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Chapter Author: Andre Sapir

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V Trade in Services

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9 International Trade in Telecommunications Services

André Sapir

9.1 Introduction

In recent years, there has been growing American sentiment toward promoting U.S. service industries and enhancing their international competitiveness. At the 1982 ministerial meeting of the General Agreement on Tariffs and Trade (GATT), the United States trade representative (USTR) proposed for the first time that service transactions be added to the agenda for the next round of multilateral trade negotiations. However, the developing countries, led by Brazil and India, rejected this proposal. These countries have been reluctant to enter international negotiations on services for two reasons. First, U.S. negotiators unintentionally conveyed the message that the liberalization of trade in services would be a zero-sum game. Their eagerness to dismantle barriers to trade in services is perceived by many as simply serving the self-interest of large U.S. service corporations. Second, many GATT signatories are not enthusiastic about trade liberalization in this area. They fear that an international system of rules for trade in services will interfere with their national policy objectives.

Although the European Community (EC) shared many of these apprehensions, it was instrumental in finding the compromise adopted at the 1982 meeting: contracting parties with an interest in services would undertake national studies of problems in services trade. Most industrialized nations submitted reports for the November 1984 GATT session, and a working group was established to improve information about services.

André Sapir is professor of economics at the Free University of Brussels.

I am grateful for detailed comments and suggestions from Robert Baldwin. I have also benefited from comments by several participants at the conference.

During the following two years, the EC again played a crucial role in reconciling the strong American stand on including services in the new round with the insistence of the developing countries that services remain outside the scope of GATT. Under the compromise reached at the September 1986 ministerial meeting which launched the Uruguay Round, the multilateral trade negotiations are to proceed along two parallel tracks: one for goods and one for services. The services negotiations are aimed at establishing an international set of rules that might eventually be incorporated into the GATT system.

One sector of special concern to U.S. officials that illustrates the problems of negotiating in the services area is telecommunications services. U.S. interest in this field goes considerably beyond the perception that American firms have a competitive advantage in supplying telecommunications services. Telecommunications play a central role for almost all forms of services by providing an infrastructure for international trade in services.

The United States has devoted particular attention in recent years to issues of telecommunications trade with the EC. The European telecommunications market—the world's second largest—tends to be much less open than the American market. This is a result of the difference in institutional arrangements on the two sides of the Atlantic. In European countries (as in most of the world), telecommunications services are provided largely by government monopolies known as PTTs (Posts, Telegraph, and Telephones). In contrast, telecommunications services in the United States are supplied by private firms which operate in an increasingly competitive environment since deregulation was launched over a decade ago.

U.S. interest in telecommunications services also stems from the changes in this sector caused by an ongoing technological revolution. New information technologies are much faster, and it now costs less to process, store, retrieve, manipulate, and transmit data. Information technology now also encompasses a wide array of convergent and linked information-goods and information-services activities. The information-goods industry includes computers, data recognition equipment, telecommunications equipment, and other related hardware, while the information-services industry consists of computer services, information storage and retrieval, and telecommunications services.

Information technology has led to the merger of data-processing and telecommunications activities into telematics, which involves both information-goods and information-services industries. As a result, the traditional dividing line between goods and services has become blurred. The extension of telematics internationally has given rise to transborder data flows that are similar to trade in information services and can be defined as the electronic international movement of computer-readable

data across telecommunications networks. This paper analyzes the trade policy issues of transborder data flows, with particular emphasis on US-EC trade relations.

Although there is a general trend toward information intensity throughout the economy, it varies by industry. Thus, the impact of transborder data flows on international transactions will vary across industries. In particular, the possibilities for international trade in services have been greatly enhanced by transborder data flows because of their "high information-technology content in both product and process" (Porter and Millar 1985, 154). However, the exact nature of the impact of transborder data flows will depend on the nature of services. I will argue in this paper that information flows enhance *intra*firm trade in some service industries and *inter*firm trade in others.

Both intrafirm and arm's-length information flows depend upon the efficient operation of telecommunications networks. How open should telecommunications services be to competitive forces? The United States and the European PTTs have two opposite views on this matter, with Europe favoring as wide a monopoly as is possible. This paper examines the implications of alternative regulatory environments on telecommunications trade.

The plan of the paper is as follows: section 9.2 analyzes the impact of information flows on the structure of international trade in services, while section 9.3 examines the policy issues involved in the organization of international telecommunications. The last section offers some perspectives on the potential for future trade negotiations in the telecommunications field.

9.2 The Impact of Information Flows on Service Trade

Information technology, by increasing the speed and efficiency of transmitting information around the world, is rapidly changing the previous landscape of international service transactions. It has created new services with substantial scope for international trade flows, namely information services. In addition, information technology has greatly enhanced the tradability of traditional services.

Information services have as a primary function the collection, processing, and/or transmission of information in an electronic form. They include data-processing and data-base services. These services are essentially long-distance, linking a computer facility to a remote user via a communications system. Therefore, they are highly tradable. In their case, transborder data flows tend to be arm's-length transactions between the provider of the service and an unrelated user.

Complementary innovations in data processing and telecommunications are opening up the way toward a greater international division

of labor in services in the same way that the industrial revolution affected agricultural and manufactured goods. "[A] key factor in the growth of world trade [was] a sequence of transportation innovations that opened up continental hinterlands, reduced the cost of transoceanic shipping, and made possible the preservation of perishable food products during extensive voyages over land and sea. These innovations included the rapid growth of the railroads after 1830, the expanding role of the iron steamship after 1850, and the introduction of refrigeration on both freight cars and steamships beginning in the 1870s. . . . With these complementary innovations, there began to emerge, by the end of the nineteenth century, a truly worldwide agricultural division of labor" (Rosenberg 1982, 58 and 251).

The increased tradability of services is conceptually equivalent to a reduction in transport costs and has two consequences for the pattern of trade. On the one hand, reduced transportation costs make it feasible for service industries to reallocate certain activities to least-cost locations and to export their products to other locations. On the other hand, reductions in transport costs make possible the greater exploitation of economies of scale. In a world of low transport costs, the size of domestic markets plays less of a role in shaping trade patterns, and production can be concentrated in fewer locations.

Several trade economists have recently drawn on the work by Hill (1977), who emphasizes the *nonstorable nature* of services: production and consumption must generally occur in the same location and at the same time. This characteristic provides the basis for the fact that services are generally not traded in the papers by Bhagwati (1985), Deardorff (1984), and Sampson and Snape (1985).

Bhagwati (1985) and Sampson and Snape (1985) divide services into two categories: those that require the physical proximity of the producer and the consumer and those that do not; the latter are referred to as "separated" services by Sampson and Snape. Within the group of services for which physical proximity is essential, a further distinction is drawn between those that necessitate the movement of the producer, the consumer, or both. The distinction carries major policy implications. For "separated" services, trade liberalization is similar to trade liberalization in goods. But for the majority of services, freedom of international transactions would require freedom of movement of either producers or consumers. It is precisely the latter issue which has clouded the prospect for negotiations on service transactions. In particular, many countries are reluctant to open the Pandora's box of rules governing foreign investment (involving so-called "rights of establishment" and "national treatment" regulations) and foreign labor.

It has been argued that the advent of information technologies has largely eliminated these issues because it now "makes little difference

where in the world the buyer and the seller or user and provider are located, as long as their computers are linked together through modern communications systems" (Feketekuty and Hauser 1985, 7).

My own view is that this argument needs to be qualified. The enhanced tradability of services is partly offset by a quality-uncertainty problem that arises because of the *intangible nature* of services. Contrary to most goods where buyers can rely on physical attributes to judge the quality of a product, with services it is reputation that plays an overriding role in the selection of suppliers. To be sure, uncertainty about product quality is a feature of markets for many goods, but services are "[v]irtually all . . . impossible to evaluate until they are used" (Shapiro 1982, 20). There is a continuum of services from highly tangible ones (almost goods-like) to highly intangible ones. For instance, most insurance services are highly intangible, while routine transportation services tend to be very tangible. The more intangible the service, the more its market structure tends to be characterized by nonprice competition.

The reputation of producing a quality product is also the major intangible asset of service firms. As discussed in the vast literature on multinational enterprises (for recent surveys, see Caves 1982; Dunning and Rugman 1985; and Teece 1985), the possession of intangible assets creates an incentive to sell in foreign markets in order to maximize the rent that can be gained. Although this is equally true for both goods and services, there is a fundamental difference between the two. In the case of most goods, intangible assets owned by producers are embodied in the physical attributes of the product. However, for service activities the product itself is intangible. Therefore, goods do not generally require consumers to be close to producers for ascertaining quality and can be exported to foreign markets. In contrast, services generally require such a close interaction between producers and consumers that they must often be produced in the markets where they are consumed.

Several authors have noted that service firms often become multinational in order to follow their customers (see Caves 1982 and references cited therein). Service firms tend to acquire an intangible asset: a quasi-contractual relation with their customers "based on trust that lowers the cost of contracting and the risks of opportunistic behavior. If the service firm has such a quasi-contractual relation with a parent MNE (Multinational Enterprise), it enjoys a transactional advantage for supplying the same service to the MNE's foreign subsidiaries" (Caves 1982, 11).

The more intangible a service, the more difficult it is to export, especially to an unrelated party. This proposition has two implications. First, the principle of comparative advantage might not apply to highly intangible services in the sense that the country with the lowest pro-

duction cost might not be able to export a service for which it lacks reputation. Second, the degree of tangibility of a service determines the channel for possible trade flows. The less intangible it is, the more likely it is that international trade will consist of arm's-length transactions between unrelated parties. Conversely, the more intangible a service, the more trade will tend to flow through intrafirm channels. In other words, the more intangible the service, the more transborder data flows can be expected to take place outside the international market place and within multinational firms. An important policy implication is that, contrary to what might have been expected, transborder data flows have *not* eliminated the issues of "rights of establishment" and "national treatment," but they have changed the nature of the service establishment that is required to conduct business in a foreign country.

9.3 Telecommunications Services

9.3.1. Telecommunications Services as an Infrastructure

To what extent do telecommunications services serve as an intermediate input for other industries in the economy? In principle, the answer could be obtained from input-output tables that provide interindustry linkages. However, in most countries (particularly in Europe), telephone and postal services are jointly operated so their activities cannot be distinguished in input-output tables.

The United States, where the businesses of telephone and postal services are totally unrelated, is an exception. Consequently, one can use the 1977 input-output table of the U.S. economy (disaggregated into 537 industries) to estimate the role of telecommunications services as an infrastructure input in the United States.

Table 9.1 shows that the telecommunications sector sells 44 percent of its output to intermediate users. The bulk of this demand comes from service industries: "wholesale and retail trade," "finance and insurance," "business services," and "health, education, etc.," account for over 50 percent of the output sold to industrial users.

Table 9.2 examines the "telecommunications intensity" of various industries—that is, the direct requirements of telecommunications services per dollar of industry output—of the various industries. The table reports only on industries with requirements of one percent or more. Service industries are obviously the largest relative users of telecommunications inputs. In the case of "business services" and "finance and insurance," inputs of telecommunications services are about 2 percent of output and over 5 percent of intermediate inputs.

Table 9.1 **Distribution of the Telecommunications Sector's Output, 1977 (millions of dollars)**

Total demand	52,868
Total intermediate demand	23,404
Wholesale and retail trade	5,584
Finance and insurance:	2,523
Banking	933
Credit agencies	356
Brokers	311
Insurance carriers	531
Insurance agents	392
Business services:	2,619
Computer services	272
Consulting services	287
Legal services	374
Other business services	1,686
Health, education, etc.	1,868
Total final demand	29,464

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Detailed Input-Output Structure of the U.S. Ecomony, 1977*, (Washington, D.C.: Government Printing Office, 1984).

Table 9.2 **Telecommunications Service Inputs as Share of Total and Intermediate Inputs in Selected Sectors (in percent)**

Sector	Share of Total Inputs	Share of Intermediate Inputs
Amusements	1.00	2.07
Automobile services	1.10	2.33
Printing and publishing	1.20	2.26
Health, education, etc.	1.20	3.30
Hotels	1.40	3.90
Wholesale and retail trade	1.50	5.26
Communications services	1.80	9.00
Business services:	1.90	7.20
Computer services	(1.83)	(8.02)
Consulting services	(2.09)	(6.19)
Legal services	(1.82)	(9.14)
Other business services	(1.97)	(7.19)
Finance and insurance:	2.00	5.08
Banking	(2.07)	(6.84)
Credit agencies	(3.81)	(6.28)
Brokers	(3.51)	(9.76)
Insurance carriers	(1.12)	(2.10)
Insurance agents	(2.11)	(12.56)

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Detailed Input-Output Structure of the U.S. Economy, 1977*, (Washington, D.C.: Government Printing Office, 1984).

It appears from these tables that telecommunications services, although required by nearly every industry, are used primarily by service industries. They are not only among the main customers of telecommunications services, but also exhibit the highest degree of telecommunications intensity.

This conclusion applies to international as well as to domestic activities. International transactions in services primarily involve transborder data flows, either as a service activity per se (usually as interfirm flows), or as an infrastructure input for other services (generally as intrafirm flows). Therefore the expansion of international service transactions depends crucially on the existence of an efficient telecommunications network.

9.3.2. International Telecommunications Services; Institutional Framework

Until recently, there has been a consensus among countries that telecommunications services are provided most efficiently within a country by a monopoly. The only difference in viewpoints was over what form of organization would ensure that the monopolist behaved in society's best interest: either a regulated private firm (as in the United States and a handful of other countries) or a government-owned organization (as the PTTs in Europe and most other countries).

The key to the belief that a monopoly was needed was that each country shared the same technology, and that this technology was evolving at a relatively slow pace. The monopoly principle was also extended from domestic to international markets. In effect, the international market for telecommunications services became, and largely still is, a cartel of national monopolies that share the same technology and offer the same services. As one observer has noted, this market structure has prevented telecommunications services from being traded. "Far from encouraging countries to exchange different services, it instead has ensured that all countries produce the same services. The capability of producing these services has then been *shared* among all countries, not traded" (Reid 1985, 18).

In recent years, this traditional concept of the international telecommunications network has been disturbed by a rapid succession of innovations in information technologies. The resulting challenge to the traditional view has come almost entirely from the United States, where the innovations have led to a series of changes in the regulatory environment. As a result, the structure of the U.S. telecommunications market has shifted during the past decade from a regulated monopoly toward one with intense interfirm competition. The more rapid changes in technology and regulatory policy in the United States have created

several imbalances in the international network, with consequences for trade in telecommunications equipment and services.

9.3.3. Trade Policy Issues in Telecommunications Services

The traditional network offered homogeneous public telecommunications services accessible to all those with the requisite hardware. However, the development of new information technologies and computer-to-computer data communications created specific needs for which the public network was ill-suited. In response to a need for transborder data flows, countries agreed to provide private leased lines that offered certain services not available on public networks (for example more reliable and faster services—see Ergas 1984). As indicated by Antonelli (1984), private leased lines are particularly effective channels for intrafirm transborder data flows that rely on standardized or compatible hardware and software. "Moreover, leased lines guarantee greater appropriability and thus greater security for regular ongoing flows of information among [MNE] headquarters and affiliates" (Antonelli 1984, 337). In contrast, for transborder data flows between unrelated parties (relying on heterogenous hardware and software), the use of public networks is more appropriate, provided that they can supply sufficiently high-quality data communications.

Outside of the United States, private leased lines are provided under conditions that preserve the monopoly character of telecommunications. They must be denied at any time if they infringe on the services available on the public network. In particular, the use of private leased lines is limited to subscribers, who are then prohibited from reselling telecommunications services.

The rule requiring that leased lines be used solely for the subscriber's internal communications has been challenged by the emergence of new services that combine computer processing and telecommunications. In order to preserve the spirit of the rule, a distinction was drawn between services that primarily involve computer processing—data-processing and data-base services—and those that engage mostly in data transmission, referred to as *enhanced* or *value-added services,* such as electronic mail, videotext, and protocol conversion. Under the interpretation adopted in most countries, the rule forbids the use of private leased lines for providing enhanced services.

The situation is quite different in the United States, where present regulatory conditions distinguish between two types of communications services: basic services, which only transmit information through the telecommunications network, and enhanced services, which also modify that information. Basic services are provided by monopolies subject to regulations; enhanced services are provided by suppliers in com-

petition with each other who have unrestricted access to private leased lines and who can resell their unused transmission capacity.

Therefore the previous consensus among countries has given way to a disagreement about the extent to which telecommunications services should be competitive. The United States and the European PTTs hold opposite views on this matter, the latter arguing for a monopoly that would supply both basic and enhanced services.

This lack of international consensus is hampering the emergence of trade in (enhanced) telecommunications services. As Reid (1985) concludes, "the development of trade is a two-step process; first a variety of services must be allowed to emerge within individual countries, then these services must be permitted to be sold internationally" (p. 35).

An illustration of the type of dispute that has arisen because of the lack of a consensus in telecommunications is the disagreement between the United States and Germany on Bundespost restrictions on the use of private leased lines for transborder data flows. The Bundespost forces firms to link their private leased lines to public data networks, requires that data processing occur in Germany before such data is transmitted across international leased lines, and charges usage-sensitive rates, in addition to fixed charges, on some international leased lines. The German position is that the Bundespost must maintain its monopoly over *all* telecommunications services in order to provide them most efficiently (the natural monopoly argument) and protect its revenues (the cross-subsidization or social equity argument). On the other hand, the United States maintains that the German policy encourages inefficiency and violates the 1985 Declaration on Transborder Data Flows by which OECD (Organization for Economic Cooperation and Development) members pledged to promote international data flows.

The natural monopoly issue has raised considerable debate in Europe concerning U.S. deregulatory and divestiture experience. Some (mostly PTT officials) view this experience with skepticism because of regulatory confusion and the deterioration of universal service. Others (many officials of the EC Commission and the British government) would like to follow the U.S. lead toward increased competition on the grounds of better and cheaper services and the stimulation of innovation. But, so far, there is no serious study of the production characteristics of the European telecommunications industry that could help reveal whether or not the natural monopoly argument is appropriate.

However, there are studies of the rate structure in Europe. A recent analysis shows that substantial welfare losses result from the practice by the Bundespost of setting prices for local and long distance calls at 10 and 140 percent, respectively, above marginal costs. The huge profits arising from these telecommunications services are used to cover def-

icits from postal activities and as revenue sources for the general government budget (see Neumann, Schweizer, and von Weizsäcker 1985).

Particular trade disputes between Europe and America on telecommunications services are part of a wider issue. The unanimous international consensus in favor of monopoly organizations for providing national telecommunications services has been shattered by rapid changes in information technology. The challenge facing the two trading blocs will be to develop a new consensus on the international provision of telecommunications services, taking account of the new technological environment.

9.4 Conclusions

This paper has argued that telecommunications services are the cornerstone of a new information technology that can transform the scope and nature of international trade in services. Depending upon whether services are more or less intangible, their enhanced tradability is likely to involve intrafirm or arm's-length information flows. In either case, an efficient telecommunications network needs to be established, drawing lessons from the U.S. experience that allows more competition in the provision of both services and equipment. The alternative for Europe and other areas is to be left behind, not only in telecommunications services but also in many other service activities.

One conclusion of this study is that *domestic* policy changes—breaking up domestic monopolies in services and equipment—rather than new *international* rules, hold the key to international competition and trade in telecommunications services. This has important implications for the multilateral trade negotiations on services launched at Punta del Este in September 1986.

In almost all countries, services are more regulated by the government than most other activities. It is generally thought that the very nature of services necessitates regulating entry into the industry in order to achieve optimal economic efficiency or other national objectives. There are two reasons why free entry might result in wasteful allocations of resources. First, the intangible nature of many services (banking, engineering, insurance, etc.) requires the imposition of minimum standards in order to prevent welfare losses to consumers arising from low-quality services. Second, the production characteristics of some services (communications, transport, etc.) implies that excessive competition might be detrimental to welfare because of an inefficient scale of operation.

Although government regulations of services are imposed for purely domestic reasons, they may also have repercussions on international

transactions. Rules aimed at protecting consumers make it very difficult, if not impossible, for foreign corporations to obtain "rights of establishment" or to be granted "national treatment." In principle, all matters involving discriminatory practices could be dealt with by extending existing GATT rules to services. But the main problem is the rights-of-establishment issue, which is not covered by these rules.

Another instance is when national regulatory practices—although they might be nondiscriminatory—diverge sufficiently to prevent international transactions from occurring, as in telecommunications services. Here the issues are primarily domestic matters involving regulatory philosophies. This point has been recognized by the ministerial declaration of Punta del Este which indicates that rules for trade in services must respect the policy objectives of national laws and regulations. However, it remains to be seen how much progress can be achieved along such lines by the 92 GATT signatories. It might be, instead, that negotiations involving regulatory issues would be better conducted, for the moment, among countries that share common economic situations and principles. The OECD, therefore, might be a more appropriate forum for such negotiations.

References

Antonelli, Cristiano. 1984. Multinational firms, international trade, and international telecommunications. *Information Economics and Policy* 1:333–43.

Bhagwati, Jagdish. 1985. Trade in services and developing countries 10th Annual Geneva Lecture delivered 28 November at the London School of Economics.

Caves, Richard E. 1982. *Multinational enterprise and economic analysis*. Cambridge: Cambridge University Press.

Deardorff, Alan V. 1984. Comparative advantage and international trade and investment in services. Paper presented at a conference on Current Issues in Trade and Investment in Service Industries: U.S.-Canadian Bilateral and Multilateral Perspectives, 19–20 October, Ann Arbor, Michigan.

Dunning, John H., and Alan M. Rugman. 1985. The influence of Hymer's dissertation on the theory of foreign direct investment. *American Economic Review* 75: 228–32.

Ergas, Henry. 1984. Monopoly and competition in the provision of telecommunications services. In *Changing Market Structures in Telecommunications*, ed. H. Ergas and J. Okayama. Amsterdam: North-Holland.

Feketekuty, Geza, and Kathryn Hauser. 1985. The impact of information technology on trade in services. Office of the U.S. Trade Representative. Mimeo.

Hill, T. P. 1977. On goods and services. *The Review of Income and Wealth* 23: 315–38.

Neumann, Karl-Heinz, Urs Schweizer, and C. Christian von Weizsäcker. 1985. Welfare analysis of telecommunications tariffs in Germany. In *Public Sector Economics*, ed. J. Finsinger. New York: St. Martin's Press.

Porter, Michael E., and Victor E. Millar. 1985. How information gives you competitive advantage. *Harvard Business Review,* 63: 149–60.
Reid, Ann. 1985. Trade in telecommunications services: The current institutional framework and the potential for change. Committee for Information, Computer and Communications Policy, ICCP(85)12, OECD, Paris.
Rosenberg, Nathan. 1982. *Inside the black box: Technology and economics.* Cambridge: Cambridge University Press.
Sampson, Gary P., and Richard H. Snape. 1985. Identifying the issues in trade in services. *The World Economy* 8: 171–81.
Shapiro, Carl. 1982. Consumer information, product quality, and seller reputation. *Bell Journal of Economics* 13: 20–35.
Teece, David J. 1985. Multinational enterprise, internal governance, and industrial organization. *American Economic Review* 75: 233–38.

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