

**PROMOTING COMPETITION PIECEMEAL  
IN INTERNATIONAL TELECOMMUNICATIONS**

**OPP WORKING PAPER 13**

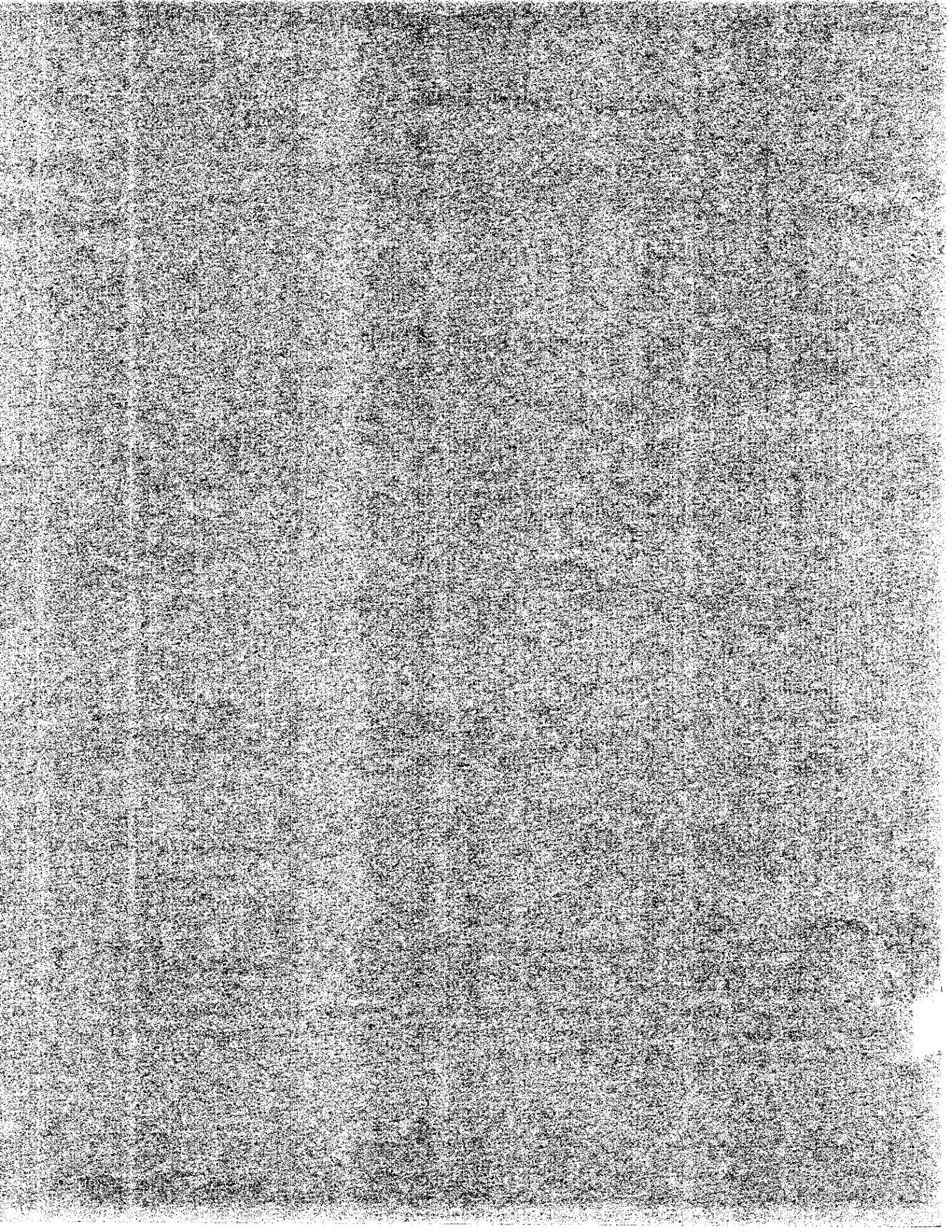
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**December 1984**

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The opinions and conclusions expressed in this paper are those of the author. They do not necessarily reflect the policies or views of the Federal Communications Commission or any other organization or individual. I wish to thank Peter Pitsch, Tom Spavins, Gerald Brock, Kenneth Gordon, John Haring, Florence Setzer, Willard Demory, Stuart Chiron, Colleen Boothby, Laurence Povich, Lee Tien, and Brent Weingardt for comments and suggestions; and Michele Harding and Patricia Shipley for assistance in data collection.



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PROMOTING COMPETITION PIECEMEAL  
IN INTERNATIONAL TELECOMMUNICATIONS

Executive Summary

This paper discusses the need to consider the impact of growth in competition in international telecommunications on the U.S.'s relationship with foreign telecommunications authorities. Increased competition among U.S. suppliers of international telecommunications services could result in a reduction in the U.S.'s share of the benefits from such services unless the U.S. government takes appropriate action.

Foreign governments generally delegate the responsibility for the provision of all telecommunications and postal services to a single government agency or public corporation. These public sector monopolies are referred to as administrations of posts, telegraph, and telephones (PTTs). All countries exercise control over international access by requiring an operating agreement of any carrier wishing to establish a communications link from abroad. Operating agreements specify the type of service to be provided and the terms for sharing revenues with the PTT.

The paper develops a theoretical model of piecemeal competition under the assumption that the FCC permits free entry into the U.S. segment of international telecommunications but plays no role in establishing the terms

of the operating agreements U.S. firms negotiate with foreign PTTs. In this theoretical model, promoting competition among U.S. suppliers of international telecommunications may do nothing more than shift profits abroad. Competition for a component of an international telecommunications service will tend to drive the price of that component down to cost. But the price of the total service may remain the same if some other essential component of the service is controlled by a monopolist. The PTTs have a monopoly on access and may be willing to exercise their market power in order to provide revenues to subsidize domestic telephone and postal rates.

Five qualifications to this theoretical conclusion are considered. The essence of the first three qualifications is that competition may increase economic efficiency. With a "bigger pie" the U.S. may gain even if its share of the pie shrinks. But it is also quite possible that competition may so reduce the U.S. share of the pie that the U.S. ends up with less. In particular, the paper suggests that: (1) Competition would increase economic efficiency if prior to its introduction U.S. and foreign suppliers had failed to cooperate in setting prices. Specifically, if prices of individual components of end to end service were set above the level that would maximize joint profits, free entry into all services supplied by U.S. firms would lower the price of international communications to U.S. consumers. U.S. firms, however, would see their profits shifted abroad. (2) If telecommunication services are not homogeneous products, introducing competition would increase product diversity. Efficiency would increase only if the increase in product diversity is not excessive. (3) Eliminating



rate base regulation and removing regulatory barriers to entry may induce firms to reduce their production costs. Rate base regulation could be removed, however, without allowing free entry.

The fourth and fifth qualifications concern the behavior of PTTs and the FCC. Specifically, the paper argues that: (4) PTTs may choose not to use increased competition among U.S. firms to increase their share of the international telecommunications profits. The high tariffs PTTs have traditionally charged and the attempts by certain PTTs to force U.S. firms to bid against one another for new operating agreements suggest, however, that at least some PTTs would be likely to exploit the opportunity for greater profits created by increased competition among U.S. firms. (5) The FCC "uniform settlement rates policy," which was designed to prevent a PTT from playing competing U.S. carriers off against one another, may reduce but cannot eliminate the PTTs' ability to control prices.

The theoretical analysis of the paper is applied to five international common carrier policy issues facing the FCC: (1) FCC approval of entry by additional U.S. carriers, (2) intermodal competition, (3) private international satellite and cable systems, (4) direct access to INTELSAT, and (5) ownership of U.S. international earth stations.

The paper concludes that the entire benefits from allowing entry by additional U.S. carriers may be captured by PTTs unless the FCC takes appropriate actions to strengthen the U.S.'s bargaining position in the

international settlements process. PTTs are less likely, however, to capture the full benefits of allowing freer entry into the provision of the services discussed in the second through fifth issues, i.e., international transmissions facilities. A reduction in the price of international circuits is likely to result in some reduction in the price of end to end service because Comsat does not appear to be acting in concert with U.S. carriers and foreign PTTs to maximize joint profits. That is, the first qualification discussed above applies to this situation.

Major policy options are examined. The most promising would be to promote competition among U.S. firms but strengthen the FCC's power to counter the resulting increase in market power accruing to foreign telecommunications authorities. The FCC could counteract the loss of bargaining power of U.S. firms by increasing its oversight of international accounting rate agreements. This option would allow the U.S. consumer to benefit from lower markups over cost and greater product diversity while preventing foreign PTTs from "whipsawing" U.S. firms into accepting unfavorable terms of trade. Under this option, foreign PTTs would have to satisfy a representative of overall U.S. interests, but U.S. consumers would have a choice of providers.

# Promoting Competition Piecemeal in International Telecommunications

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December 1984

## I. INTRODUCTION

In recent years the United States has been pursuing a policy of promoting competition in common carrier telecommunications. The greatest changes have occurred in the domestic market. The most dramatic of these changes was AT&T's divestiture of its local operating companies. The international market has been changing as well. Until this year AT&T was the only company providing international message telephone service. Now several new competitors are entering the market. The dominance of a single firm in the provision of international satellite services may soon end as well. Communications Satellite Corporation (Comsat) is currently the sole provider of satellite circuits linking the U.S. with other countries. Orion and other private firms are seeking the right to launch private satellites and lease international satellite circuits in competition with Comsat.

A strong case can be made for deregulating the domestic interexchange

market.<sup>1</sup> The argument is premised on the assumption that the government will assure all interexchange carriers cost based access to local exchange facilities. Competition is not expected to replace regulation in preventing local exchange carriers from exploiting their market power. In the international market, however, the U.S. government does not have such regulatory authority over similar bottlenecks. The position of foreign telecommunications authorities (relative to U.S. carriers who wish to interconnect) is analogous to that of U.S. local exchange carriers (relative to interexchange carriers) except that foreign telecommunications authorities are not subject to the jurisdiction of any U.S. governmental body. If promoting competition in the international market is to be in the U.S. interest some mechanism must be developed to prevent foreign telecommunications authorities from using such competition to extract undue concessions from U.S. international carriers.

The remainder of the paper is organized as follows. The second section provides background information on the international telecommunications market. The third section makes the general theoretical argument that there are no benefits to be had from promoting competition for a single component of a product when another essential component is supplied by a monopolist.

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1 See Cornell, Kelley, and Greenhalgh (1980); and Kelly (1982).

In the case at hand, the product is international telecommunications and the monopolized component is access to foreign countries. The fourth section considers the implications of relaxing some of simplifying assumptions used in the third section. The fifth section applies the analysis of the third section to specific policy issues facing the FCC. The sixth section considers several general policy options to the address the problem raised in the third section. The final section provides conclusions and recommendations.

## II. BACKGROUND

Foreign governments generally delegate the responsibility for the provision of all telecommunications and postal services to a single government agency or public corporation. These public sector monopolies are referred to as administrations of posts, telegraph, and telephones (PTTs). All countries exercise control over international access by requiring an operating agreement of any carrier wishing to establish a communications link from abroad. Operating agreements specify the type of service to be provided and the terms for sharing revenues with the PTT.

In the United States international telecommunications is provided by the private sector, but statutes and regulations have traditionally limited competition by restricting firms to specific segments of the market. For example, a 1943 amendment to the Communications act prohibited Western Union from providing international service. Western Union divested its international services and accepted this restriction in exchange for the right to acquire its only competitor in the provision of domestic service. Another artificial barrier was created by the 1964 FCC decision to forbid AT&T from providing international record (data, telex, telegraph) service. This restriction protected the international record carriers (IRCs) from competition by AT&T.<sup>2</sup> In recent years Congress and the Commission has been

reversing such anti-competitive policies. In 1982 the FCC eliminated the regulatory segmentation of the voice and record markets, allowing AT&T to enter the record market and the IRCs to enter the voice market.<sup>3</sup> In 1981 Congress enacted the Record Carrier Competition Act of 1981. This allowed Western Union to re-enter the international record market and facilitated the entry of the IRCs into the the domestic record market.<sup>4</sup>

AT&T is still the predominant supplier of international message telephone service although MCI, GTE, and SBS are beginning to enter the market in several countries in competition with AT&T.<sup>5</sup> The other "international" voice carriers serve offshore U.S. points and do not compete directly with

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2 TAT-4 decision, 37 FCC 1151 (1964). The major international record carriers include ITT World Communications Inc., RCA Global Communications Inc., Western Union International, FTC Communications Inc., and TRT Telecommunications Corp.

3 TAT-4 Revisited, FCC 82-547 (December 1982).

4 47 U.S.C. Sec. 222 (1981).

5 Canada approved proposals by SBS, GTE/Sprint, and MCI to provide long distance services between the U.S. and Canada beginning in September. Tucker (July 10, 1984, p. D7). GTE/Sprint and MCI each negotiated operating agreements with the United Kingdom to begin long distance telephone service between the U.S. and the U.K. early in 1985. Telecommunications Reports (Oct. 22, 1984, p. 14). MCI also reached an agreement with the Belgian PTT which enables it to provide service to Argentina, Belgium, Brazil, East Germany, Greece, and the United Arab Emirates. Furthermore, MCI has reached operating agreements for service to Australia, Singapore, and Spain. TR (Oct. 22, 1984, p. 14). In all other countries only AT&T has the right to provide voice service with the U.S.

AT&T. These carriers include Hawaiian Telephone Co., All America Cables and Radio Inc. (serving Puerto Rico), ITT Communications - Virgin Islands, and Cuban American Tel. & Tel.

Tables 1 through 4 are helpful in assessing the size and composition of the international telecommunications market. Table 1 compares AT&T's domestic long distance telephone messages and revenue with its international messages and revenue. In 1982 the international market was 7.6 percent the size of the domestic market as measured by the number of calls. The overseas market, which is the international market excluding Canada and Mexico, was 3.6 percent the size of the domestic market when measured in the same way. It is not possible to compare total international revenue with domestic long distance revenue because AT&T does not report revenue data for Canada and Mexico. Overseas revenue, however, was 7.5 percent of domestic long distance revenue, over double the percentage as measured by number of calls.

Table 2 examines AT&T's overseas message telephone service (MTS) in greater detail. It shows the effect of the international settlements process on AT&T's revenues. The settlements process refers to the division of revenues between carriers for international switched message services, e.g. MTS, telex, and telegraph. Through bilateral negotiations carriers agree on a per minute price for access to each others domestic network. The FCC requires that a U.S. carrier pay the same price for access ("terminating messages") to a given foreign PTT that it charges the PTT for access here.



Table 1

**AT&T MESSAGE TELEPHONE SERVICE  
COMPARISON OF INTERNATIONAL AND DOMESTIC MESSAGES AND REVENUES\***

	1979	1980	1981	1982
<b>MESSAGES (millions)</b>				
Canada	153.40	164.63	190.08	194.78
Mexico	36.03	44.18	52.71	62.37
Overseas	122.74	166.29	200.36	225.44
Total International	312.17	375.10	443.15	482.59
U.S. Offshore	62.06	74.68	86.64	**
Domestic Long Distance	5641.79	6065.51	6388.84	6345.11
Total Long Distance	5953.96	6440.60	6831.98	6827.70
Overseas % of Domestic	2.2%	2.7%	3.1%	3.6%
International % of Domestic	5.5%	6.2%	6.9%	7.6%
<b>REVENUE (\$ billions)</b>				
Overseas	0.91	1.33	1.24	1.20
Domestic Long Distance***	11.45	12.71	14.68	16.02
Overseas % of Domestic	7.9%	10.5%	8.4%	7.5%

\* All data except overseas revenues are from AT&T, Long Lines Statistics (April 1983). Overseas revenues are "net revenue" from Table 2. This is AT&T's overseas tariff revenue plus settlements receipts AT&T received from PTTs minus settlements payments AT&T paid to PTTs.

\*\* U.S. offshore messages were included with domestic messages in 1982. AT&T defines offshore points as Alaska, Hawaii, Puerto Rico, and Virgin Islands.

\*\*\* This includes only interstate long distance revenues because the AT&T Long Line Statistics do not include intrastate long distance revenues. It should also be noted that AT&T included U.S. offshore revenues with domestic revenues in 1982.

Table 2

AT&T OVERSEAS MESSAGE TELEPHONE SERVICE\*  
1979-1982

	1979	1980	1981	1982
<b><u>Revenues and Payouts**</u></b>				
(\$ millions)				
tariff revenue	1124.6	1592.7	1610.8	1704.3
foreign receipts	470.4	563.1	613.0	748.5
foreign payouts	683.4	827.0	986.5	1250.3
net revenue	911.6	1328.8	1237.3	1202.5
<b><u>Percent of Tariff Revenue</u></b>				
foreign payouts	61%	52%	61%	73%
net foreign payouts	19%	17%	23%	29%
net revenue	81%	83%	77%	71%
<b><u>Minutes</u></b>				
(millions)				
outbound	631.9	792.1	973.1	1228.6
inbound	397.3	470.3	652.1	790.2
<b><u>Per Outbound Minute</u></b>				
(\$/minute)				
tariff rev.	1.78	2.01	1.66	1.39
foreign payouts	1.08	1.04	1.01	1.02
retained tar. rev.	0.70	0.97	0.64	0.37
<b><u>Per Inbound Minute</u></b>				
(\$/minute)				
foreign receipts	1.18	1.20	0.94	0.95

\* The table was derived from data contained in FCC, Common Carrier Statistics (1979, 1980, 1981, and 1982 editions), Table 15. Data for Mexico and Canada were not reported to the FCC and are thus not included in overseas revenues shown here. Overseas service is usually defined to include data for United States offshore points. These points are Alaska, Hawaii, Puerto Rico, U.S. Virgin Islands, and Guam. Traffic with these points were excluded here because this paper focuses on the relationship between U.S. carriers and telecommunication authorities not under U.S. jurisdiction.

\*\* The definitions of "foreign receipts" and "foreign payouts" are from the perspective of the United States. Foreign receipts are settlements payments from foreign PTTs to AT&T for terminating calls originating abroad. Foreign payouts are settlements payments from AT&T to foreign PTTs for terminating calls originating in the U.S.

Table 3

UNITED STATES CARRIERS  
OVERSEAS TELEX\*  
1979-1982

	1979	1980	1981	1982
<u>Revenues and Payouts**</u>				
(\$ millions)				
tariff revenue	314.0	323.7	347.5	359.5
foreign receipts	158.8	181.5	180.2	194.9
foreign payouts	147.6	169.1	179.3	186.4
net revenue	325.2	336.1	348.4	368.0
<u>Percent of Tariff Revenue</u>				
foreign payouts	47%	52%	52%	52%
net foreign receipts	4%	4%	0%	2%
net revenue	104%	104%	100%	102%
<u>Minutes</u>				
(millions)				
outbound	113.7	130.6	152.1	158.8
inbound	129.3	148.3	166.4	176.6
<u>Per Outbound Minute</u>				
(\$/minute)				
tariff revenue	2.76	2.48	2.28	2.26
foreign payouts	1.30	1.29	1.18	1.17
retained tar. rev.	1.46	1.18	1.11	1.09
<u>Per Inbound Minute</u>				
(\$/minute)				
foreign receipts	1.23	1.22	1.08	1.10

\* This table was derived from data contained in FCC, Common Carrier Statistics (1979, 1980, 1981, and 1982 editions), Table 27. Traffic with Mexico, Canada, Alaska, Hawaii, Puerto Rico, U.S. Virgin Islands, and Guam were not included. See footnote 1, Table 2 for further explanation.

\*\* The definitions of "foreign receipts" and "foreign payouts" are from the perspective of the United States. Foreign receipts are settlements payments from foreign PTTs to U.S. record carriers for terminating messages originating abroad. Foreign payouts are settlements payments from U.S. record carriers to foreign PTTs for terminating calls originating in the U.S.

Table 4

COMPARISON OF OVERSEAS MTS AND TELEX  
NET REVENUES AND FOREIGN SETTLEMENTS\*  
(\$ millions)  
1979-1982

	1979	1980	1981	1982
<b>OVERSEAS MTS**</b>				
net revenue	911.6	1328.8	1237.3	1202.5
net foreign payouts	213.0	263.9	373.5	501.8
<b>OVERSEAS TELEX***</b>				
net revenue	325.2	336.1	348.4	368.0
percent of MTS	36%	25%	28%	31%
net foreign receipts	11.2	12.4	0.9	8.5
percent of MTS	5%	5%	0%	2%
<b>TOTAL</b>				
net revenue	1236.8	1664.9	1585.7	1570.5
net foreign payouts	201.8	251.5	372.6	493.3

\* The table was derived from Tables 2 and 3. As in those tables, traffic with Mexico, Canada, Alaska, Hawaii, Puerto Rico, U.S. Virgin Islands, and Guam were not included. As in Tables 2 and 3, "foreign payouts" and "foreign receipts" are defined from the perspective of the United States. Payouts are from U.S. carriers to foreign PTTs and receipts are from PTTs to U.S. carriers.

\*\* Revenue and payouts by AT&T.

\*\*\* Revenue and receipts of U.S. record carriers.

The settlements process, including this regulatory requirement, will be discussed in greater detail later in the paper. Given the uniform price for access, a carrier whose outbound minutes exceed its inbound minutes will make net settlements payments to its corresponding foreign carrier. Table 2 indicates that for overseas MTS AT&T's outbound minutes consistently exceeded its inbound minutes, resulting in net payments by AT&T to foreign PTTs. Table 3 performs the same analysis for U.S. telex carriers. In the case of telex, inbound minutes exceeded outbound minutes, so PTTs made net settlements payments to U.S. carriers.

Table 4 compares net revenues and settlements for overseas MTS and overseas telex. For all years shown in the table net MTS revenues were significantly greater than net telex revenues, despite the fact that the net amount AT&T paid to foreign PTTs greatly exceeded the net amount PTTs paid U.S. telex carriers. For example, in 1982 net telex revenues were 31 percent of net MTS revenues, while net settlements receipts by U.S. telex carriers were only 2 percent of the net settlements payouts made by AT&T to foreign PTTs. Considering both the MTS and telex markets, U.S. carriers paid out 493 million dollars in settlements payments to foreign PTTs.

Tables 2 and 3 also present data on revenues, payouts, and receipts per minute of traffic. First consider Table 2. The most striking trend was the decline in overseas MTS tariff revenue per outbound minute. Between 1980 and 1982 it fell from \$2.01 per minute to \$1.39. The tariff revenue

per outbound minute is the average price per minute AT&T billed U.S. customers for overseas calls. The decline reflects tariff reductions by AT&T in February and July of 1981. Rates were cut further in May 1984 so the downward trend should continue. Foreign payouts per minute remained approximately constant over the same period. The payout per minute is the average price AT&T must pay foreign PTTs for access to their domestic networks. Subtracting the foreign payouts per minute from tariff revenue per minute gives AT&T's retained tariff revenue per outbound minute. Because tariff revenue per minute fell while payouts per minute remained constant, retained revenue per outbound minute fell from \$.97 in 1980 to \$.37 in 1982.

Foreign receipts per inbound minute of telephone service also fell somewhat during the period 1980 to 1982. This is the average price foreign PTTs paid AT&T for terminating calls in the United States. The first question one might ask is why foreign receipts per inbound minute are not the same as foreign payouts per outbound minute given that on a country by country basis the price AT&T pays for terminating its calls abroad is the same price it charges PTTs for terminating foreign calls here. The answer is that what holds true country by country need not hold true for the average over countries given that the price of access varies across countries. The second question is why foreign receipts per inbound minute fell while foreign payouts per outbound minute remained approximately constant. This could reflect either changes in the distribution of outbound and inbound

minutes across countries with different prices of access or changes in the price of access across countries with different ratios of outbound to inbound minutes. For example, an increase in the number of inbound minutes from a country with a lower than average price of access would lower the foreign receipts per inbound minute without affecting foreign payouts per outbound minute.

An examination of Table 3 shows a downward trend in telex tariff revenue per outbound minute. Foreign payouts and foreign receipts per minute also fell slightly, perhaps indicating a reduction in the price of international access. Since telex traffic inbound to the U.S. exceeds traffic outbound, such a reduction in the price of access would be undesirable from the viewpoint of U.S. telex carriers.

### III. A THEORETICAL MODEL OF PROMOTING COMPETITION PIECEMEAL

This section makes the theoretical argument that promoting competition among U.S. firms may only shift profits abroad because foreign PTTs have a monopoly on access to their domestic networks. Competition for a component of an international telecommunications service will tend to drive the price of that component down to cost. But the price of the total service may remain the same if some other essential component of the total service is controlled by a monopolist. In this case PTTs have a monopoly on access and appear quite willing to exercise their market power in order to provide revenues to subsidize domestic telephone and postal rates. This conclusion raises questions about the wisdom of deregulating U.S. providers of international telecommunication services without taking into account the possible reactions of foreign telecommunications authorities.

Promoting competition among firms supplying the U.S. component of international telecommunications services is analogous to promoting competition among manufacturers of hammer handles when the manufacture of hammer heads is controlled by a monopolist. Handles and heads are used in fixed proportions in the production of hammers. Each hammer requires exactly one head. Likewise, each minute of international telephone conversation requires one minute of access to a foreign telephone network.



For simplicity of exposition assume that the head and the handle are assembled by the customer. (The results would be the unchanged if the handle manufacturer also assembled the hammers). Suppose initially that government regulation limits the right to manufacture hammer handles to a single firm. It would be in the interest of the two firms in this "bilateral monopoly" to collude with each other so that the total price of hammers would be at the level that would maximize the profits of an integrated monopoly manufacturer of hammers. The individual prices of handles and heads would be the outcome of bargaining between the two firms and would determine the division of profits between them. But assuming that handles and heads are used only to manufacture new hammers, the customer would not care about the individual prices of handles and heads. Now suppose the government eliminates the regulatory barrier to manufacturing handles and there are no significant economies of scale in the production of handles. Competition will drive the price of handles to the marginal cost of production but will not benefit the consumer of hammers because the head monopolist will raise the price of heads to keep the price of hammers at the monopoly level. The firm with the monopoly on heads might even decide to produce handles himself and thus become a vertically integrated hammer manufacturer. But there would be no gain to doing so if the market for handles were perfectly competitive since handles would be supplied at marginal cost. "Any monopoly profits to be earned from controlling the manufacture of hammers could be captured by control of one essential component of hammers, such as the heads" (Posner, 1971, p.31).

The same reasoning suggests that if the FCC succeeded in creating perfect competition among U.S. international carriers, users would still pay monopoly rates but all the monopoly profits would be captured by the PTTs. Under these circumstances, a PTT could acquire access to the U.S. domestic network at cost, but could set the fees for access to its network at monopoly levels. Foreign callers would pay high rates because the PTTs would be setting the charges for calls originating abroad, and U.S. callers would pay high rates because U.S. carriers would need to set high rates to cover the high cost of access to foreign networks.

#### IV. QUALIFICATIONS

The foregoing analysis was simplified in several respects. It assumed that absent free entry, U.S. and foreign suppliers would collude to maximize joint profits, that the final product is a homogeneous good, that U.S. firms minimize the cost of producing a given output, and that PTTs would choose to exploit competition among U.S. firms. The discussion also did not take account of the FCC's uniform settlements policy, which is designed to prevent a PTT from playing competing U.S. carriers off against one another. Under these simplifying assumptions introducing competition would have no effect on economic efficiency; it would only alter the distribution of profits: Under bilateral monopoly, profits are divided between the U.S. firm and the PTT. Under pure competition among U.S. firms, all the economic profits would be shifted to the PTT. The final output price and quantity produced would be the same under either market structure given that these assumptions hold. Whether these conclusions still hold if the simplifying assumptions are altered will now be considered.

##### A. Competition May Increase Economic Efficiency

###### 1. Competition May Lower Output Prices

The first qualification is that competition among U.S. suppliers of international telecommunications may benefit U.S. consumers if the U.S. carrier and the PTT were not maximizing their joint profits prior to the introduction of competition. If the U.S. carrier and the PTT did not successfully collude, each might set such a high price for its component of

the service that the sum of the prices of each component would be above the level that would maximize the profit of a single supplier of the total service. In this case competition would reduce the price consumers pay for end to end service to the level that would maximize the profit of a single supplier of the total service. That is, the reduction in the price of the component for which competition was introduced would not be fully offset by an increase in the price of the component which continued to be monopolized.<sup>6</sup> While competition under these circumstances would make U.S. users of international telecommunications better off it would also make U.S.

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6 This qualification can be illustrated in terms of the preceding hammer example. It can be shown that output is lower and the total price higher when each firm maximizes its profits taking the other's price as given (i.e. acts as is postulated in a "Cournot" model of oligopoly pricing) instead of colluding to maximize joint profits. Suppose that the two firms failed to appreciate their mutual interdependence, and that the handle maker set his price taking the price of heads as fixed, and the head maker did the same taking the price of handles as fixed. The head maker would see customers as willing to pay a price for heads equal to the maximum amount these customers would pay for hammers minus the price of handles. Analogously the handle maker would see his derived demand as the market demand for hammers minus the price of heads. The head maker firm acting as a monopolist would choose an output so that  $MR - P_j = MC_i$ , where  $MR$  is the marginal revenue associated with hammers,  $P_j$  is the price of handles and  $MC_i$  is the marginal cost of heads. The price he would wish to charge would be the price on his derived demand curve associated with this output. This price would exceed marginal cost. That is  $P_i > MC_i$ . Analogous conditions would hold for the handle maker. At the Cournot equilibrium each firm must be producing the same number of units of output and charging the profit maximizing price given the price the other firm is charging. In contrast the condition for maximizing joint profits is  $MR = MC_i + MC_j$ . The output which satisfies these conditions must be greater than the output satisfying the Cournot conditions since under the Cournot solution  $MR = MC_i + P_j > MC_i + MC_j$ , and the marginal revenue curve must cut the marginal cost curves from above at a profit maximizing solution.

suppliers of such services worse off. The reduction in profits to U.S. firms may or may not be greater than the benefits to U.S. consumers. Economic efficiency, however, would increase since prices would be lower and total world profits would be greater.

This qualification may be more germane to introducing competition in the supply of international circuits than in international common carrier service. U.S. international carriers and PTTs cannot provide international communications without mutual cooperation. Given this fact, collusion between a single U.S. carrier and PTTs is a very likely outcome. In contrast, Comsat is not essential to the provision of telephone and record service. U.S. carriers and PTTs have the option of using their own underseas cables. Since cooperation with Comsat is not essential, collusion is a less likely outcome. The desire of carriers to build TAT-8, a high capacity fiber optic submarine cable between the U.S. and Europe, despite apparently large amounts of excess satellite capacity, suggests that the carriers and Comsat are not acting like an integrated monopolist. Thus introducing competition with Comsat may reduce the price consumers pay for end to end international service. With vigorous competition for this input, the price for end to end service would be likely to fall to the level charged by a fully integrated monopolist. It should be noted that the same benefits could be achieved by allowing carriers to own and operate international satellites. If carriers could own these facilities they would face the true cost of using satellite circuits as opposed to the marked up

price charged by Comsat. In this case as well, the price of end to end service would fall to that charged by a fully integrated monopolist.

## 2. Competition May Increase Product Diversity

The second qualification is that introducing competition for components of a telecommunication service may increase welfare by increasing product diversity. For example, allowing competitive entry into the provision of earth stations may allow certain customers to obtain a design better suited to their needs. The vertical integration literature can be used to analyze this issue if one is willing to assume that a single U.S. carrier (or a small number of U.S. carriers acting as a cartel) would collude with PTTs to price the final service at approximately the level that would be set by a fully integrated monopolist. Several recent theoretical papers conclude that vertical integration reduces product diversity.<sup>7</sup> That is, product diversity is greater when the final product is supplied by a monopolistically competitive industry which buys an input from a monopolist than when the input monopolist vertically integrates and becomes the sole supplier of the final product. Perry and Groff (1983) conclude that a vertically integrated monopolist will generally provide too little product diversity and that economic efficiency is generally greater under monopolistic competition.

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7 See Dixit (1981), and Perry and Groff (1983).

Dixit-(1981), however, using a slightly different theoretical model of monopolistic competition concludes that product diversity would be excessive under monopolistic competition and that welfare would be higher under a vertically integrated monopolist. Thus the theoretical literature offers no unambiguous conclusion about whether the increase in product diversity resulting from introducing competition is desirable.

### 3. Eliminating Regulation May Reduce Production Costs

The third qualification is that introducing competition among U.S. firms could reduce production costs. This would ultimately benefit U.S. users to the extent that PTTs do not offset these savings by increasing their charges for access. A regulated monopoly may not cost minimize because rate base regulation may distort its incentives or because the absence of pressure from competitors may permit managerial slack.<sup>8</sup> For example, some have claimed that Comsat has not been providing earth station services in the least costly manner.<sup>9</sup> They argue that for many users small specialized earth stations would be less costly than Comsat's huge general purpose earth

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8 See Averch and Johnson (1962) and Liebenstein (1966).

9 See "Earth Station Ownership" Notice of Proposed Rulemaking, FCC 84-122, Common Carrier Docket No. 82-540 (Released April 20, 1984).

stations. It should be noted that the distortion induced by rate base regulation could be corrected by ending such regulation and substituting either unregulated competition or an unregulated monopoly.

B. PTTs May Choose Not to Exploit Competition Among U.S. Firms

The fourth qualification is that the PTTs might not fully exploit the opportunity to profit from increased competition among U.S. firms. Since PTTs are either government agencies or public corporations it may not be appropriate to assume that they seek to maximize the profit from their international services. Examining the historical record of PTT behavior may be helpful in addressing this issue.

The conventional wisdom is that PTTs set high telecommunications rates to provide revenues to subsidize their postal services.<sup>10</sup> Table 5 shows that in March 1981 the international telephone rates to the U.S. exceeded those from the U.S. for fifteen out of the seventeen European countries listed in the table. The average dialed call charge per additional minute during peak hours was \$2.66 to the U.S. and \$1.99 from the U.S. The average rate from Europe exceeded the rate from the U.S. by 34 percent. The same general conclusion holds when comparing weighted averages, where each country's tariff is weighted by its share of total minutes. Weighted in this way, the

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<sup>10</sup> See U.S. Government Accounting Office (1983, p. 15).



Table 5

INTERNATIONAL DIALED CALL CHARGES  
PEAK HOURS  
COST PER ADDITIONAL MINUTE  
1981

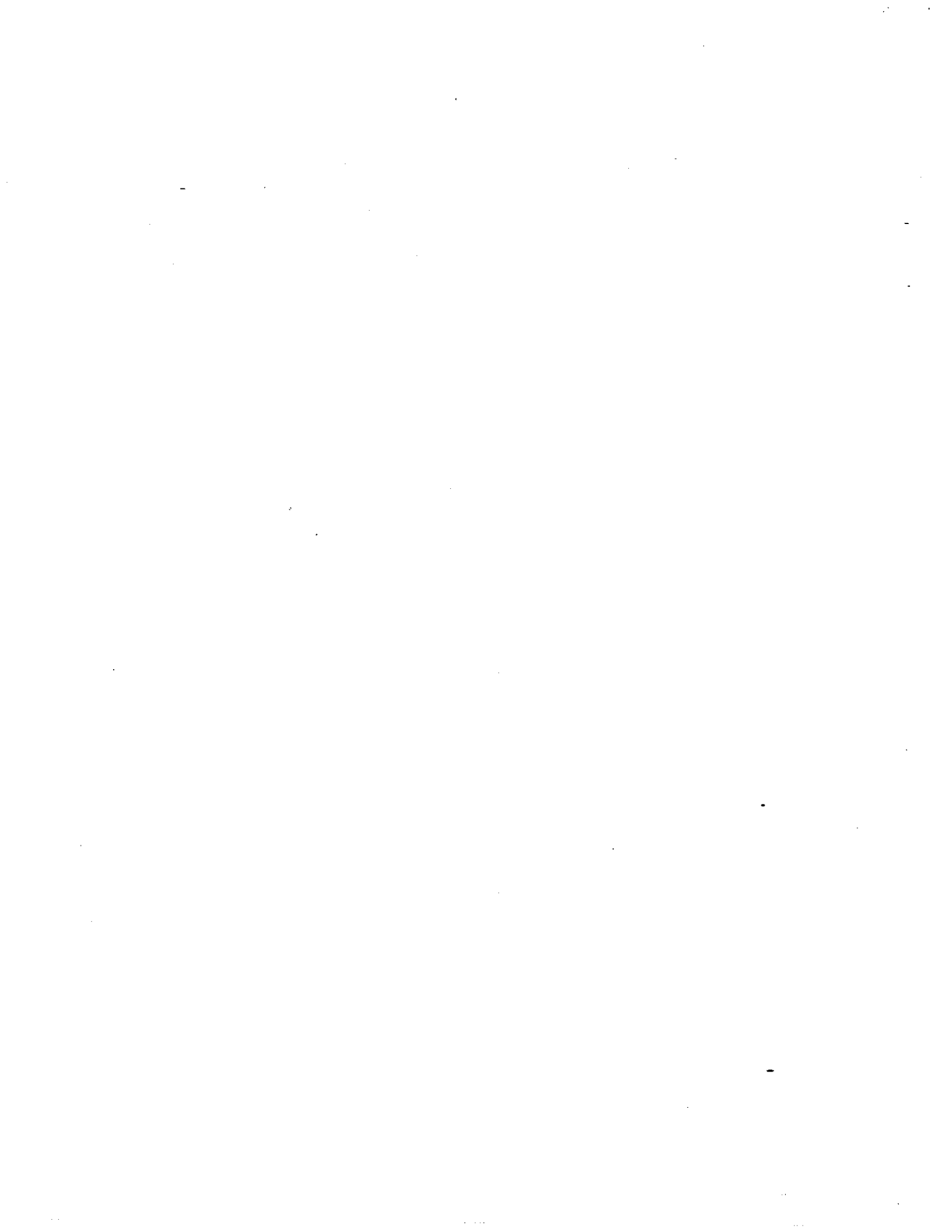
Country	TARIFF TO U.S.*	TARIFF FROM U.S.**	PERCENTAGE DIFFERENCE IN TARIFFS	% OF TOTAL MINUTES TO U.S.***	% OF TOTAL MINUTES FROM U.S.
Austria	\$2.73	\$2.05	33.3%	1.0%	1.1%
Belgium	\$3.50	\$2.05	70.9%	2.6%	2.6%
Denmark	\$2.89	\$2.05	41.1%	1.0%	1.1%
Finland	\$2.43	\$2.05	18.7%	0.4%	0.4%
France	\$2.44	\$2.05	19.0%	10.0%	8.8%
German FR	\$3.51	\$2.05	71.1%	15.4%	22.4%
Greece	\$1.78	\$2.05	-13.3%	5.2%	3.5%
Ireland	\$1.79	\$1.55	15.5%	1.6%	2.0%
Italy	\$1.92	\$2.05	-6.3%	8.1%	8.2%
Luxembourg	\$3.29	\$2.05	60.2%	0.2%	0.2%
Netherlands	\$2.81	\$2.05	36.8%	4.6%	3.5%
Norway	\$3.53	\$2.05	72.3%	1.8%	1.4%
Portugal	\$2.48	\$2.05	20.9%	0.6%	0.9%
Spain	\$3.27	\$2.05	59.3%	2.6%	2.8%
Sweden	\$2.36	\$2.05	15.0%	3.2%	2.1%
Switzerland	\$2.81	\$2.05	36.8%	4.0%	4.4%
UK	\$1.78	\$1.55	14.7%	<u>37.7%</u>	<u>34.6%</u>
				100%	100%
AVERAGE	\$2.66	\$1.99	33.8%		
WTD. AV.****	\$2.37	\$1.87	26.7%		

\* Tariffs in effect March 1981. Tarifica (1981).

\*\* Tariff in effect February 8, 1981 to July 15, 1981. From June 6, 1980 to February 7, 1981 the rate was \$2.10 to Continental Europe and \$1.60 to U.K. and Ireland. On July 16, 1981 the tariff was cut 35%, reducing the rate to \$1.35 for direct dialed calls to Continental Europe and \$1.00 to U.K. and Ireland. Currently (effective May 25, 1984), the rate to Europe is \$1.25 and \$1.18 to U.K. and Ireland. AT&T Tariff No. 263.

\*\*\* In 1981 there were 365 million minutes to the U.S. from the listed countries and 469 million minutes from the U.S. to these countries. FCC, Common Carrier Statistics (1981 edition), Table 15.

\*\*\*\* Each country's tariff is weighted by its share of total minutes for the listed countries.



average tariff to the U.S. was \$2.37 and from the U.S. \$1.87. The weighted average is lower because the rates to and from the U.K. are lower than for the Continent and Britain had over a third of the traffic to and from the seventeen countries in the table. The weighted average tariff to the U.S. exceed the tariff from the U.S. by 27 percent. In July of 1981 the tariff from the U.S. to Europe was cut 35 percent across the board. After this cut, the weighted average tariff from the U.S. to these European countries was \$1.22. Assuming no changes in the European tariffs, the weighted average tariff from Europe exceed this average U.S. tariff by 95 percent.

It is worth noting that there was a significant amount of variation across countries in the tariff to the U.S. For example, the rate from Germany to the U.S. exceeded the rate in the reverse direction by 71 percent, while the rate from the U.K. to the U.S. exceeded the rate in the reverse direction by only 15 percent. Given that the cost of providing a transatlantic call is unlikely to vary greatly across European countries, this variation in tariffs suggest that countries differ in the degree to which they have chosen to exercise their market power.

The persistence of rates of return above competitive levels would be strong evidence that PTTs are exercising their monopoly power. There are no direct data on the PTTs' rates of return on overseas telephone service. But an inference can be drawn from the fact that AT&T has found overseas telephone service highly profitable. In 1979, AT&T's rate of return (the ratio of net

operating earnings to investment) was 36.5 percent for overseas MTS service.<sup>11</sup> Under the reasonable assumption that the cost of providing service is approximately the same in both directions one need only show that the revenues of the overseas telecommunications authorities exceeded those of AT&T in order to conclude that these overseas correspondents were on average earning a substantial rate of return on overseas telephone service.

Table 6 provides such evidence. The table compares AT&T's net overseas message telephone service revenue with two estimates of the revenue accruing to the foreign PTTs that jointly provide this service with AT&T. The tariff revenue received by AT&T's "foreign correspondents" was estimated by multiplying the number of minutes originating abroad by an estimate of

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11 U.S. GAO (1983, p.7). 1979 was the last year AT&T was required to separately report its rate of return on overseas MTS. Overseas service (as opposed to international service) is generally defined as service between the lower 48 states and the rest of the world excluding Canada and Mexico. Under this definition Alaska, Hawaii, Puerto Rico, the Virgin Islands, and Guam are considered overseas points. Excluding Alaska, Hawaii, Puerto Rico, the Virgin Islands, and Guam (as was done in Tables 2, 3, 4, and 6) would almost surely have increased the reported rate of return. The basis for this conclusion is that both retained tariff revenue per outbound minute and foreign receipts per inbound minute were greater when these points were excluded, and the average cost per minute of serving these points is unlikely to be below that of the average for serving other overseas points. For example, in 1982 the retained tariff revenue per outbound minute was \$.37 when these points were excluded and \$.30 when included, and foreign receipts per inbound minute was \$.95 excluding these points and \$.62 including them.

Table 6

COMPARISON OF U.S. AND FOREIGN REVENUES  
OVERSEAS MESSAGE TELEPHONE SERVICE\*  
1979-1982

	1979	1980	1981	1982
U.S. (AT&T)				
tariff revenue (\$ millions)	1124.6	1592.7	1610.8	1704.3
net foreign payouts (\$ m.)	213.0	263.9	373.5	501.8
net revenue (\$ m.)	911.6	1328.8	1237.3	1202.5
min. originating (millions)	631.9	792.1	973.1	1228.6
tariff rev./min.	1.78	2.01	1.66	1.39
FOREIGN (PTTs)				
min. originating (millions)	397.3	470.3	654.1	790.2
<u>Case 1: assume foreign revenue/minute exceeds U.S. level by 27%</u>				
estimated tariff rev./min.	2.26	2.55	2.10	1.76
estimated tariff revenue (\$ m.)	898	1201	1375	1392
estimated net revenue (\$ m.)	1111	1465	1749	1894
<u>Case 2: assume foreign revenue/minute exceeds U.S. level by 95%</u>				
estimated tariff rev./min.	3.47	3.92	3.23	2.71
estimated tariff revenue (\$ m.)	1379	1844	2111	2138
estimated net revenue (\$ m.)	1592	2108	2485	2639
U.S. SHARE OF NET REVENUE				
Case 1	45%	48%	41%	39%
Case 2	36%	39%	33%	31%

\* The table was derived from data in Table 2. As in that table, traffic with Mexico, Canada, Alaska, Hawaii, Puerto Rico, U.S. Virgin Islands, and Guam were not included.



the average tariff revenue per minute.

Two cases were considered. For case one it was assumed that foreign revenue per minute exceeded the U.S. level by 27 percent, the amount the weighted average tariff to the U.S. was found to exceed the tariff from the U.S. in March 1981 for the countries considered in Table 5. For case two it was assumed that foreign revenue per minute exceeded the U.S. level by 95 percent, the percentage difference after the 35 percent AT&T rate cut in July 1981. The net revenue accruing to foreign correspondents was found by adding together the estimated tariff revenue and the net settlement receipts paid by AT&T.

The estimated net revenues received by the foreign correspondents exceeded AT&T's for all cases considered. In 1979, the year AT&T reported a 36.5 percent rate of return on overseas MTS, the net revenue of the foreign correspondents exceeded AT&T's by 22 percent for case one, and 75 percent for case two. Another way to present this information is terms of the U.S. share of the combined U.S. and foreign net revenue from overseas MTS. In 1979 the U.S. share of the net revenue was 45 percent under case one, and 36 percent under case two. For 1982 the corresponding figures are 39 percent, and 31 percent respectively.

An examination of a recent incident provides further insight into the likely reaction by PTTs to increased competition among U.S. firms providing

international telecommunications services. In June of 1982, Nordtel, an association of the PTTs of Denmark, Finland, Iceland, Norway, and Sweden, sent identical letters to seven U.S. international service carriers (USISCs). The letters requested that the firms submit bids for providing new data services between the U.S. and the countries represented by Nordtel. The bids were to include the terms for dividing revenues between the USISC and the PTT. Nordtel proposed to award operating agreements to one or a limited number of carriers based on the competing bids. Shortly after the Nordtel letters were sent, the PTTs of the Benelux countries (Belgium, Netherlands, and Luxembourg) made a similar proposal to the same USISCs.<sup>12</sup> The Nordtel and Benelux proposals are examples of PTTs attempting to increase their monopoly profits by forcing USISCs to compete for operating agreements. The PTTs were unsuccessful in this particular effort because of a strong negative reaction by the FCC and the State Department.<sup>13</sup>

The foregoing discussion suggests that at least certain PTTs will attempt to exploit the opportunity for greater profits created by increased competition among U.S. firms. This conclusion, however, appears inconsistent with the fact that few foreign countries have granted multiple

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12 See U.S. OMB (Dec. 8, 1982).

13 See Pearce (1983) for a discussion of the actions taken by the FCC and State Department.



operating agreements for international switched voice service.<sup>14</sup> Granting additional operating agreements would appear to strengthen the bargaining position of a PTT vis-a-vis U.S. carriers.

One possible answer is that the managers of PTTs may be more concerned about their personal work load than about profit levels. Certainly it is administratively easier to deal with a small number of established carriers rather than a great number of carriers including many new ones. These managers might incur substantial adjustment costs adapting to a new environment. Another possibility is that PTTs fear that if they allowed multiple entry and then tried to exercise their market power, the U.S. Government would react in some unfavorable way. PTTs may not want to take this chance given the high profits they are currently earning. They may also fear that new carriers would undermine their policy of price discrimination. Currently there is a substantial volume discount implicit in the price of private lines relative to the charges for switched message service. New entrants, with no market share to lose, might be more likely than AT&T to resell private line service as message telephone service.

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14 See footnote 5.

C. Current FCC Policies May be Adequate to Prevent PTTs From Exercising Their Market Power

The fifth qualification is that the analysis failed to take into account the FCC's policy of requiring U.S. international carriers to obtain its approval of the terms of their operating agreements. Before describing the requirements that the FCC has placed on operating agreements under its "uniform settlement rates policy," it is helpful to define several terms. These terms apply to the process for dividing revenues for international switched message services, e.g., international MTS, telex, and telegraph.

The collection rate is the price a carrier charges users in its country for its service. This is also referred to as the tariff rate. The carrier originating a call generally shares the revenue generated by the call with the carrier terminating the call.

The accounting rate is a negotiated rate carriers use instead of the collection rate in dividing revenues. While the collection rate varies depending on which end originates a call, there is a single accounting rate between two points. The accounting rate and the terms for dividing it determine the price each carrier must pay the other to terminate messages. For example, if the accounting rate were \$1.00 per minute and it were divided 50-50, the U.S. carrier would have to pay the PTT \$.50 for each minute of calls originating in the U.S. and similarly, the PTT would have to pay the U.S. carrier \$.50 per minute of calls originating abroad. In other

words, the price of access to each other's domestic network is \$.50.

The settlement rate is the rate for converting currencies in settling accounts. These terms do not apply to private leased channel services. For these services the U.S. carrier and its foreign correspondent both establish separate charges for their share of the facilities. This means that the total charge for renting a private line is the sum of the charges established by the PTT and the U.S. carrier.

To prevent PTTs from "playing competing international record carriers (IRCs) against each other," the Commission has required that all operating agreements must: (1) provide for an equal division of the accounting rate between the U.S. carrier and the foreign PTT, and (2) specify the same accounting and settlement rates for the same services on parallel routes. These two requirements are collectively referred to as the "uniform settlement rates policy."<sup>15</sup>

In theory, the equal division requirement could constrain a PTT's market power. This requirement limits the share of the total revenue a PTT can

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<sup>15</sup> 66 FCC 2nd 359 (1977) and 84 FCC 2nd 121 (1980). This policy has been applied only to IRCs. Heretofore there has been no competition in the international voice market. Whether these policies should be applied to the international MTS market is currently being considered by the FCC.

obtain when the net traffic flow is into the U.S. The best a PTT can do in this situation is to set a zero accounting rate and thus make no payments to U.S. carriers. Without the requirement, the accounting rate could be divided so that a PTT could receive net payments from U.S. carriers even though the net traffic flow was into the U.S. However, we observe no zero accounting rates so the constraint appears to have made no difference (i.e., it is not binding).<sup>16</sup> When the net traffic flow is out of the U.S., as with international MTS, the terms for dividing the accounting rate do not have the potential to constrain a PTT. In this case U.S. carriers are making net payments to the PTT. The PTT can extract the same total revenue from U.S. carriers regardless of the terms for dividing the accounting rate by demanding a sufficiently high accounting rate.<sup>17</sup>

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<sup>16</sup> Western Union International, Telex response to section 43.53 of the FCC rules, June 1, 1984. RCA Global Communication Corporation, Telex response to section 43.53 of the FCC rules, January 1, 1984. ITT World Communications, Telex response to section 43.53 of the FCC rules, May 1, 1984. FTC Communications, Telex response to section 43.53 of the FCC rules, September 1, 1982. TRT Telecommunications, Telex response to section 43.53 of the FCC rules, March 1, 1983. There is one minor exception to the broad statement that there are no cases of a zero accounting rate. Western Union International has a sender keep all arrangement with Canada and Mexico. This arrangement, however, is a result of network design and not market power of the Canadians or Mexicans. Apparently the arrangement evolved because there is no inexpensive way to monitor the messages going to and from these countries given the way WUI's network is set up.

<sup>17</sup> This assumes that the accounting rates do not affect the pricing decisions of the carriers or that demand is highly inelastic.

The second FCC requirement makes it more difficult for a PTT to move gradually to more advantageous settlements terms. Under the policy that all U.S. firms must have the same accounting rates on parallel routes, a PTT can not demand revisions in operating agreements firm by firm. This FCC policy also prevents a new entrant from accepting less favorable terms. But the policy does not prevent a PTT from forcing its demands on all firms at once. If a PTT wants a greater share of the international communications revenues it can do so despite the requirement by threatening to terminate the operating agreements of those carriers who refuse to accept its new terms. With competition among U.S. carriers, at least one carrier will accept the new terms as long as the terms provide positive profits.

A PTT forcing U.S. record carriers to simultaneously change their accounting rate agreements is not merely a theoretical possibility. For example, in 1975 TRT, a small U.S. international record carrier, negotiated a reduced accounting rate with the British PTT. The new rate was \$1.75 per minute, while the prevailing accounting rate for telex traffic between the U.S. and the U.K. was \$2.25 per minute.<sup>18</sup> A lower rate would have favored the U.K. because it was sending four million more telex minutes to the U.S. than it was receiving from the U.S. The Commission rejected the new accounting rate because if it were allowed to go into effect the Commission reasoned that

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18 66 FCC 2d 359 (1977) p. 360.

the U.K. could "whipsaw" the other carriers into accepting the unfavorable rate. Despite the Commission's rejection of TRT's accounting rate, the U.K. was eventually able to get the other carriers (ITT Worldcom, RCA, and WUI) to accept a lower accounting rate by threatening them with termination of their telex operating agreements.<sup>19</sup>

While the uniform accounting rate policy can not prevent PTTs from exercising their market power it may increase the difficulty of doing so. When U.S. carriers are simultaneously confronted by a PTT they may be more likely to cooperate to resist the demands. If the carriers successfully cooperate, a PTT would be unable to find a carrier willing to accept the new terms. Unfortunately, any policy that inhibits entry and fosters collusion against the PTTs makes collusion against U.S. consumers easier and thus tends to vitiate the advantage of having several "competing" firms.

The uniform accounting rate requirement appears somewhat more useful in constraining PTTs when considered in conjunction with the 50-50 division requirement. Without the uniformity requirement a PTT could evade the 50-50 division requirement by sending all its traffic to the U.S. via carriers with which it negotiated a low accounting rate and receiving most of its traffic from carriers with which it negotiated a high rate. In this way it

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19 Povich (1980, p. 8).

would pay a low rate for terminating its messages in the U.S. and receive a high rate for accepting messages from the U.S.

#### D. Summary of Qualifications

In summary, none of the five qualifications are inconsistent with the conclusion that promoting competition for components of international telecommunications services is likely to harm U.S. interests in the long run if the U.S. takes no action to counteract the market power of foreign PTTs. The essence of the first three qualifications is that competition may increase economic efficiency. With a "bigger pie" the U.S. may gain even if its share of the pie shrinks. But it is also quite possible that competition may so reduce the U.S. share of the pie that the U.S. ends up with less. In particular it was found that: (1) Competition would lower the price of international communications to U.S. consumers if prior to its introduction U.S. and foreign suppliers had failed to cooperate and had set prices for their components above the level that would maximize their joint profits. In this case, free entry into all services supplied by U.S. firms would unambiguously increase efficiency, but U.S. firms would see their profits shifted abroad. (2) If telecommunication services are not homogeneous products, introducing competition would increase product diversity. Efficiency would increase only if the increase in product diversity is not excessive. (3) Eliminating rate base regulation and removing regulatory barriers to entry may induce firms to reduce their production costs. Rate base regulation could be removed, however, without

allowing free entry.

The fourth and fifth qualifications concerned the behavior of PTTs and the FCC. Specifically, it was argued that: (4) PTTs may choose not to use increased competition among U.S. firms to increase their share of the international telecommunications profits. The high tariffs PTTs have traditionally charged and the attempt by the Nordtel and Benelux PTTs to extract monopoly rents from U.S. firms suggest, however, that at least some PTTs would be likely to exploit the opportunity for greater profits created by increased competition among U.S. firms. (5) The FCC "uniform settlement rates policy" may reduce but cannot eliminate the PTTs' ability to exercise their market power.

The fact that firms such as MCI wish to enter international MTS market is not inconsistent with the view that PTTs will be able to capture the benefits from competition if the FCC fails to respond. The new U.S. entrants may believe that if PTTs attempt to exploit the competition among them the FCC will in fact put pressure on the PTTs. These firms might expect the FCC to ultimately act as a cartel manager and divide up the current U.S. share of the market among several colluding carriers. Alternatively they may believe that the FCC will not take countermeasures but that profits are large enough to make entering the market worthwhile as long as the PTTs take some time to respond. In any case, the fact that firms wish to enter does not necessarily imply that total U.S. benefits will



increase because these new entrants do not take into account the lost profits of the incumbent firm, AT&T.

## V. APPLICATION TO SPECIFIC ISSUES FACING THE FCC

This section considers the following five international common carrier policy issues facing the FCC: (1) FCC approval of entry by additional U.S. carriers, (2) intermodal competition, (3) private international satellite and cable systems, (4) direct access to INTELSAT, and (5) ownership of U.S. international earth stations. For the first issue the entire benefits of increased competition may be captured by PTTs unless the FCC takes appropriate actions to strengthen the U.S.'s bargaining position in the international settlements process. PTTs are less likely, however, to capture the full benefits of allowing freer entry into the provision of the services discussed in the second through fifth issues. As argued in the "qualifications" section of the paper, a reduction in the price of international circuits is likely to result in some reduction in the price of end to end service because Comsat does not appear to be acting in concert with U.S. carriers and foreign PTTs to maximize joint profits.

### A. FCC Approval of Entry by Additional U.S. Carriers

The Commission makes a decision in favor of competition each time it allows an additional carrier to enter a market. The FCC has recently granted MCI authority (under section 214 of the Communications Act) to acquire and operate the necessary facilities to provide switched voice services between the U.S. and Australia, Canada, and Belgium. MCI also has an application pending for the authority to serve U.K. The FCC also has authorized SBS to

serve U.K., Italy, Hong Kong, the Netherlands, and Canada. Finally, GTE/Sprint has been authorized to serve Canada, and its applications to serve U.K. and Australia are pending.<sup>20</sup>

The Commission need not limit itself to authorizing requests for providing international service. It could actively pursue policies designed to induce PTTs to issue additional operating agreements. Whether a proliferation of U.S. international carriers will ultimately serve U.S. interests depends in large part on whether the Commission is able to develop policies that prevent PTTs from using competition among U.S. carriers to increase their share of international telecommunications revenues. Such policies will be discussed in the policy options section of the paper.

## B. Promoting Competition in the Provision of International Facilities

### 1. Intermodal Competition

In the past the FCC has not promoted "intermodal" competition between satellite and cable facilities. In particular the FCC's "balanced loading,"

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<sup>20</sup> FCC Common Carrier Bureau, International Facilities Division, November 15, 1984. Note that receiving FCC authorization to provide service does not assure that a carrier will also receive an operating agreement from a PTT and vice versa. Thus the list of FCC authorizations is not the same as the list of operating agreements in footnote 5. It should also be pointed out that carriers do not need section 214 authorization for transiting agreements, e.g. MCI needs such authorization to serve Belgium but it does not need it to serve additional points reached via Belgium.

"composite rate," and "authorized user" policies have acted to administratively divide up the market between satellite and cable interests.

The FCC circuit loading policies have guaranteed cable and satellite facilities market shares. The current policy is "balanced loading," which is designed to allocate traffic equally among all facilities. Under this policy, new facilities are allocated all new traffic until they are carrying the same amount of traffic as existing facilities. Once this level is reached additional traffic is allocated equally among all facilities that have not reached capacity.<sup>21</sup>

The "composite rate" policy has bolstered the balanced loading policy by removing the incentive of end users to have their communications travel by the least costly mode. Under the composite rate policy carriers base their charges on the average cost of cable and satellite circuits for a route, regardless of which type facility is in fact used. It should be noted that the FCC did not order the use of composite rates. Rather, it sanctioned their use as a means of meeting its requirement that tariffs reflect cost savings from the use of satellite facilities.

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<sup>21</sup> See "Policies for Overseas Common Carriers," 82 FCC 2d 407 (1980) p. 431, n. 18.

On July 26, 1984 the Commission issued a Notice of Inquiry concerning its circuit loading policy. The three options it presented were: continuing to apply the balanced loading formula, developing a new FCC loading formula, or issuing no FCC loading formula but requiring carriers to submit their loading plans to the FCC.

These steps suggest that the Commission is moving incrementally towards removing the regulatory barriers to competition between international cable and satellite transmission facilities. Intermodal competition has the potential to lower the price of using these facilities. Without the FCC allocating traffic between cables and satellites, the owner of these facilities might begin cutting prices to keep them filled. If, as discussed in the section on qualifications, Comsat and carriers have not been colluding to maximize joint profits, carriers will perceive a reduction in the price of international satellite circuits as a reduction in their

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24 90 FCC 2d 1394 (1982) p. 1425. In a recent decision, the U.S. Court of Appeals found that the FCC failed to "consider adequately a number of relevant factors prior to implementing its Authorized User II policy." Accordingly the court vacated the decision and remanded it to the FCC, (ITT v. FCC, D.C. Cir., Jan. 13, 1984). On April 30, 1984 the Commission released a Further Notice of Proposed Rulemaking in this docket soliciting additional public comments on the factors the Court deemed relevant, namely, the Commission's decisions in the Direct Access and Earth Station Ownership proceedings.

Under the Authorized User I policy, Comsat has been forbidden from directly serving end users (with the exception of a few large customers designated as authorized users).<sup>22</sup> This has reduced competition in the market for international carrier services and made Comsat more dependent on AT&T, the originator of over 80 percent of Comsat's traffic and the primary owner of the competing cable facilities. Absent such restrictions, it is conceivable that Comsat would use price cuts to compete for at least private line customers.

The Commission addressed all three of these issues in Authorized User II.<sup>23</sup> In that decision the Commission ended the policy of restricting Comsat to being a "carrier's carrier." It also made composite rates discretionary for the IRCs and moved toward reducing the FCC's role in prescribing use of cable and satellites. Regarding the circuit loading issue, the Commission stated that "as a matter of policy we shall not guarantee either cable or the satellite medium any particular share of the market." But, the Commission chose not to end its role in allocating circuits immediately, saying that the new policy "does not mean, however, that we can or should remove ourselves entirely from the question of facilities planning or use especially in the near term."<sup>24</sup>

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22 4 FCC 2d 421 (1966).

23 90 FCC 2d 1394 (1982).

marginal cost and will therefore reduce the prices they charge end users. PTTs may partially offset any price reductions on the U.S. segment of international facilities by raising the cost of access to their countries. But they will not fully offset the reduction if they have been taking Comsat's price per circuit as their marginal cost of using its facilities.

## 2. Private International Satellite and Cable Systems

Orion Satellite Corporation, International Satellite Inc., and others have proposed private transatlantic satellite systems that would compete with the INTELSAT satellite system and with cable facilities. All international satellites accessed by U.S. carriers are owned and operated by the International Satellite Telecommunications Organization. Comsat, a private corporation created by Congress, is the sole U.S. partner in INTELSAT. Two private transatlantic fiber optic cable systems have been proposed as well. In its application to the FCC, Submarine Lightwave Cable Co. stated that its proposed cable would have twelve times the capacity of the TAT-8 fiber optic cable under construction by AT&T and its European correspondents.<sup>25</sup> Removing artificial barriers to the entry of private satellite and cable systems would greatly improve the chances for competition among international transmission facilities.

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25 Telecommunications Reports (October 22, 1984, pp. 12-13).

One must consider the possibility that PTTs have the potential to appropriate any gains from such competition by negotiating new accounting rates less favorable to the U.S. But as argued above, they will not appropriate all the gains if, prior to the introduction of competition, the suppliers of the various components of international service were not acting as if they were a single integrated monopolist.

### 3. Direct Access to INTELSAT

In Docket No. 82-548 the Commission considered whether to grant U.S. international carriers direct access to INTELSAT satellites. Under existing FCC policy, U.S. carriers wishing to use the INTELSAT space segment must lease circuits from Comsat. Direct access would eliminate Comsat's role as the middleman. In a Report and Order adopted March 30, 1984, the Commission decided not to change the current arrangement. Some carriers are petitioning the Commission to reconsider its decision.

The arguments made in section three of the paper raise questions about whether direct access by itself will benefit end users if other bottlenecks remain in the provision of end to end international telecommunications services. But, as argued above, whether direct access will benefit U.S. end users depends on whether the suppliers of the various components of international telecommunications have been acting like a fully integrated monopolist. If, as is plausible, Comsat has not been acting jointly with U.S. and foreign carriers, a reduction in the rental rate of satellite



circuits is likely to translate into a reduction in the price of end to end service.

#### 4. Ownership of U.S. International Earth Stations

On April 20, 1984 the Commission released a Notice of Proposed Rulemaking in Docket No. 82-540 proposing to allow individual carriers to own and operate earth stations accessing INTELSAT satellites. Currently U.S. INTELSAT earth stations are jointly owned by the Earth Station Ownership Consortium (ESOC). Comsat owns 50 percent of ESOC and carriers own the remainder in approximate proportion to their usage. Under the proposal Comsat would be required to unbundle its tariffs into separate space segment and earth station components. Competition in the market for earth station services has the potential to drive the price of these services to cost and to allow greater diversity in the design of earth stations. But such competition may offer little benefit to end users if Comsat charges a sufficiently high price for use of the space segment. The qualification about suppliers of separate inputs not acting to maximize joint profits would not apply in this case because Comsat has been controlling both earth stations and the space segment. If, however, the Commission is successful in assuring that the space segment is priced at cost, (either by permitting entry or through regulation) end users would be likely to benefit for the same reason they would benefit from intermodal competition, entry of competing satellite and cable systems, or direct access to INTELSAT.

## VI. POLICY OPTIONS

It has been argued above that promoting competition among U.S. providers of international telecommunications services without taking account of the resulting loss of market power of these U.S. firms vis-a-vis PTTs is not a desirable option. There are two major alternatives to this course. The first would be to limit provision of international telecommunications to a single provider. Under this arrangement the structure of U.S. provision of international services would be similar to that abroad, except that the single U.S. firm need not be a government entity. The second alternative would be to promote competition among U.S. firms but strengthen the government's power to counter the resulting increase in market power accruing to foreign telecommunications authorities. These two options are discussed in turn. In addition to pursuing either of these options the U.S. might also take steps to promote competition among PTTs, thus weakening their ability to exploit competition among U.S. firms. This option is addressed at the end of the section.

### A. Limit Provision of U.S. International Telecommunications to a Single Firm

A single provider of all U.S. international telecommunications would be in a strong position to win favorable settlements agreements from foreign PTTs. Such a firm would be a bottleneck through which PTTs must pass to gain access to the U.S. market. AT&T was in such a position for international

voice service until late 1978 when the courts affirmed the right of MCI and other competitors to offer domestic long distance service and to connect with local exchanges.<sup>26</sup> Only in the last year, however, have additional U.S. firms begun to enter the international MTS market.<sup>27</sup>

A case could be made that the international market is sufficiently different from the domestic market that the provision of international service should be restricted to a single firm. The basic argument would be that the benefits from increasing the U.S.'s bargaining power with PTTs would more than offset the loss in efficiency from monopoly pricing and excessive costs. However, given that competitors have been allowed to enter the voice market, attempting to return to the days of a single U.S. supplier would be rather difficult. It would be even more difficult in the non-voice (record) market to restrict provision to a single supplier since these services traditionally have been provided by several carriers.

If it were nevertheless decided to limit provision of U.S international telecommunications services to a single firm, regulating that firm's rate of return might be counterproductive. The problem with rate of return

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<sup>26</sup> See Brock (1981, pp. 224-230) for a discussion of the beginning of competition in switched long-distance service.

<sup>27</sup> See footnote 5.

regulation is that a reduction in the rate of return can be achieved either by a reduction in the amount charged customers or by an increase in costs. Strictly enforced rate of return regulation could give PTTs an opportunity to reap the monopoly profits by raising settlements costs. A regulated U.S. monopolist might well be indifferent whether the U.S. consumer or foreign PTTs get the benefit from rate of return regulation as long as its earnings are the same. As a result it would have little or no incentive to bargain with PTTs for favorable settlements agreements. In contrast to rate of return regulation, an appropriately designed tax on the U.S. monopolist could provide it with the incentive to drive hard bargains with the PTTs while still assuring that the American public shared in the profits from the provision of international telecommunications services. For example, under a fixed franchise tax or percentage profit tax a U.S. monopolist would care if PTTs raised their settlements charges since this would reduce its net profits.

B. Promote Competition Among U.S. Firms but Strengthen the U.S.'s Power to Counter the Resulting Increase in Market Power Accruing to PTTs

Strengthening the U.S.'s bargaining power towards the PTT's might be accomplished in two ways. The first would be to increase the FCC's role in setting accounting rates. The second would be to establish an international access charge paid by PTTs to the U.S. treasury for connection to the U.S. domestic network.

Under the first strategy, PTTs would in effect be forced to bargain over accounting rates with a single entity representing U.S. interests. The FCC could do this by requiring carriers to submit accounting rate agreements for its approval and not approving any agreements that excessively favor a PTT. This option of responding to filings from carriers might tend to freeze the current accounting rates. Such a freeze would be more desirable than allowing the U.S. terms of trade to deteriorate as competition intensifies among U.S. carriers. But there is no reason to believe that the current accounting rates are optimal. Moreover, the current accounting rate structure may not be viable under a system with free entry. For example, under the current system collection rates are discounted during off peak periods but accounting rates are not. As a result AT&T loses money on calls to some countries made during the "economy" time period. On calls to France, for example, AT&T's payment to the French PTT exceeds the amount it charges its customers by \$.25 a minute during the economy period. New entrants would try to undercut AT&T during peak periods and not contest the "unprofitable" off peak period market. AT&T would be forced to raise its rates during the off peak period and lower them during the peak period unless it could negotiate accounting rates with discounts for off peak usage.

If the FCC chose to be more aggressive in negotiating accounting rates it could order unilateral changes in the accounting rates paid by U.S. carriers. This plan would be effective only for those services, such as

international MTS, for which the number of minutes of traffic leaving the U.S. exceeds the number of minutes entering from abroad. In such cases a reduction in the accounting rate would result in a reduction in the net payments made to foreign PTTs. The burden of collection would be on the foreign PTTs. The foreign PTTs would of course be unhappy to receive less than the negotiated settlement payment and would presumably sue the carriers. PTTs could retaliate by degrading service for incoming calls from the U.S. and ultimately cut off service in an attempt to force full payment. In any case this strategy would force the PTTs into bilateral negotiations with the FCC. The FCC could also use the threat of ordering a reduction in international MTS accounting rates as a lever to get more favorable agreements for record service.

It should be noted that neither of these approaches would apply to private lines since there is no settlement process for private lines. As mentioned earlier PTTs and U.S. carriers both set their own charges for their share of private line service. The FCC has no authority over the charge that a PTT sets for such service.

The second possible method of countering the PTTs' market power would be to give the FCC (or some other entity of the U.S. government) the authority to set an international access charge for connection to our network. This would put international telecommunications on a similar basis to other international trade. This is a more radical proposal and would require

legislation.

An access charge would be analogous to an export duty since the U.S. is in effect selling foreign PTTs access to our domestic network. By setting an access charge the U.S. could face foreign PTTs with a monopoly price for competitively supplied access. The analogy with international trade is not perfect, however, because there is no parallel for the recipient of a call in the trade of ordinary commodities. An access charge could harm potential recipients of foreign calls as well as the foreign originators. Ideally, using the access charge as a bargaining chip, the U.S. could induce PTTs to grant multiple operating agreements and establish cost based-terms of access to foreign domestic networks. In other words, the U.S. would offer to act less like a monopolist if PTTs would do likewise.

C. Weaken the Market Power of PTTs by Promoting Competition Among Them

A policy which could be pursued simultaneously with either the first or second option would be to attempt to weaken the market power of PTTs by promoting competition among them. One way to do this is to transit traffic through countries that offer favorable terms of access. For example, for certain services the sum of the rate from the U.S. to the U.K. plus the rate from the U.K. to Germany is lower than the rate directly from the U.S. to Germany. Routing calls to Germany through the U.K. would put pressure on the German PTT (Bundespost) to reduce its rates. U.S. international carriers would have the incentive to pursue such a strategy on their own

without any FCC action. The only role for the FCC is resist pressure from PTTs to take steps to prevent such arbitrage.

A recent case involving British message-forwarding agencies suggests that PTTs with high rates will take strong actions to stop such arbitrage, but that they may not always be successful. In 1981 the telex tariff from the Federal Republic of Germany to the U.S. was \$2.58 per minute while the rate from the U.K. to the U.S. was about \$1.33 per minute. The tariff from Germany to the U.K. was \$.43 per minute. Thus the cost of a message from Germany to the U.S. via the U.K. was only \$1.76 per minute compared to \$2.58 going direct.<sup>28</sup> As a result about eleven companies set up message-forwarding machines in the U.K. to refile messages from Germany and other countries to the U.S. The Bundespost and a committee of the International Telecommunications Union (ITU) objected to the British PTT (British Telecom). British Telecom (BT) ordered the message-forwarders to stop arbitraging international telex rates but did not physically disconnect them from its network. Telespeed Services Limited, one of the message-forwarders, lodged a complaint against BT before the Commission of the European Communities. This was the first application of the European Economic Communities' "antitrust" rules to the telecommunications industry. In October of 1982 BT withdrew its ban on retransmission of telex messages.

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28 Tarifica (1981, p. 297).



In December 1982 the Commission of European Communities ruled that BT had violated the Community rules of competition in prohibiting private message-forwarders from retransmitting telex messages received from one country and intended for another country. The Italian government appealed the decision to the Court of Justice.<sup>29</sup> The appeal has not been settled.

It is instructive to observe that U.S. airlines used similar tactics in the 1970's to undermine the International Air Transport Association's (IATA) ability to maintain excessively high international air fares. U.S. carriers reached agreements with Belgium and Netherlands for fares lower than the prevailing rate. As a result, traffic between the U.S. and Belgium rose 85 percent in the first eight months of 1979 over the same period the year before. Similarly, the traffic between the U.S. and Netherlands was up 40 percent. Much of this traffic was diverted from other countries. This traffic loss forced other European countries to cut their fares. The Civil Aeronautics Board contributed to the pressure on IATA by granting additional landing rights to any foreign carrier that agreed to offer discount fares.<sup>30</sup>

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29 Commission of the European Communities (1982, pp. 76-77).

30 Business Week (July 10, 1978, p. 52), and Business Week (November 26, 1979, p. 75).

It would be misleading, however, not to point out the differences between the airline and telecommunications markets. First, it is politically and practically more difficult to prevent fare arbitrage in the case of airlines than for telecommunications. It is hard to imagine a country denying access to an individual because he traveled via another country with low air fares. Denying the right to enter a country would most likely be perceived as an excessive reaction, and raise questions about fundamental rights of free passage. In contrast, it is not inconceivable that a country would deny access to telecommunications transited via third countries. In the case of telecommunications one could argue that the only reason users would transit traffic through low tariff countries would be to evade the tariff established for a direct connection. This argument could not be made for airline travel. There are other reasons why a person would wish to go through a third country other than to save on air fare. How could a country trying to prevent air fare arbitrage prove that a person did not have any business in the country in which his flight landed? The second difference is that the FCC has nothing analogous to landing rights to offer foreign carriers. The Commission could threaten not to authorize service or to order changes in accounting rates, but it has no positive inducements it can offer PTTs.

## VII. CONCLUSIONS AND RECOMMENDATIONS

This paper raises serious questions about the wisdom of deregulating U.S. international telecommunications without considering whether this will increase the market power of foreign telecommunications authorities. Increased competition among U.S. suppliers of international telecommunications services is likely to result in a reduction in the U.S.'s share of the benefits from such services unless the U.S. government takes appropriate countermeasures.

The most promising policy option is to promote competition while simultaneously increasing the FCC's role in setting international accounting rates. This would allow the U.S. consumer to benefit from lower markups over cost and greater product diversity while preventing foreign PTTs from "whipsawing" U.S. firms into accepting unfavorable terms of trade. Under this option, foreign PTTs would bargain with a single representative of U.S. interests, while U.S. consumers would have a choice of providers.

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