regulations. Section 3 looks into the WTO sector-specific market access commitments for computer and information services.

The value of services traded through Modes 2, 3 and 4 overtakes Mode 1 deliveries (65 per cent against 35 per cent) also because of the proximity problem. In most cases, the delivery of services relies heavily on a close interaction between consumer and provider. Mode 1, cross-border supply, is the only case where services are delivered from a distance.⁴¹

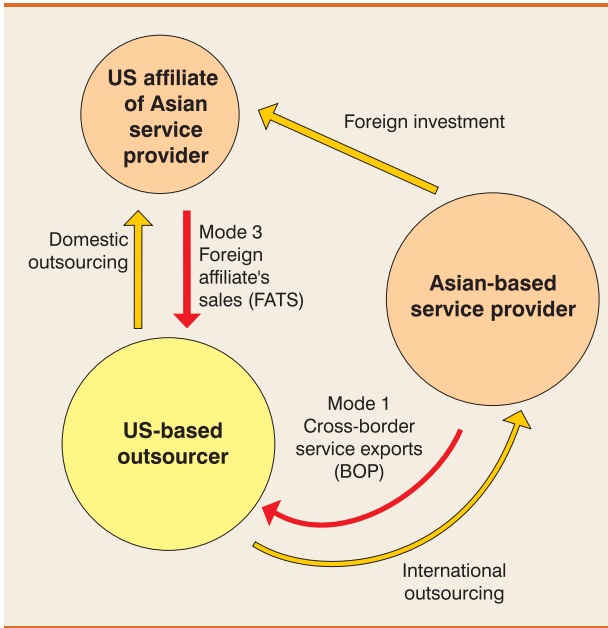
Why is the analysis by modes of delivery useful for developing countries?

The modes of trading services internationally have distinct features as described before, but their final result is the same: foreign services are supplied in domestic markets. Corresponding to services delivered through forms of commercial presence (Mode 3), foreign affiliates' sales are an additional source of trade information for policymakers. Like the BOP registered exports and imports, services can thus also be supplied abroad as outward and inward sales of foreign-owned companies.

When compared, the sales of foreign affiliates and the BOP trade data provide trade policymakers with meaningful results. Three considerations are introduced below.

Chart 1.28

Domestic and international outsourcing



Source: UNCTAD.

First, through their policy actions, developing countries can choose the right balance between exports and imports on the one hand and foreign affiliates' sales on the other. Deliveries through foreign affiliates have different socio-economic consequences when compared with the export-import activities. By definition, selling services through forms of commercial presence depends on the amount of foreign investments from

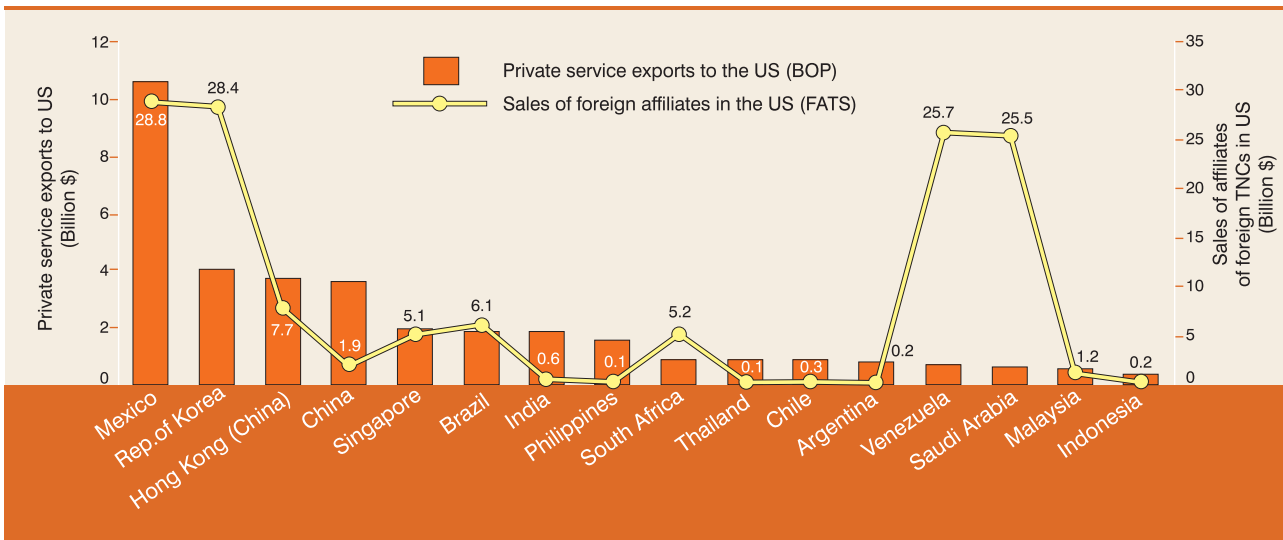
the sending to the receiving country. Subject to the particular local context, the presence of foreign-owned affiliates in the territory of a host country gives rise to new opportunities and threats. For example, better job opportunities, additional tax revenues and technology transfers could serve as a trade-off with host Governments' difficulty in regulating foreign companies and the weakened competitiveness of the domestic suppliers.

Second, the comparison of services imports and exports with foreign affiliates' inward and outward flows can provide a valuable insight, particularly in the context of outsourcing. In this way different aspects of the services internationalization story are taken into account: the foreign investment side and the exporting side. For example, a US firm deciding to outsource part of its service activities can choose as its business partner an Asian-based transnational company with commercial presence in the United States. In this example, the BOP statistics do not record the resulting service transaction, since the Asian foreign affiliate would be resident in the host country. However, the FATS typically register this type of domestic outsourcing to a foreign-owned firm. For a graphical illustration see chart 1.28.

Last, but not least, foreign investment and trade often go hand in hand, with consequences for the development of the service sector. Empirical studies have proved that the investment development path and

Chart 1.29

United States' imports and inward foreign affiliates' sales of private services



Note: Private services include all the service transactions of private entities.

Source: US Bureau of Economic Analysis data.

the trade development path are closely interconnected (Dunning et al., 2001). Increased exports in a particular sector often go together with a higher participation of that sector in both inward and outward foreign direct investment. This link is reinforced in the services industry, where suppliers and consumers often need to meet face to face.

Chart 1.29 shows to what extent deliveries through the Mode 3 channel were relevant for a group of selected developing economies. The calculations used data on the total private services imports and inward foreign affiliates' sales in the United States for the year 2001 (the latest data available). As illustrated by the chart, private services delivered through affiliates of developing-country-based trans-nationals exceeded the value imported across borders from the same developing countries. Detailed sectoral data were not available for most developing countries selected in the chart and therefore a similar analysis corresponding to the ICT-enabled service cluster could not be conducted. Also, the breakdown of existing FATS by sending country only captured observations with regard to some developing country partners. However, it is calculated that in 2001 approximately 88 per cent of the US total inward foreign affiliates' sales of services were ICT-enabled. At the same time, the ICT-enabled services represented about 18 per cent of total US private services imports.

The question addressed in the following section is how ICTs influence the composition by delivery modes of international trade in services and what are the implications for the developing countries.

The internationalization of the service industry

A large share of the globally produced services is not traded in the conventional way, but rather sold abroad through commercial presence. BOP statistics show a

relatively constant evolution of the share of services in total world exports, which has stayed at approximately 20 per cent during the past ten years. UNCTAD estimates⁴² that total BOP trade in services expanded with a 10 per cent growth rate in 2005, but slightly lagged behind the trade in goods growth rate (table 1.11). While it could be considered that commodity price increases boosted the value of trade in goods, for trade in services only nominal trade flows could be compared since internationally comparable services price data are not available.

The relatively low share of services in total exports has been contrasted against the much higher share of services in national GDP composition. Services represented 72 per cent of developed countries' GDP, 52 per cent of developing countries' output and 57 per cent of Central and Eastern European countries' GDP according to UNCTAD (2003) estimates. Using BOP data as the basis for trade in services evaluation suggests that services evolve into an international business only on a small scale.

Foreign direct investment (FDI) statistics, however, tell a different story. While departing from fairly low figures in 1990, services' share in the composition of foreign investments has increased spectacularly during the last decade. According to UNCTAD (2004), the world has witnessed a shift of foreign investment composition towards services for both developed and developing country investors. Services accounted for about 60 per cent of total global FDI inward stock in 2002, rising from less than half in 1990. An increasing value of FDI came from the developed and transition economies, together with an increase in South-South FDI flows. There are thus signs that the service industry did become more international mainly through foreign investments.

The substantial increase in service-related foreign investments was also reflected in foreign affiliates' sales (Mode 3). Foreign investments in services generated

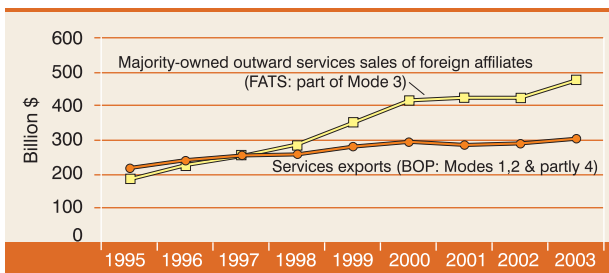
Table 1.11
Trends in world trade

World exports	UNCTAD estimates for 2005 (billion \$)	Annual growth rates (%)					
		1999–2000	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005
Goods	10 278.3	12.8	-4	4.7	15.9	20.5	13.8
Services	2 439.9	5.6	0.4	6.3	14.6	18.3	10.1

Source: IMF BOP data and UNCTAD calculations.

Chart 1.30

United States' outward services transactions



Note: The FATS sales referred to here are not limited to majority-owned foreign affiliates' sales.

Source: US Bureau of Economic Analysis; IMF BOP data.

higher and more dynamic sales of foreign affiliates than the traded value registered in the BOP. In the United States, the ratio of majority-owned foreign affiliates' sales to BOP trade followed a steadily increasing trend from 0.8 in 1987 to 1.6 in 2003 for outward transactions and from 0.8 to 1.7 for inward transactions (chart 1.30). The same trend and a higher share of FATS services sales vis-à-vis BOP service exports were found in the developed countries with growing exports.⁴³ Canada, Finland, France, Germany and Portugal had both higher and faster growing majority-owned foreign affiliates' outward sales of services than the BOP exports (1995/1997 to 2002). Austria had more service exports than outward sales, but the trend of the ratio was similar to that of the other countries. These countries' exports (BOP) of

ICT-enabled services represented more than 55 per cent of the global figure in 2004.

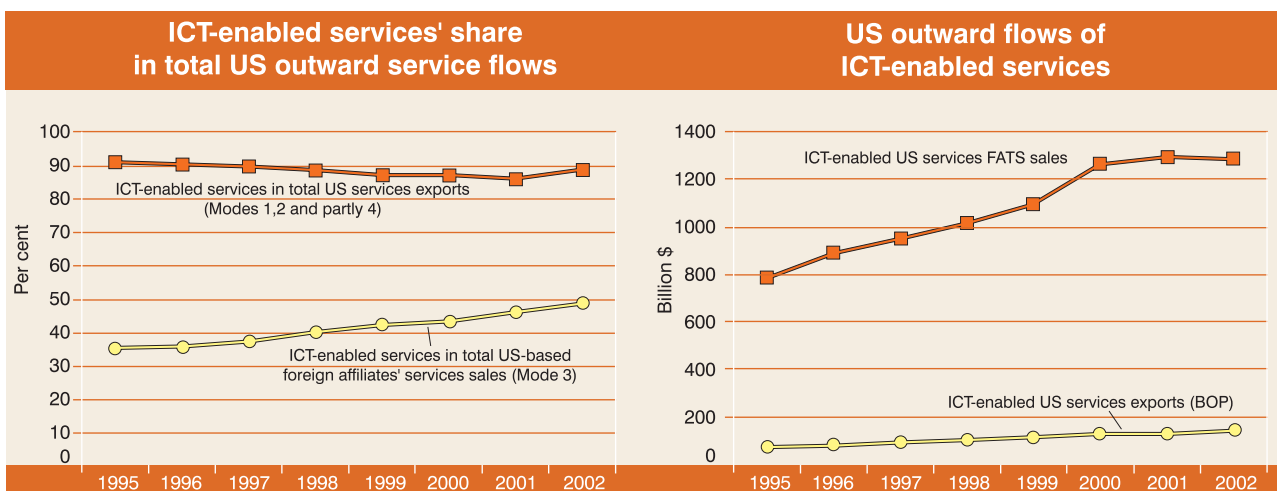
ICTs can boost services trade in all the delivery modes because they lower transaction costs. For example, the value of foreign affiliates' sales has also been boosted by the recent surge of mergers and acquisitions (United States Department of Commerce, 2003). However, since the value delivered through commercial presence also necessitates capital investment and thus an additional financial effort, ICTs' effect on Mode 3 trade should be more moderate. Therefore, ICTs can bring about a change in the structure of international service deliveries. More specifically, improved access to and use of ICTs should favour Modes 1 and 2 over Mode 3 deliveries. This change would benefit the developing countries with reduced commercial presence abroad.

To check whether ICT-enabled services were increasingly delivered across borders and through consumption abroad (through Modes 1 and 2), the analysis relied on individual country data. Chart 1.31 presents the data analysis and results for the United States. There were similar findings for the majority-owned foreign affiliates' sales in Canada (1999 to 2002), France (1999 to 2001), Germany (1995 to 2003) and Portugal (1997 to 2003). These countries exported 49 per cent of world ICT-enabled services in 2003 and recorded positive growth rates in the aggregate sector.

The share of ICT-enabled services in total services exports increased in the United States by 15 percentage points over a seven-year period (1995–2002). As highlighted in the first part of this section, the same

Chart 1.31

Share of ICT-enabled services in total US outward service flows



Source: US Bureau of Economic Analysis data.

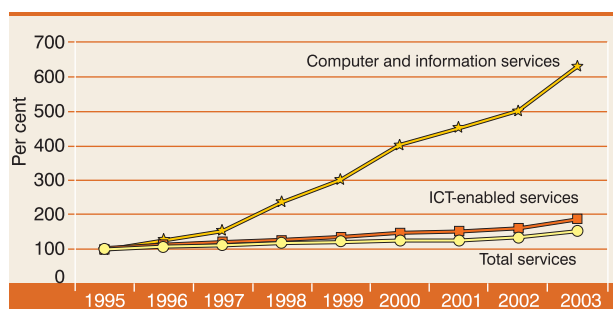
trend was found at the global level, where the share of ICT-enabled services exports also improved. On the other hand, US ICT-enabled Mode 3 sales grew at a slower pace than the total outward sales of US-based foreign affiliates. Chart 1.31 illustrates the two slowly converging shares of ICT-enabled services within total US exports and, respectively, total US foreign affiliates' sales. The opposite happened in absolute terms, where the ICT-enabled services delivered through commercial presence remained considerably larger and expanded faster than the exports of ICT-enabled services. Results suggest that, given the global context of surging Mode 3 deliveries and the relatively slower evolution of BOP trade flows, the trends of the ICT-enabled sectors had a compensating effect that favoured Mode 1 and 2 exports.

Exceptions were Japan and Finland (1995 to 2002), where exports of ICT-enabled services experienced fluctuating and declining growth rates respectively. For Japan the shares of ICT-enabled services in exports and outward sales had a parallel evolution, while for Finland the two calculated shares diverged.

It appears therefore that the countries which specialized in ICT-enabled service exports over the period analysed have also seen an increase in the corresponding sales of home-based multinationals. ICT-enabled service sales through commercial presence grew faster than exports for most countries analysed. The same applied for trade in services in general. However, if the general trend of trade in services is accounted for separately, ICT-enabled services were increasingly delivered cross-border and through consumption abroad (Modes 1 and 2) rather than through commercial presence (Mode 3). This result applied particularly to countries with an increasing trend towards ICT-enabled service exports.

Chart 1.32

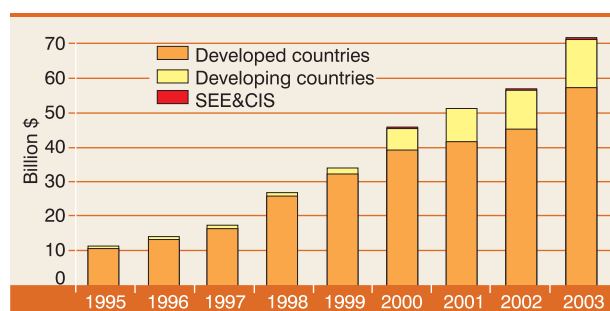
Growth of computer and information services exports



Source: IMF BOP data and UNCTAD calculations.

Chart 1.33

Exports of computer and information services, by level of development



Source: IMF BOP data and UNCTAD calculations.

The lack of data prevented a similar analysis of the developing countries' exports and outward sales. However, as confirmed by empirical studies (Dunning et al., 2001), developing countries with growing ICT-enabled service exports should also be able to improve their competitive position in the sector's outward sales of foreign affiliates. Moreover, the developing countries with less commercial presence abroad could increasingly specialize in ICT-enabled service exports.

3. Sector focus: Computer and information services

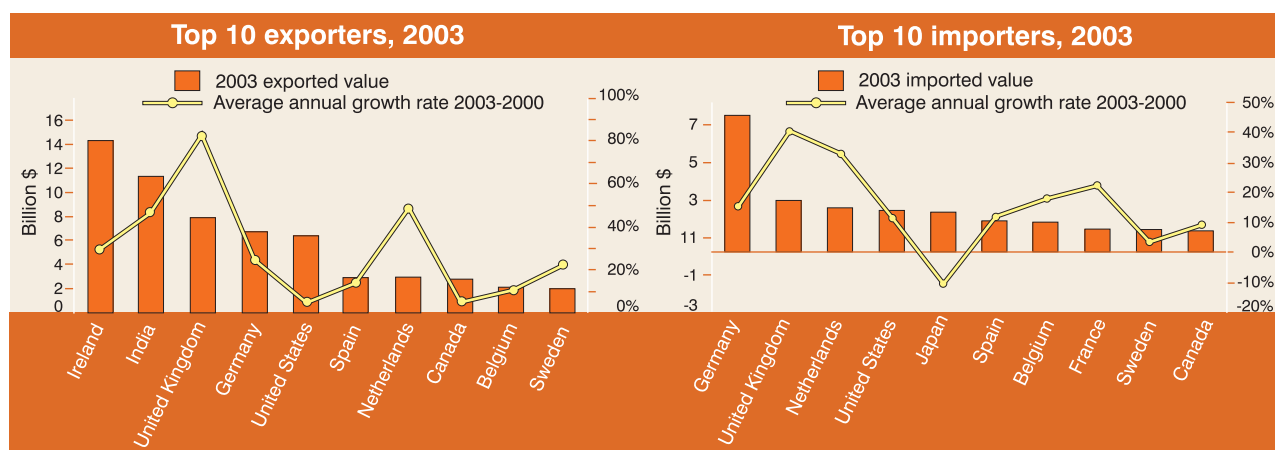
Exports and imports

Compared with the 1995 value, in 2003 global computer and information service exports multiplied six times and grew six times faster than total ICT-enabled services (chart 1.32). The spectacular expansion of export statistics in this service sector has been greatly helped by developing countries' growth rates. In 2003, developing countries' exports of computer and information services were thirty times greater than their 1995 value. Developing countries' share in computer and information exports increased from 4 per cent in 1995 to 20 per cent in 2003, reaching the highest growth of all ICT-enabled service sectors since 2000 (chart 1.33).

Most of developing countries' exports of computer and information services originated in Asia. Export growth rates were positive for developing countries from America and Africa as well, even if the Asian developing countries again had the most substantial increases.

Chart 1.34

Top 10 exporters and importers of computer and information services, 2003

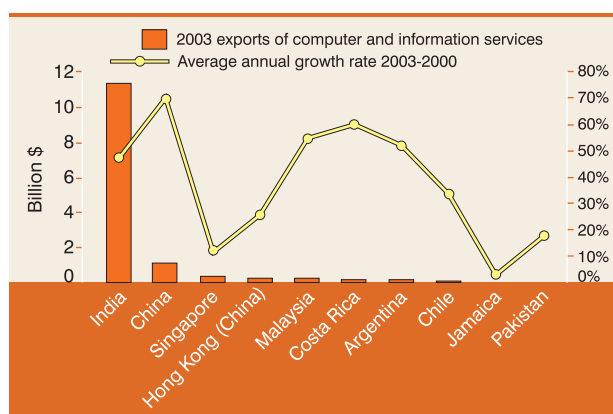


Source: IMF BOP data and UNCTAD calculations

In absolute value, the largest exporters and importers of computer and information services were still mainly the developed countries (chart 1.34). The only notable exception was India, which exported in 2003 the second highest value of computer and information services, worth \$ 11.4 billion. With an annual average growth rate of 47 per cent, over a period of only three years (2000–2003) India surpassed the United States. Unlike in the case of the other large exporters' performance, Indian imports significantly lagged behind the exports' growth rate over the same period, by 45 percentage points, reaching in 2003 total imports worth only \$659 million. A similar case was Ireland, the world's largest exporter in this sector, with \$14.2 billion exports as opposed to only \$371 million imports in 2003.

Chart 1.35

Top 10 developing economy exporters of computer and information services



Source: IMF BOP data and UNCTAD calculations.

The developed European countries were among the largest and most dynamic exporters of computer and information services. The performance of Germany, the United Kingdom and the Netherlands in terms of both exports and imports of computer and information services was particularly significant.

In Asia and America, developed countries' imports in the sector had a below-average development and even a negative growth rate in Japan. Trade data show that Europe, developed Oceania and developing Asia were the largest and most dynamic markets for the computer and information services trade. In 2003, China imported \$1 billion worth of computer and information services, which almost doubled its 2000 figure. At the same time, China was also the second largest developing exporter in this service sector, with \$1.1 billion.

The top ten list of developing country exporters of computer and information services shows the uncontested leadership of India (chart 1.35). Even when scaling exports to the size of the economy, trade specialization indices (revealed comparative advantage) show that India has a much stronger comparative advantage position in this service sector.⁴⁴ Other developing countries specializing in computer and information services had similarly high export growth rates, a fact that suggests an improvement in their competitive position in the global market.

Table 1.26 in the Statistical Annex shows the exports of computer and information services by country from 2000 to 2003.

WTO liberalization commitments

The dynamic evolution of computer and information services and their particular relevance to developing countries' exporters justify an analysis of the corresponding WTO commitments in the sector. In 2003, 99.6 per cent of world exports of computer and information services originated from WTO members. Moreover, in this sector developing and transition countries participated substantially in determining the current level of market access commitments. Out of 90 WTO members with specific commitments for computer and related services, 52 per cent were developing economies and 10 per cent were from South-East Europe and the Commonwealth of Independent States. These figures can be contrasted with a majority of more than three quarters of developing and transition economies among WTO members.⁴⁵

Services are classified differently in the IMF Extended Balance of Payments and the WTO schedules of commitments.⁴⁶ The Manual of Trade in Services Statistics (2002) established a correspondence between the two classification systems. The BOP computer and information sector corresponds largely to the WTO computer and related services.⁴⁷ Annex III gives a detailed description of the type of services included in the WTO computer and related sector, based on the provisional United Nations Central Product Classification.

Services have been subject to multilateral trade negotiations since 2000. Despite continuous negotiations on services in the WTO, at the time of completing this report (July 2006) the outcome of the negotiations remained unresolved. During 1998–2006, seventeen new members joined the WTO and all made specific commitments with regard to computer and related services. Therefore, the information presented in this chapter corresponds to both the WTO members' market access commitments as submitted in the 1995 lists and the acceding countries' additional commitments.

Among the sectors negotiated in the WTO, the computer and related services sector is one of the most liberalized, largely owing to the low-trade barrier environment in this sector at the time of the Uruguay Round. However, as is generally the case for service sectors, the level of liberalization varies greatly by modes of delivery. For example, while most developed countries committed to full market access for computer and related services delivered through

Modes 1 to 3 (cross-border, consumption abroad and commercial presence), significantly less was achieved for the movement of natural persons (Mode 4).

WTO GATS market access commitments represent the upper bound to the level of protectionism that policymakers can exercise in a domestic market. More liberal conditions may apply for trade in computer and related services either for regional trade partners or on a more general basis. For this reason, the WTO level of commitments in services is a deficient proxy for the actual level of trade liberalization achieved within a member economy.

Charts 1.36 and 1.37 show the global level of commitments for market access liberalization in the computer and related service cluster, by comparing Mode 1 and Mode 3. With a few exceptions (Georgia, Indonesia, Pakistan and China) WTO members have agreed to bind all the five subsectors of computer and related services with the same commitments.⁴⁸ Annex IV shows WTO members' market access commitments under Modes 1 and 3 for computer and related services.

Sectoral commitments were categorized between three options: full, partial or no market access. Alternatively, WTO members could also choose not to include the computer and related sector in their lists of specific commitments. Such a choice resulted also in the absence of any binding commitment of market access for foreign service providers.⁴⁹

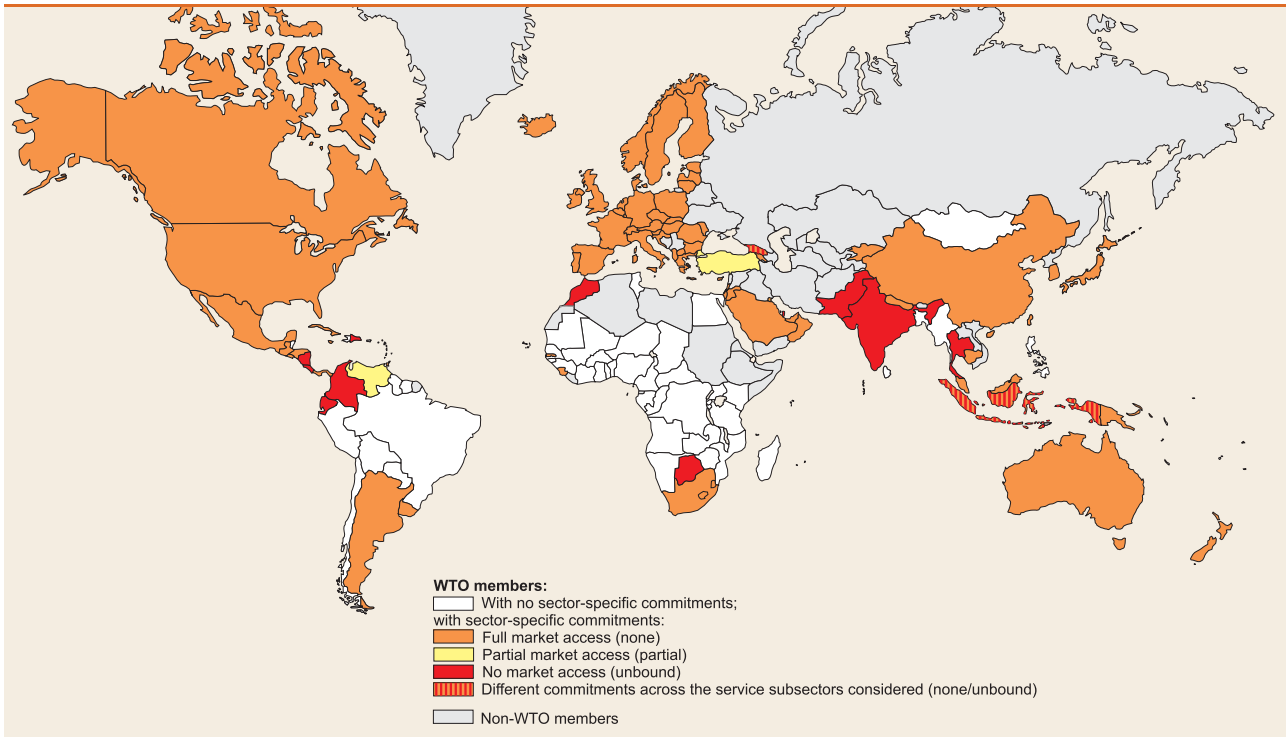
The geographical representation of countries shows a very large participation by the European countries in the negotiations on this sector. Almost all the European economies are members of the WTO, and committed to open their markets for computer and related services. In contrast, only 20 per cent of the African WTO members included this sector in their list of commitments. The countries of Oceania have limited participation in the WTO, while Asia and America made up half of the existing commitments in the sector. On average, half of the developing WTO members included computer and related services in their lists. Brazil, Chile, Egypt, Thailand, Morocco and Macao (China) are among the WTO members with no commitments in the sector.

Computer and related services benefit from full free access to all developed WTO members' markets when delivered cross-border, through consumption abroad or through commercial presence. It follows that 83 per cent of the world exports of computer and information

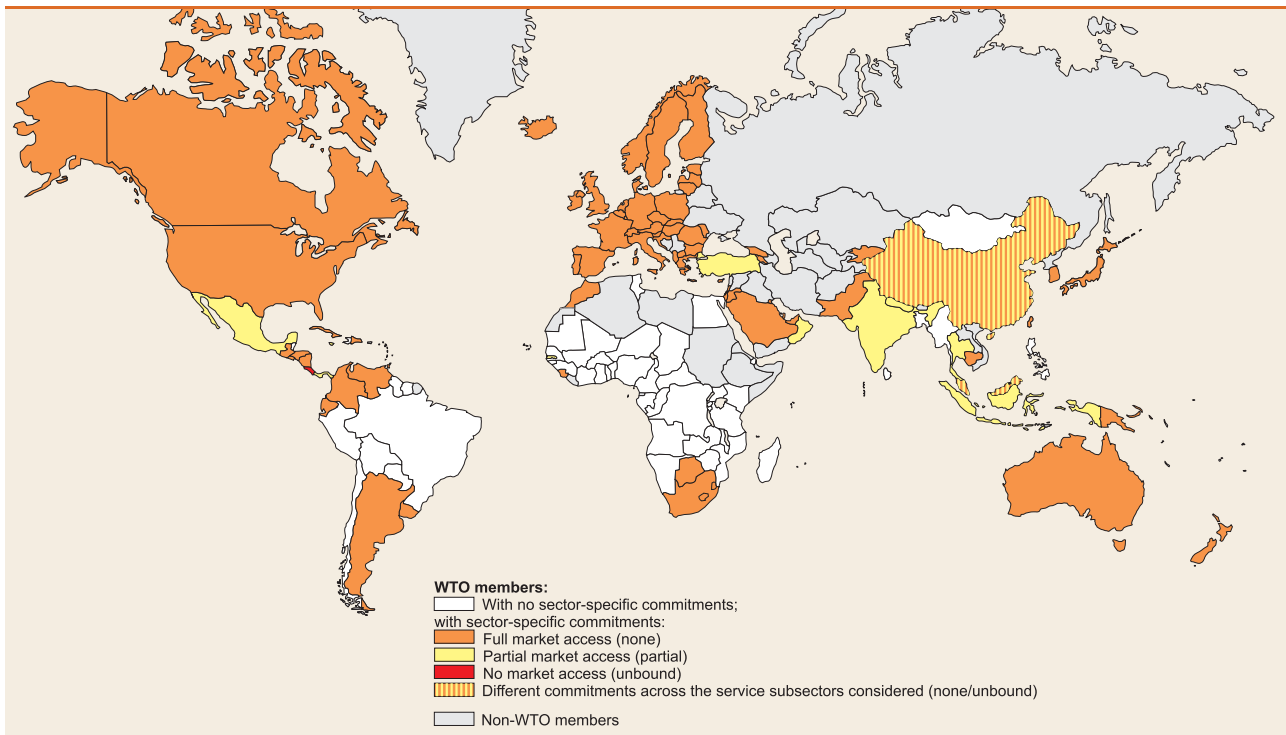
Charts 1.36 and 1.37

WTO market access commitments for computer and related services

(Mode 1)



(Mode 3)



services in 2003 came from WTO members with full cross-border market access commitments. The WTO members permitting full access through commercial presence in their markets also exported 82 per cent of the global value of this service sector.

Developing WTO members made less liberal market access commitments. Only two thirds of them committed to open markets for computer and related services delivered cross-border (Mode 1). One third allowed only partial market access through forms of commercial presence. Half of the developing countries chose a combination of Mode 1 and Mode 3 full commitments. Costa Rica, India, Indonesia, Thailand and Turkey were the only WTO members with partial or no market access commitments on computer and information services for across-border consumption abroad deliveries.

Service provision through the movement of natural persons is still qualified by specific domestic requirements in most countries (in 93 per cent of all commitments). The same applies to South-East European countries and the Commonwealth of Independent States. The lack of free trade commitments under Mode 4 seriously hinders the provision of services through the movement of natural persons.

A continued services liberalization process will have to tackle at least three aspects of the computer and related sector.

First, not all countries have included this sector among their market access commitments and, additionally, some subsectors were omitted. WTO members are continuing negotiations on services, which could eventually lead to a comprehensive sectoral coverage of the entire computer and related service cluster subject to the same type of regulations.⁵⁰ However, developing countries have to consider world prices, and weigh carefully their need for access to computer and related services, against making commitments that may inhibit the development of their own productive capacities in this sector.

Secondly, more liberalization could be required with regard to the movement of natural persons (Mode 4). In the computer and related services sector full market access has already been achieved in respect of developed countries for Modes 1, 2 and 3. From a developing country point of view, more service liberalization under Mode 4 needs to be examined. India has been the main advocate of this position with both multilateral and sector-specific proposals.⁵¹

Developing countries' better endowment in ICT human skills rather than ICT capital could justify their relative specialization in Mode 4 trade rather than Mode 3. Moreover, empirical evidence shows that in the case of India in particular, a substantial presence of IT specialists in the United States led to a significant increase in overall trade flows between India and the United States (Herander and Saavedra, 2005). At present, most developed country commitments with regard to Mode 4 refer only to specialists employed by foreign affiliates. Therefore, they can only be exploited marginally by those developing countries with less commercial presence abroad.

Thirdly, developing countries could also seek to pursue mutual liberalization with other developing countries under all modes of delivery in the context of South–South trade negotiations, whose potential has been highlighted previously in this chapter.

Last, but not least, developing countries with commercial presence abroad should build up comprehensive development strategies to take into account Mode 3 deliveries. As suggested by data findings for some of the large exporters of ICT-enabled services, the sales of foreign affiliates seem to play an essential role in the internationalization of the services industry.

E. Measuring ICT impact

Calls for measuring ICT impact on development have been an essential and persistent feature in the discussion on ICT measurement and the collection of statistical indicators. After all, how important is it to know how many enterprises have access to the Internet, when we do not know how their use of Internet-based technologies has changed the way they operate or interact with the global economy, or whether this has led to job losses or the creation of new jobs?

Therefore, an increasing amount of research is emerging on quantitatively measuring⁵² the impact of ICTs on social and economic development, including firm productivity and national GDP growth. This kind of empirical research has been made possible by the increasing availability of comparable statistical indicators on ICT access and use. So far, most of the work has been based on developed countries' data. But with the gradual increase in the availability of comparable data from a number of developing countries, similar analysis will be possible in the near future.