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The Uruguay Round: Services in the World Economy

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The Tradability of Services

Karl P. Sauvant

Services often have to be produced when and where they are consumed. For this reason, the possibility of transporting, and hence of trading, many services is limited, and foreign direct investment or labor movements are often required to bring them to foreign markets.

This situation is changing fundamentally as the increased application of data services made possible through the merger of telecommunications and computer technologies permits a number of services (especially business services) to be produced in one location and simultaneously consumed elsewhere. The potential for growth of trade in services and the conditions for realizing this potential are of particular importance to the Uruguay Round, especially as regards the treatment of data services and their recognition as a core service. This chapter focuses on the impact of data services on the tradability of services and on some of the implications associated with increased tradability.

Some services are easy to trade—international transport and tourism are examples. But since most services are intangible and nonstorable, they are difficult to transport and trade. Most business services—banking and financial services, insurance, engineering, data services, accounting, consultancy, advertising, public relations, legal services, research and development, market research, management, and architectural services—fall into this category. Until recently, they had to be consumed when and where they were produced. In contrast to the situation with manufactured goods, the time and space of their production and consumption could not be separated. One implications of this was that the principle of comparative advantage had only limited applicability for international trade in services.

In spite of these inherent obstacles, trade in services has reached considerable proportions—approximately $560 billion by 1989 (see GATT 1989). During most of the 1980s trade in services grew even faster than trade in manufacturing goods.

Owing to the nature of services, the main vehicle for growth in international transactions in services has been foreign direct investment rather than trade in services. As table 12–1 shows, the growth of both outward and inward

Table 12–1. ***Selected Developed Market Economies, 1981–87***
(average annual percentage growth)

		Trade in services [b]		*Foreign direct investment in services*	
Country	*Services GDP* [a]	*Exports*	*Imports*	*Outward*	*Inward*
Canada	8.7	7.6	9.2	15.2 [c]	10.0 [c]
Germany, Fed. Rep.	4.7	3.8	3.8	11.3	9.2
Japan	15.7	5.7	8.8	29.3	21.9
Netherlands	3.8	3.9	4.2	16.8 [d]	11.6 [d]
United Kingdom	9.7	9.0	9.9	38.5 [e]	17.8 [e]
United States	8.6	6.8	9.9	9.6	20.6

Note: Based on national currencies, current prices, except for data for Japan, which are based on dollars.

a. utilities, trading, construction, transport, communications, and other services.

b. Private nonfactor services—shipment, travel, other transport, and other private goods, services, and income.

c. 1980–86.

d. 1980–84.

e. 1981–84.

Sources: United Nations, Department of International Economic and Social Affairs, data base; IMF balance of payments statistics, vols. 37 and 39; and various national sources.

foreign direct investment for the principal industrial countries during the 1980s was considerably higher than the growth of gross domestic product (GDP) of services and of exports and imports of services. The overwhelming share of the growth of foreign direct investment in services took place in finance (including insurance) and trade (UNCTC 1989). By the end of the 1980s services had become the largest single foreign direct investment sector; it accounted for approximately 40 percent (about $400 billion) of the world's stock of foreign direct investment and between 50 and 60 percent (about $60 billion) of annual flows of foreign direct investment. As a result, foreign direct investment has become the main vehicle for the delivery of services abroad. For example, in 1982 U.S. exports of private nonfactor services were about $33 billion, as against approximately $178 billion of sales by U.S. affiliates abroad. Similarly, U.S. imports of services in the same year amounted to about $33 billion, compared with about $125 billion of sales by foreign service affiliates in the United States (Sauvant 1986a, p. 20).

The limited tradability of many services is an important reason why foreign direct investment, which increased rapidly in the 1980s, has been more important than trade in the internationalization of the service sector. The impact of data technologies is likely to change this pattern.

The Impact of Data Services

The 1980s witnessed the rapid development of data technology—technology that is grounded in microelectronics and operates on the basis of digital signals. One consequence of this technology has been the convergence of computer and telecommunications technologies and the emergence of data services: data processing, information storage and retrieval, software, and digital telecommunication services. Data services are rapidly expanding industries, both domestically and internationally (Sauvant 1986b).

Data services are also fundamentally changing the manner in which other services are delivered to foreign markets because they permit instantaneous, interactive, long-distance transactions by means of transnational computer communication systems—systems that link computers with one another for communications purposes. By collapsing time and space, data services make it possible for certain services—the information-intensive services—to be produced in one place and consumed simultaneously in another.

Retail banking provides an illustration. In the past, customers had to go to a bank to transact their business—to inquire about checkbook balances, to transfer funds, or to obtain funds. The services were typically produced and consumed face-to-face, when the customers were in the bank. Trade through mail, telephone, telex, or travel was not impossible, but it was typically cumbersome, time-consuming, impractical, and expensive, especially when interactive transactions were required. Today, a substantial number of banking services can be obtained through automated teller machines (ATMs), which are linked up into national and international networks. The banking services that can be provided in this manner now nearly amount to a full branch service: customers can use ATMs to pay bills, deposit cash and checks, buy travelers' checks, transfer money, order checkbooks, and obtain "fast cash" and immediate balance statements. Furthermore, such services as lending to firms, consumer finance, mortgage lending, securities underwriting, currency bond trading, foreign exchange services, brokering, cash letters, and fund collection and disbursal services are increasingly becoming available electronically. These banking services can now be obtained through computer communication systems; they are consumed in one place while they are being produced elsewhere.

Transnational corporations have gone the furthest in developing transportability. Many of these firms, and especially the largest ones, have established internal transnational computer communication systems that are used to assist a wide range of corporate activities, including financial management, marketing, distribution, inventory control, and accounting. Parent firms, for instance, can undertake all accounting services for their foreign affiliates or can handle their financial management. Many transnational corporations have, in fact, become dependent on the transnational use of data services to manage their operations better and more efficiently and to exploit new business opportunities. Take American Express, for example.

> Today American Express could not function without the capacity to move information across national borders with speed, accuracy, reliability and security. We rely on our international systems to allow us to provide a wide range of services: authorization of credit card transactions, replacement of lost or stolen travellers' cheques, travel reservations and other travel services, banking transactions by our international bank, and trading in securities, bonds and a host of other financial instruments.
>
> International communications also have made it possible for American Express to develop new services for our cardholders and for the establishments that accept the American Express card.
>
> Another new product that is the direct result of information-age technology is the automatic teller

> machine, which enables our travelling cardholders to withdraw cash or travellers' cheques in a rapidly growing number of outlets around the world. (Spero 1985, pp. 6–7.)

A recent study concluded that transnational corporations have become "dependent on computerized flows of information to conduct their business today—and will be more so tomorrow" (Business International 1982, p. 2).

The use of data services in conjunction with transnational computer communication systems makes it possible for a whole range of other services to be provided internationally within transnational corporations. This means that the services involved have become more tradable, albeit only within firms.

Closed user group networks extend this possibility to the sharing of services among certain firms, particularly in service industries that are information-intensive and especially dependent on the exchange of information. Most prominent among these networks are the Society for Worldwide Interbank Financial Telecommunications (SWIFT) and the Société de Internationale Télécommunications Aéronautiques (SITA). SWIFT, an interbank data network for international banking transactions, became operational in 1977 and by 1988 linked nearly 2,600 users in 60 countries, including about 95 percent of the world's top 500 banks. Between 1978 and 1988 the number of messages carried annually increased from 21 million to 255 million (SWIFT Annual Report, various issues). SITA is a worldwide network of leased lines that in 1988 carried nearly 500 billion characters among 336 airlines in more than 100 countries (SITA Annual Report, various issues). Closed user group networks have emerged in insurance, shipping, and hotels and have become the backbone of international transactions in their respective industries. Membership is required in order to benefit from the services being provided.

There is no reason why the international provision of information-intensive services should remain limited to transactions within transnational corporate networks or among firms that are members of certain closed user groups. Once the technical problem of transportability has been solved (at acceptable cost), all the services that are already being traded within firms or among members of a user group can also be made available to third parties, at arm's length and on a commercial basis. Thus the increased application of data services is making a whole range of services tradable, in that service products can be delivered over a distance. In this manner, trade options are created for firms that in the past could not serve foreign markets or had to serve them through foreign affiliates or the temporary movement of labor. This option may become particularly important for such information-intensive services as banking and other financial services, insurance, consulting and engineering, many professional services, research and development, education, and data services themselves. Network-based trade in banking has already reached considerable proportions.[1]

Implications

The emergence of data services, by creating a substantial network-based trade option where before there were no or only very limited choices, is fundamentally changing the manner in which information-intensive services can be delivered to foreign markets. Data services are therefore a core service; they not only constitute industries in their own right but also provide the means for overcoming the inherent obstacle to trade in many services—the intangibility, nonstorability, and hence nontransportability of these services. This section explores some of the implications of this fundamental change.

Comparative Advantage and the International Division of Labor

Increased tradability means, first of all, that information-intensive final services (bill payments, insurance policies, software, and so on) can be delivered abroad by way of telecommunication lines. It also means that individual components in the services production chain can become tradable and that specialization can take place, as in manufacturing. The production process of information-intensive services can be split up, individual service components can be produced in countries that have a comparative advantage because of, for example, lower costs, and these components can subsequently be sent to the place where the final product is required.[2] The concepts of specialization and comparative advantage thus become fully applicable to the production and trade of information-intensive services—not only final services but also semifinished ones.[3]

To take an illustration of the impact of data technology, a New York insurance firm has established an affiliate in Ireland to process insurance claims.[4] A transatlantic telecommunications line links the affiliate to the parent company's data processing center in the United States. Insurance claims collected in the United States are shipped daily by air to Ireland, where they are processed. The claim information is then sent through transnational computer communication systems back to the United States, where checks are printed and explanations of benefits are mailed out. There were two motivations for

moving a part of the firm's operations abroad: lower labor costs and difficulties in finding enough skilled workers to process insurance claims at home.

For many services, the possibility of an international division of labor in the production of information-intensive services has existed up until now only in a very limited sense. Increased tradability is therefore bound to have profound implications for supply patterns and for the structure of service industries. The corporations that are the first to take advantage of the potential offered by the new data technologies may be the first to reach global economies of scale and may therefore acquire a substantial advantage with respect to local and other rivals.

Effects on the Nature of Foreign Service Affiliates

The possibility of splitting up the production process, specializing, and taking advantage of an international division of labor can have significant implications for foreign direct investment in services and for the nature of service affiliates abroad. Manufacturing firms can build transnational affiliate networks, and an intrafirm division of labor can allocate capital-intensive and skill-intensive activities to parent corporations and labor-intensive (and, in particular, unskilled-labor-intensive) operations to foreign affiliates, perhaps in developing countries. The high level of intrafirm trade between manufacturing parent firms and their foreign affiliates is a manifestation of that ability. Service firms also build transnational affiliate networks, but so far, precisely because of the low tradability of many services, it has not been as easy for them to split their production activities so as to match the factor proportions of subprocesses with the factor prices of host countries. Consequently, intrafirm trade in the services sector is considerably lower than in the manufacturing sector.

As a result (if U.S. data are indicative), foreign service affiliates, unlike their manufacturing counterparts, appear to be more like their parent firms in terms of skill levels, the use of soft technology, and physical capital intensity—they tend to reproduce abroad the factor proportions used at home (see table 12–2). Foreign service affiliates are more like miniature versions of their parent firms than specialized units in a worldwide production network; that is, they are more complete and free-standing than foreign manufacturing affiliates. Traditionally, foreign service affiliates are more valuable to their host countries than are their manufacturing counterparts in terms of skills, soft technology, and physical capital intensity but not in terms of exports.

Increased tradability may change this situation fundamentally. Affiliates no longer need to be free-standing miniature versions of their parent firms. Rather, they can fulfil specialized tasks in the framework of a global international (intrafirm) division of labor and trade the results of their labor through transnational computer communication networks. In the extreme case—in industries that are very information-intensive—some foreign affiliates may be reduced to terminal affiliates that merely enter data such as insurance or travel information while most of the value (for example, risk calculation and fare construction) is added elsewhere. That would represent a complete reversal of the current situation of foreign service affiliates and could have profound effects on the character, impact, and level of foreign direct investment in services and on its importance for host countries. At the same time, however, it would open new possibilities for substantial growth in network-based intrafirm trade in services.

The Potential for Network-Based Growth of Trade in Services

If the impact of data services is indeed of the nature suggested earlier, there is considerable potential for a dynamic increase in network-based trade in final and semifinished services, both among and within firms. In other words, substantial new business opportunities may arise for firms that take advantage of the possibilities offered by data services. The size of this potential is difficult to ascertain, and for many services, such as government, it is certainly negligible. But it is clear that, because of the limited tradability of many services to date, the relative importance of international trade in services does not reflect the relative importance of services in the domestic economy.

Thus, for instance, although the service sector accounts for 50–60 percent or more of the gross national product (GNP) of the developed market economies, it makes up only about one-fifth of the total trade of all countries. Trade in industrial products involves about 45 percent of world industrial production, whereas in services it is roughly 10 percent (Clairmonte and Cavanagh 1984, p. 224). The relatively low degree of internationalization of the service sector compared with that of the industrial sector is even observable in foreign direct investment (at least to the extent that U.S. data are indicative). By the mid-1980s the average foreign content of U.S. service firms (excluding banks) with investment abroad was considerably lower than that of their industrial counterparts: only about 17 percent of the total assets and sales and 11 percent of the total employment of these firms were abroad. By comparison, the figures for transnational manufacturing corporations were approximately twice as high, and those for petroleum firms were even higher than that (see table 12–3). Service firms are now

Table 12-2. *Characteristics of U.S. Service and Manufacturing Transnational Corporations, 1982*

Variable	*Services*	*Manufacturing*
R&D intensity		
R&D expenditure as percentage of sales		
Parents	0.11	3.03
Affiliates	0.10	1.15
In developing market economies	0.13	1.31
In developing countries	0.02	0.46
R&D employment as percentage of total employment		
Parents	1.05	4.91
Affiliates	0.75	2.27
Skill level (compensation per employee, in thousands of dollars)		
Parents	24	30
Affiliates	19	17
In developed market economies	20	21
In developing countries	15	9
Capital intensity		
Physical capital intensity (thousands of dollars) [a]		
Parents	52	30
Affiliates		
By industry of parent	21	20
By industry of affiliate	26	20
Assets per employee (thousands of dollars)		
Parents	192	97
Affiliates	214	57
In developed market economies	164	65
In developing countries	348	39
Trade (percentage of sales)		
Parents		
Total exports	6.1	11.1
Exports to affiliates	1.3	4.3
Imports from affiliates	0.9	2.9
Affiliates		
Total exports	40.3	34
Exports to parents	4.3	8
Imports from parents	8.3	12

Note: R&D, research and development

a. Net property, plant, and equipment per worker.

Source: UNCTC (1989), p. 111.

Table 12-3. *Share of Foreign Affiliates in Total Activities of U.S. Nonbank Transnational Corporations, 1984*

Industry	*Share of foreign affiliates in*		
	Sales	*Assets*	*Employment*
All industries	26.2	19.7	25.9
Manufacturing	27.3	24.4	30.3
Petroleum	41.7	34.2	31.1
Other industries	25.3	21.7	39.7
Services	16.6	11.3	16.9
Finance, insurance, real estate [a]	12.0	9.7	27.9
Trading	18.0	14.7	16.5
Transport, communications, public utilities	6.5	7.1	10.7
Construction	23.6	22.5	16.3
Professional business and other services	11.6	12.7	10.9
Petroleum-related services [b]	28.7	20.5	25.6

a. Includes holdings and financial affiliates of industrial corporations, excluding nonbusiness entities..

b. Oil and gas field services, petroleum wholesale trade, petroleum tanker operations, gasoline services stations, and the like.

Source: UNCTC (1989), p. 53.

engaging in more investing abroad than are industrial ones, but worldwide, the service sector is considerably less transnationalized than the industrial sector.

The point is not that within a few years the share of trade in services in total trade will be as high as the share of services in GNP or that the share of services production traded will be comparable to that for industrial production. But the comparisons do suggest that once the intangibility, nonstorability, and nontransportability of certain services are no longer obstacles to trade, there could be a dynamic expansion in trade in services.

Realizing the Potential

The extent to which this potential can be realized and exploited depends on a number of factors. Perhaps the most important of these are the ability to utilize the underlying technology, the availability of the required network infrastructure, access to transnational computer communication networks, and access to markets.

The ability to utilize the underlying technology, be it to export or import services or to manage transnational affiliate networks better, is the technological precondition for benefiting from the increased transportability of information-intensive services. Data technology as such is widely available in the international market. But the development of specialized application software (that is, the machine-readable programs, procedures, and rules that allow the electronic devices making up a computer communication system to perform certain tasks and so turn a stationary service into a tradable one) requires highly specialized skills, sophisticated hardware, considerable research and development, and extensive experimentation—all of which are very expensive.

In addition, the utilization of the underlying technology, and especially the application of digital telecommunications technology, require computer communication networks. In addition to merely transporting data, these networks have such value added features as packet switching, automatic rerouting, intermediate storage, compatibility services, maintenance-related support services, and electronic mail services. The operators of value added networks normally lease lines from basic carriers (for example, AT&T in the United States and post, telegraph, and telephone—PTT—systems in other countries) and combine them with computer equipment of their own, thus creating enhanced computer communication systems dedicated solely to the transport of data. International systems of this kind can be created by linking up national networks. This process is virtually complete among the industrial countries and is taking place in a growing number of developing countries, but the difference in coverage and sophistication is still considerable. The infrastructure, in turn, can be used to build specialized networks of, for example, the intrafirm or closed user group variety. In sum, transnational computer communication systems are of central importance for the growth of trade in information-intensive services: they are the electronic highways for world trade in services.

Computer communication systems are useful only if one has access to them. The technical aspect of access—for instance, which protocols to use in order to have a technical interface—is the province of the International Telecommunications Union and no longer presents a major problem. A related issue concerns the right to connect equipment to the telecommunications network—a right that is restricted in many countries. These technical and administrative matters have profound economic implications, not only because they can be barriers to trade but also because the choice of standards and the permission to connect certain equipment to a network can give considerable advantages to one firm over another.

There is also the question of access to the growing number of specialized private or quasi-private computer communication systems and the databases associated with them, most of which are of the intrafirm or closed user group type. For instance, airline computer reservation systems have become an important component of the airline industry and a lucrative source of revenue. If an airline has established such a system, should other airlines be permitted to list their flights on it as well, and if so, in what order? The significance of these questions can be seen from the following facts. In 1984 about three-quarters of the 21,000 United States travel agents were linked to computerized reservation systems, and four of the six most important systems gave preference to the airlines that owned them in listing flights on the computer screens. Travel agents make about 85 percent of their bookings on flights shown on the first screen and 50 percent on the flights shown on the first line of a screen.[5] Access to such specialized networks is therefore an important factor in the effective utilization of data technology—especially since such networks are likely to become more important in the future—and it is a precondition for benefiting fully from the increased tradability of information-intensive services.

The last factor is access to markets. A number of existing regulatory and administrative practices impede the delivery of data services via computer communication systems. Many of them are indirect and include primarily technical measures and regulatory and administrative practices. Most of them focus on the flow of data services as such, especially the provision of data processing, information storage and retrieval services, and soft-

ware (Conference Board 1984). They are mainly imposed to encourage the growth of domestic data industries (the case of Brazil is particularly prominent here; see UNCTC 1983) and to increase the revenue of PTTs. But overall, the existing measures are relatively unimportant and do not represent major obstacles.

This situation could, however, change drastically as soon as the volume of services traded via computer communication networks reaches a sizable amount and national authorities begin to appreciate fully the importance of this development for the entire service sector. At that point the full arsenal of traditional trade instruments—including taxes and tariffs on data flows,[6] local content requirements, infant industry measures, and various other forms of protectionism—could well come into play to restrict or encourage network-based trade in services. Such a development would obviously hinder the growth of such trade and impede the realization of the potential promised by the increased tradability of information-intensive services. Logically, those who have the best chance to benefit from increased tradability have the greatest interest in establishing an international framework for trade in services in general and data services in particular. Such a framework would, most importantly, prevent the introduction of new barriers to transborder data flows.

This raises the question of who would benefit from the trade-creating potential of information-intensive services. The first to benefit would be firms from industrial countries, which have developed the application of these technologies furthest, have access to the required infrastructure, and they have created most of the existing networks. In addition, most transnational corporations—which use data services for intrafirm purposes—are headquartered in industrialized countries. But firms from developing and socialist countries stand to benefit as well because data services provide them with a wider range of options for obtaining the services needed for their development, be it in terms of the manner in which they can be obtained (import or foreign direct investment), the range of suppliers, or, more generally, information about international markets. Developing countries also have opportunities for developing exports of services that are information-intensive and in which they have (or can develop) a comparative advantage. These include software, information storage and retrieval, engineering services, and accounting—in principle, all the services the tradability of which has been increased through the application of data services.

For some services increased tradability may even help to sidestep, at least to a certain extent, the thorny question of labor movement. For instance, software specialists, instead of having to move to another country to produce their services, can provide the services from home through computer communication systems. A whole range of new opportunities is being opened up, and firms in all countries are potential beneficiaries. Still, the distribution of benefits, especially between developed and developing countries, appears to be uneven, precisely because the ability to use data technologies is unevenly distributed, the infrastructure is inadequate in developing countries, the networks are mostly located in developed countries, and hence the ability to export and import services via computer communication systems is uneven.

Not surprisingly, therefore, service firms from industrial countries and, subsequently, the governments of these countries, have taken the lead in efforts to establish a stable, predictable, and transparent international framework for trade in services—a framework that would permit the progressive liberalization of this trade. Logically, furthermore, this framework would have to cover data services as a core service, especially the enhanced digital telecommunications component (see Feketekuty 1988, 1989). The input of the private sector into relevant international negotiations—first in the framework of the Organisation for International Co-operation and Development (OECD), then in the framework of the Uruguay Round—bears this out. In the OECD these efforts led to the adoption of a Declaration on Transborder Data Flows in April 1985 (see Sauvant 1986) The declaration acknowledged that, to date, transborder flows of economic data are subject to few restrictions; it underlined the importance of transparency and stability of policies, regulations, and practices for investment and trade in this field; and it drew attention to the social and economic benefits to be drawn from access to data. Most important, the declaration established for the first time the principle that governments should avoid creating unjustified barriers to transborder data flows. In the Uruguay Round the private sector, especially in the United States, consistently stressed the importance of data services and the need to ensure an open international system for the flow of enhanced telecommunications services (see Robinson, Sauvant, and Govitrikar 1989). Only such a system would allow the full realization of the potential offered by the increased tradability of services.

Conclusions

Technological changes have opened new opportunities in the area of trade in services. Data services themselves have become more tradable, and because they are core services they help make other services more tradable as well. Firms in both developed and developing countries can benefit from these opportunities. But the awareness

of these developments and opportunities is not widespread in either developed or developing countries. Raising awareness is therefore an important task, as is bridge building between, on the one hand, specialists in data services and, in particular, telecommunications and, on the other, trade policymakers and specialists.

A good part of this awareness raising, especially in developing countries, ought to focus on the importance of data technologies and their core nature, the need to master these technologies, and the necessity for strengthening the infrastructure through which access to world service markets can be obtained. Training, technology transfer, and investment in the telecommunication infrastructure are, therefore, priority tasks. Since the requirements in this field are beyond the capacities of many developing countries, a massive infusion of technical assistance is required.

Access to world service markets requires that the networks through which services can be provided be effectively open to all service providers—that is, not closed to some service providers or biased in favor of others. This issue increases in importance as enhanced telecommunications services in a growing number of countries are liberalized and as parts of the networks become privatized and hence closed to general usage. Service providers may increasingly face a situation in which the most sophisticated parts of the electronic highways for trade in services are not generally accessible. (In goods trade it is simply assumed that producers have access to the transport system—roads, railways, and airplanes—but this assumption cannot be made for network-based services trade.) To develop an equitable regime in this respect is, therefore, an important public policy task. But it is not an easy one, because many of the networks have been built or are being built through private investment, often precisely with the purpose of giving some firms or groups of firms an advantage over their competitors.

Access to world markets also requires that service providers have access to consumers. National development objectives must, of course, be taken into account too. To establish a framework that promotes these twin goals is an important international public policy task, and this is the objective of the current Uruguay Round of negotiations on trade in services, including data services. But access to consumers is only one aspect of access; additional conditions must be met before a network-based growth of trade in services can make a full contribution to the economic growth of all trading partners and to economic development. Furthermore, since the new opportunities in trade in services allow transnational service providers to have a considerable impact on economic development, an international public policy framework should contain not only rights for service providers but also obligations—regarding, for example, restrictive business practices, the impact on the balance of payments, training, and the like. In other words, the international framework should be holistic.

The increase in tradability may lead foreign service affiliates in information-intensive industries to become less complete and free-standing and may thus decrease their potential to contribute to host countries. Governments may have to examine whether the right of establishment should be complemented in certain industries by a "duty of establishment" to ensure that foreign service affiliates contribute to national development rather than becoming merely terminal affiliates.[7]

The precise nature of the new opportunities is still far from clear. Which services are becoming more tradable, to what extent, and in what manner? Which components in the service production process are becoming tradable and could conceivably be produced elsewhere? It is necessary to take a whole series of information-intensive service industries, select their principal products, examine the production processes for each, and identify the components that are becoming tradable through the use of data technologies. Such practical work, which requires technical cooperation that could be highly useful for developing countries in particular, could be an important task for regional and international organizations with an interest in ensuring that all countries benefit as much as possible from the increased tradability of services.

Notes

1. See the data on SWIFT above. This may also explain, at least partly, why the number of foreign offices of the largest 100 transnational banks barely increased, from 4,413 in 1980 to 4,660 in 1985; see UNCTC (1989, p. 75).

2. To a certain extent, this is the international extension of a process that has already taken place within countries. In the United States, for example, many service companies have moved some "back office" clerical, accounting, and data processing operations away from urban headquarters sites (such as New York), where office costs, housing costs and taxes are high.

3. The point is not that, so far, the concept of comparative advantage has not applied to services. Countries endowed with certain attractions (including scenery) obviously have a comparative advantage in tourism, countries with substantial unskilled labor may have a comparative advantage in the export of labor-intensive services such as construction, and countries with substantial skilled labor may have a comparative advantage in the export of software or engineering services. Factor endowments have always played a role, but within the confines of the limited transportability of services.

4. "The Growth of the Global Office," *New York Times*, October 18, 1988.

5. See "A Choice of Brands," *Economist*, August 25, 1984, p. 14.

6. Taxing data flows or putting a tariff on them may be difficult, but it is not impossible. The tax could be placed on the volume of data transmitted, as is done with long-distance telephone traffic, or (a more difficult alternative) on the value of the data transmitted. As with

shipments of goods across borders tax authorities could request that a bill of lading or customs declaration be added to each economically relevant data package sent. Such a "data bill of lading" could indicate the nature and value of the data involved. The technology for administering volume-sensitive or value-sensitive rates appears to exist. It is worth noting here that the GATT Valuation Code has set an international precedent for assessing certain services. The GATT Committee on Customs Valuation decided at the end of 1984 that it is permissible (as desired by developing countries) to include the value of software in the calculations when determining the value of a carrier medium such as a tape, although it is also permissible (as desired especially by the United States) to take only the cost or value of the carrier medium into account. As the chairperson of the committee remarked, "Indeed, if the technical facilities are available to the parties to the transaction, the software can be transmitted by wire or satellite, in which case the question of customs duties does not arise" (GATT 1984). But the issue is precisely the increasing availability of these technical facilities and the possibility that customs authorities may impose a tariff on transborder data flows. It may well be only a question of time before data flows are subject to taxes or tariffs.

7. This is, of course, the logic of the Brazilian policy on transborder data flows (see UNCTC 1983).

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