Lost in Space

U.S. International Satellite Communications Policy

Robert W. Hahn and Randall S. Kroszner

While domestic policy toward telecommunications has undergone fundamental change over the past decade, policy in the international arena has lagged behind, particularly toward space satellite telecommunications. Just as AT&T once had a virtual monopoly over domestic telephone service, an international government enterprise, INTELSAT, continues to hold such a position in international satellite communications.

The market for international satellite services affects a wide variety of communications media. These include standard telephone calls, FAX, electronic mail, video conferencing, television and radio broadcasts, and a broad range of data services—from the collection of inventory and sales information from dispersed outlets to dial-up databases. Because this market has not been subject to the rigors of competition, however, it has failed to achieve its potential.

The basic policy problem is to introduce greater competition while maintaining or enhancing the global telecommunications network. Critics of proposals to increase competition frequently argue that the integrity of the network would be eroded by multiple suppliers. Although concerns about the network are legitimate, it is by no means obvious that a single or dominant supplier is better able to service a network than are multiple suppliers. In airlines, for example, multiple suppliers have managed to serve a complex global network, and in domestic telecommunications multiple providers of telephone networks link users across the country.

The purpose of this article is to evaluate U.S. policy toward international satellite communications and to consider the effects of INTELSAT on this market. We shall argue that the current regulatory structure prevents competition by raising significant barriers to entry for private firms without providing offsetting benefits. The struggles of two small companies attempting to enter the market will illustrate many of the problems of the status quo. In contrast, the experience with competition in the domestic satellite communications market will demonstrate the feasibility and desirability of dismantling the regulatory barriers. After describing INTELSAT's operation and how it is able to keep out rivals, we shall outline changes in U.S. policy that can play a crucial role in promoting innovation and competition in this growing global market.

The economic analysis of the current structure of the international telecommunications industry will suggest why a change is needed. The political analysis will explain why the government has resisted change and how change can be promoted that will result in technological advances and lower prices to consumers without threatening

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the integrity or viability of the INTELSAT global network.

The Structure of INTELSAT

In the early 1960s, spurred by concern about the Soviet development of communications satellites for their INTERSPUTNIK system, the United States became the prime mover behind the creation of a global satellite network. The Satellite Communications Act of 1962 (Section 101a) declared that U.S. policy was to establish "in conjunction and in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite system, as part of an improved global communications network." Two years later the International Telecommunications Satellite Organization, known as INTELSAT, was formed as a multilateral government venture.

From the modest beginning of a single satellite in 1965, INTELSAT has grown to a network of 14 satellites in geosynchronous orbit linking roughly 750 earth station antennas serving virtually all countries outside of the Eastern bloc. Today INTELSAT controls more than $1.5 billion in assets with annual revenues of roughly $500 million. Like many monopolies, INTELSAT has enjoyed a handsome return on its investments, averaging more than 14 percent per year over the past 15 years.

INTELSAT operates as a user-owned cooperative with a two-tiered governance structure. At the top level is the Assembly of Parties or Members, consisting of the 118 countries that are parties to the INTELSAT Articles of Agreement.

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Each country has one vote. While a vote of the Assembly of Parties is needed to ratify major decisions, this body generally follows the advice of the Board of Governors, consisting of the "signatories" to the Operating Agreement.

The signatories are designated by the member countries to be the owners of their share of INTELSAT. Share ownership, along with representation in this second tier, is proportional to usage of the system. Thus, those who use the system the most have the most influence on the general, day-to-day operation and administration of INTELSAT. The current U.S. share, for example, is roughly one-quarter, down from majority usage in the early stages of the venture. The United Kingdom, with 13 percent, is the only other country to have a share above 10 percent. The "signatory" owners are generally the public telephone and telegraph (PTT) monopolies from each of the member countries.

In the United States, however, the Communications Satellite Corporation (COMSAT), created by the 1962 Act as a regulated but privately held firm, owns the U.S. share. In return for its duties as U.S. representative in INTELSAT, COMSAT has the sole right of access to INTELSAT from the United States. Thus, AT&T, MCI, television and radio networks, and news organizations may not deal directly with INTELSAT, but must go through COMSAT if they wish to use its international satellite services.

The economic rationale for INTELSAT was that it would be more efficient to build a single satellite network connecting different countries than to have several competing satellite systems. Such a "natural monopoly" argument had been made for domestic long-distance telecommunications: it appeared to be less expensive to have everyone use the same telephone system because competing parallel lines would result in a wasteful duplication of facilities. Similar natural monopoly arguments have been used for a wide variety of transmission and transportation networks, including natural gas, electricity, railroads, and airlines, all of which have been subject to deregulatory programs in the United States and elsewhere.

The economics of satellite communications is such that there is a very large initial cost of building and launching satellites, but a relatively low cost of adding users once the network is in place. Combining this argument about economies of scale with those about unnecessary duplication of facilities led to the general belief that competition in satellite communications was neither feasible nor desirable.

The INTELSAT Articles of Agreement, however, recognized that separate systems might be valuable in the future and contains Article XIV(d), which details a process for coordinating and approving separate systems. Domestically, the 1962 act (Section 102d) did not "preclude the

creation of additional communications satellite systems, if required to meet unique governmental needs or if otherwise required in the national interest." As we shall see below, however, the restrictions placed on separate satellite systems deemed to be required "in the national interest" have hampered entry, and the Article XIV(d) process has turned out to be an effective anticompetitive weapon. Before examining the details of these obstacles to competition, we must evaluate the economic merits of permitting competition in this industry.

Why the Monopoly Is Not "Natural" and Competition Would Now Be Beneficial

While the natural monopoly argument may have had some relevance in the 1960s, it no longer applies. The rationale for protecting INTELSAT from competition has been undermined, to a large extent, by INTELSAT's own success. Capacity on the INTELSAT network has mushroomed from an initial level of 150 circuits on its first satellite in 1965 to 5,000 in 1970 to over 100,000 circuits today on its 14-satellite network. Changes in technology and growth in demand have meant that several firms can compete successfully, which is one reason for the private sector's strong interest in entering international telecommunications markets. Indeed, a number of regional systems have grown up alongside INTELSAT: Eutelsat serves Europe; Arabsat serves the Arab nations; and Palapa provides services to Indonesia and surrounding countries. Because these systems are operated by INTELSAT member PTTs, however, they offer little in the way of direct competition.

Given the small size of the market in its early years and the cost structure of the technology, it may have been economically feasible to support only a single supplier of international communications satellite services. As technologies have developed to reduce the costs of such services, and as the information-processing revolution of the past two decades has dramatically increased the demand for rapid worldwide data transmission (for example, witness the growth of the financial services sector), the market is now sufficiently large to support multiple competitors without needless duplication.

The natural monopoly argument strictly applies only on a satellite by satellite basis. Once the market is large enough to demand more capacity than is available on a single satellite, there is no reason for the subsequent satellites to be owned by the same entity if the technology is compatible. Even if it were determined that the natural monopoly argument applies at the level of a global network, the earth can be covered with a set of three satellites in geosynchronous orbit. In addition, technology has advanced so that satellite transponders can be tailored to satisfy efficiently very specific needs of increasingly diverse users.

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Thus, two satellites, even if serving a similar part of the globe, could provide very different services so that there need be no "wasteful" duplication.

While these arguments undermine the case for natural monopoly at a somewhat abstract level, the most compelling argument on behalf of competition in international satellite communications is the fact that such competition works quite well in the domestic U.S. satellite communications market. In the early 1970s the Federal Communications Commission rejected an INTELSAT-type approach for the development of domestic satellite systems. Instead, the FCC has followed a policy of relatively open entry, which relies primarily on the forces of the market rather than regulation. More than a half dozen systems have appeared. The competition has resulted in high-quality service at low costs. Charges for private-line business service between New York and Los Angeles, for example, can be less than a third of those for comparable international service between New York and London. A great variety of specially tailored business services have been available for a long time in the United States. They are only beginning to appear in the international market.

Without the discipline that competition generates, INTELSAT (as well as COMSAT) lacks adequate incentives to hold down costs. This problem, which results from having a protected position in the market, is not unique to INTELSAT. Before competition in the domestic long-distance market, AT&T also lacked this incentive. Since the deregulation of AT&T in January 1984, long-distance rates have dropped by more than one-third after adjusting for inflation. While part of

this drop is due to the phasing out of the subsidy from long-distance to local service, part resulted from cost-cutting measures aimed at making the company more productive and competitive. Sizeable reductions in prices could also be expected in the international satellite market if competition were introduced. Moreover, there is strong reason to believe that the range of services would be expanded, as happened after MCI and others entered into competition with AT&T. In the areas where some competition with INTELSAT has been permitted, such as video and a limited range of business services, INTELSAT has developed new offerings to meet the challenge.

The Policy Context

Recognizing the potential for private development of satellite systems, the White House issued a presidential determination on November 28, 1984, stating that "separate international communications satellite systems are required in the national interest." This decision, which appeared to encourage new entrants, was precipitated by applications to the FCC containing proposals from a number of private firms to offer international satellite services in competition with INTELSAT and COMSAT. The explicit support for separate systems was an important boost for private developers and paved the way for entrepreneurs to try to enter the market. Compromises in implementing this directive, however, have imposed conditions on the operations of potential rivals that have significantly curtailed the benefits for both private satellite owners and users.

The main problem arose in defining how separate satellite systems would be linked to existing domestic networks—specifically, the "public switched network," which is essentially the entire telephone and telegraph network. The policy was defined by the so-called "separate systems restrictions," a compromise that has satisfied no one: many INTELSAT members protested even though the policy severely circumscribes any potential competitive benefits. The separate systems restrictions prohibit private systems from providing their customers with services that in some way may access the public switched network. This restriction was designed to shield INTELSAT from any competition in its "core" long-distance telephone traffic.

This restriction, however, has far more serious consequences than preventing alternative systems from carrying regular telephone calls. It prohibits private entrepreneurs from offering a large variety of international voice and data services, including specialized business services, because most such traffic either directly uses or indirectly spills into the public switched network. For example, an international internal corporate communications service could not be offered by a private satellite company if employees could use the same phones for calls to other businesses. The restriction affects virtually all industries using data base management systems that need to be linked across countries. These include such varied users as financial services firms, the Defense Department, and discount store chains.

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The restrictions on separate systems are inconsistent with a previous transborder policy that allowed domestic private satellites to provide a full range of international services to "nearby" countries in addition to their primarily domestic services. This meant that satellites that were providing domestic services in the United States could link to the public switched networks in the United States and nearby countries, such as Mexico, but a satellite company wishing to offer primarily U.S.–Mexico service was precluded from doing so. In contrast, no similar access restrictions govern private international cable or fiber optics operators. The separate systems policy thus is biased against the development of full international satellite services.

A Self-Regulating Monopolist: How INTELSAT Stifles Competition

While the separate systems restrictions hinder the ability of rivals to offer a full range of services, INTELSAT has exercised its powers to erect effective barriers to competition. A key weapon in INTELSAT's anticompetitive arsenal can be found in Article XIV(d) of its charter, which requires would-be competitors to coordinate and gain ap-

proval for their activities from the monopoly itself! Specifically, the article obligates INTELSAT members to have any potential international commercial satellite operator consult with INTELSAT concerning its planned activities. The competing operator must also gain an approving vote of the members before it can provide service.

Thus, INTELSAT not only provides services, but also regulates its competitors and potential competitors. Other satellite operators must share their business plans with INTELSAT before they begin operations and thereby give INTELSAT critical information about their potential competition and an opportunity to respond and preempt the competition. In addition, the lengthy consultation process permits INTELSAT to delay entry, a claim that the Pan American Satellite Corporation (PanAmSat) has made in a recently filed antitrust suit against COMSAT and, implicitly, INTELSAT. PanAmSat, which gained Article XIV(d) approval and launched a satellite in 1988, four years after its initial application to the FCC, is the first and only private U.S. satellite operator in direct competition with INTELSAT.

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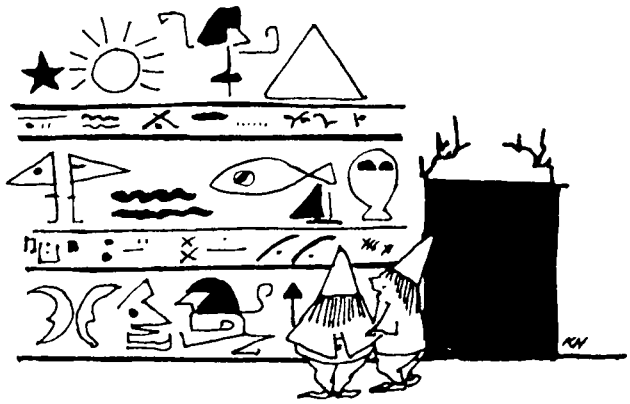
This coordination and approval process gives INTELSAT crucial control over entry by competitors. Besides requiring competitors to meet some technical compatibility and noninterference criteria, the INTELSAT charter requires that approval be based on a determination that the separate satellite system does not cause "significant economic harm" to INTELSAT. The calculation of economic harm is not specified. INTELSAT has used this ambiguity to its advantage by allowing the introduction of limited satellite systems that are owned and operated by the member PTTs, while impeding the entry of private systems that could pose a competitive threat. For private satellite systems, INTELSAT calculates roughly that every circuit planned on the separate system will result in one less circuit used on INTELSAT, even if the types of services proposed are different from those currently offered by INTELSAT or are offered in areas not well served by the INTELSAT network. Regional systems owned and operated by the PTTs—including Eutelsat, Arabsat, and Palapa—have been given easy approval, with a calculation of negligible economic harm. In contrast, private systems, such as PanAmSat and Orion Satellite Corporation, are subject to long and arduous approval processes with "economic harm" calculated as the maximum possible traffic diversion.



"Probably regulations regulating deregulation."

Such calculations of economic harm, even if they were not applied in a discriminatory way, are without economic merit. INTELSAT's calculations of harm assume that the quantity of telecommunications services demanded is chiseled in stone and is unaffected by new services or changes in prices. This assumption is not justified, particularly when services offered on the separate system would be outside INTELSAT's core telephone traffic, which uses relatively low-power satellites. Indeed, one user survey points out that separate systems would provide many specialized business services (for example, through the use of high-power satellites requiring only small and inexpensive ground antennas) that would tend to increase, not decrease, the demand for complementary international telephone traffic. In short, the whole exercise of computing economic harm is based on the misguided presumption that competition is harmful.

In addition to discriminating among entrants on noneconomic grounds, members of INTELSAT have discussed precluding all entry after a certain level of economic harm has been reached. INTELSAT measures and adds up the "harm" of each new entrant. The current level of total harm is nearing 10 percent, and capping the maximum level of harm in this general range appears to be

favored by many. After that, no more satellite systems would be approved. There is no charter requirement for this or any other level to trigger the close of entry, but it has been arbitrarily chosen to signal INTELSAT's attitude toward rivals.

INTELSAT has just taken the first step toward implementing this policy. In July 1989 the Board of Governors and Assembly of Parties took what has been characterized as the "unprecedented" step of finding that Orion Satellite Corporation's proposal to provide transatlantic service would result in significant economic harm to INTELSAT. While Orion did not receive a "favorable" finding in its consultation, INTELSAT will permit Orion to go forward in light of assurances by the United States and the United Kingdom that Orion's activities will be quite limited and not permitted to grow beyond the specific services already requested. These assurances, of course, hobble Orion's ability to act as a full-fledged competitor since its activities are already narrowly circumscribed. This treatment of Orion suggests that future potential competitors will be met with increasing hostility.

INTELSAT has also demonstrated its position toward potential competition through another device used by monopolists to deter entry—the boycott. In 1984, as potential rivals such as Orion and PanAmSat were making their initial applications to the FCC, the members of INTELSAT adopted a resolution explicitly calling for the members "to refrain from entering into any arrangements which may lead to the establishment and subsequent use of" separate systems not owned or operated by the PTTs.

The so-called uniform pricing policy, which is claimed to provide a subsidy to the low-density users primarily among the developing nations, has combined with capacity decisions to support anticompetitive pricing without benefit to the Third World.

Although INTELSAT has been able to thwart competition from private satellite systems, earth-based fiber-optic cables could impose some competitive discipline for some types of service. Fiber-optic cables are well suited to serving point-to-point links where traffic flow is intense, and innovations in fiber-optic technology have made it more competitive with communications satellites over increasing distances. Satellites continue to have an advantage in serving dispersed (or mobile) multipoint connections with low and medium usage. The rapid growth in undersea fiber-optic cable capacity that has occurred in the 1980s and is forecast to continue appears to place the greatest pressure on INTELSAT's core long-distance telephone market. Virtually all of the international optic lines, however, are wholly or partially owned by the PTTs, which are the shareholders of INTELSAT. Thus, the scope for vigorous economic competition between the two modes is much narrower than the technical comparison may make it appear.

The Impact of INTELSAT's Capacity and Pricing Policies

In addition to INTELSAT's ability to determine against whom it will compete, it has engaged in two further practices designed to thwart competition: building excess capacity and predatory pricing. The so-called "uniform" pricing policy, which is claimed to provide a subsidy to the low-density users primarily among the developing nations, has combined with capacity decisions to support anticompetitive pricing without benefit to the Third World.

INTELSAT's charter mandates that it charge uniform prices for similar services. This implies that all users should be charged the average cost of providing a service and not the cost imposed by the particular user. By charging one group an excessively high price and another group an inappropriately low price, INTELSAT distorts users' choices and wastes resources. A similar problem existed in domestic telecommunications, whereby long-distance users have subsidized local users, with resulting inefficiencies.

To understand how its uniform pricing policy has been used to thwart competition rather than to subsidize the less-developed nations, we must understand INTELSAT's average costs and how they are related to capacity decisions. Not only does INTELSAT charge prices that are not related to costs users impose on the system, but also there is reason to believe that INTELSAT's average costs are excessive because its system is significantly overbuilt. INTELSAT claims that approximately two-thirds of its capacity is in use, but a recent study by the Organization for Economic

Cooperation and Development estimates that only half of INTELSAT's current capacity is used. In addition, the excess capacity is projected to grow with the new generation of satellites INTELSAT is planning to launch over the next five years.

Not only does INTELSAT charge prices that are not related to costs imposed on the system, but there is reason to believe that INTELSAT's average costs are excessive because its system is significantly overbuilt.

INTELSAT's deployment of additional satellites has been based on wildly optimistic projections of traffic growth. This overbuilding is in part due to larger users' overestimating future demands and including a "safety margin" for future traffic growth. Because the uniform pricing policy spreads the costs of these overestimates to all users, countries do not have the appropriate incentives to develop reasonable estimates of capacity needs. This "free-riding" induces a bias toward excess capacity. Users of low-density routes thus have to pay higher average costs stemming primarily from the choices of high-density users. This excess capacity also results in an inefficient allocation of scarce orbital slots that wastes valuable slots on satellites that are underused.

The manufacturers and launchers of satellite technology, the majority of whom are located in developed nations, pressure their governments to support very high estimates to increase the demand for their products. INTELSAT and the PTTs are predisposed toward accepting overestimates since excess capacity helps deter entry by potential rivals. Would-be competitors are keenly aware that excess capacity enables a protected monopolist, such as INTELSAT, to undercut its competitors' prices. New classes of service can be introduced at little or no additional cost, given the tremendous excess capacity. Applying some creative accounting principles along with an ability to define new classes of service allows INTELSAT to stick to its "uniform" and "incremental cost-based" pricing rules while actually pricing in a predatory manner.

INTELSAT responded to competition in nonswitched traffic (for example, certain specialized business services and video) by creating new classes of video and business services at uniform low prices. In the Caribbean and South America, where PanAmSat has entered negotiations to provide service, INTELSAT has created new classes of service in nonswitched traffic and has begun new ventures at prices far below those previously available on INTELSAT. The organization has tried to suggest that these prices are cost-based, but this defense conveniently ignores the costs of building and launching satellites. Since INTELSAT's monopoly is protected in its core telephone traffic, INTELSAT generates the revenues to cover the excess capacity from higher prices in its protected lines of business.

One defense of INTELSAT's immunity from competition is the claim that its pricing policy subsidizes Third World countries' telecommunications services. The costs of INTELSAT's chosen satellite technology, however, are such that per circuit high-density use is more efficient than low-density use. The dense routes between the major industrialized countries supposedly subsidize the less heavily trafficked Third World routes. But a number of studies, including one commissioned by INTELSAT, could not identify such a subsidy to the Third World.

Even if there were a cross subsidy in satellite circuits, developing countries still may not gain from the INTELSAT system, because INTELSAT relies on low-power satellites that require large and expensive earth stations. While this technological choice is well suited for high-density, point-to-point traffic, the large initial investment required for the construction of a large earth station results in a very high ground segment cost per circuit for low-density routes. The investment cost per circuit for a large earth station is twice as great for developing nations as for the developed ones. Moreover, if a country opts for a small earth station (which involves some loss in signal quality), INTELSAT imposes a heavy surcharge, ranging from 50 percent to 250 percent of the circuit rate charged to large earth-station users. This charge system favors large earth-station users in developed countries.

Further evidence against the view that the Third World nations are receiving subsidies is the fact that PanAmSat has agreements with nine Latin American countries. PanAmSat has been most actively engaged in negotiations with countries in South America and the Caribbean, not the major developed nations. Thus, a private system can offer more attractive services even where INTELSAT is supposedly subsidizing customers.

A Strategy for Introducing Competition

The United States has a simple policy lever that it can use to facilitate greater competition in international satellite communications networks. It can alter the separate satellite systems policy to permit access to the public switched network. This can be done through an executive order and an FCC rulemaking, without an act of Congress or approval from INTELSAT members. This change would unleash competitive forces that would put pressure on monopoly PTTs and their governments to liberalize telecommunications policy so that users could take advantage of the lower prices and new services. INTELSAT could no longer count on its protected core telephone traffic revenues to finance predatory pricing in other areas.

The United States can facilitate greater competition in international satellite communications networks by permitting access to the public switched network. The next step in the evolution of an efficient market structure is the privatization of INTELSAT, which will be a much more complex task than introducing competition into the market because the United States has no simple unilateral mechanism available to effect such a change.

The proposal to introduce competition with INTELSAT follows the outline of domestic U.S. telecommunications deregulation on an international scale. In the U.S. domestic market, the same company had owned and operated the long-distance and local phone service providers. In the international market, the PTT in each country controls domestic communications as well as owns and operates the long-distance international links jointly through INTELSAT. The new private satellite (and fiber optics) entrants would play much the same role as new entrants in the domestic telecommunications market—introducing new services, cutting prices, and forcing the incumbent monopolist to follow suit.

COMSAT's role should also be reexamined. COMSAT is faced with a conflict of interest as both the U.S. representative to INTELSAT and the owner of the U.S. share of INTELSAT. What is good for INTELSAT is not necessarily beneficial to either U.S. customers or customers around the globe. COMSAT possesses the monopoly right of access to INTELSAT from the United States. COMSAT should be relieved of its gatekeeper function as soon as possible. Companies should be allowed to negotiate directly with all suppliers of international satellite services, including INTELSAT.

Despite the challenge to INTELSAT's privileged position, it is most likely that INTELSAT would survive, and possibly even flourish, with the introduction of greater competition. INTELSAT, just as AT&T, would enjoy the advantages of universal connectivity and extensive experience, so its market share is unlikely to erode quickly. Even with a reduced market share, however, the growth of the overall size of the international telecommunications market could more than compensate for the market share loss and could result in net benefits for INTELSAT, just as in AT&T's case. Thus, competition is perfectly consistent with the treaty obligations to INTELSAT.

The next step in the evolution of an efficient market structure is the privatization of INTELSAT. This is a much more complex task than introducing competition into the international satellite communications market because the United States has no simple unilateral mechanism available to effect such a change. Ridding entrants and potential entrants of the fear of anticompetitive retaliation from a government body would encourage both entry and innovation in the international telecommunications market.

The INTELSAT Assembly of Parties could play a key role in privatizing INTELSAT by ruling on rate reductions during the transition and serving as a forum for public debate. After removing any pricing restrictions and entry barriers, there would be no need for further intervention. The same standards for operation and noninterference that have been agreed to by international treaties and assemblies would still govern, just as they do for domestic satellites. Thus, international telecommunications would be subject to the same forces that shape long-distance communications in the United States—the discipline of competition rather than excessive government interference.

Undoubtedly, there would be resistance to these proposals from a wide range of groups including the PTTs, satellite manufacturers, Third World nations, and the U.S. defense establishment. We shall consider each party's interest in

turn and suggest how the introduction of competition is likely to affect these groups.

The PTTs are understandably concerned that opening up international communications markets would reduce their ability to set prices above competitive levels on international services. Indeed, some bypass of the PTTs is likely. Again, the problem is quite similar to the issues with bypass in the domestic telecommunications market. As large businesses opt out of the system, local phone companies place pressure on the public utility commissions to raise rates to those customers that remain to maintain profits and cover fixed costs. Such rate increases can lead to situations where firms elect to bypass the current system because they are receiving the wrong price signals (so-called "uneconomic bypass"); however, this may be a price well worth paying in the short run for eliminating an inefficient monopoly in the long run. It is precisely these types of pressures that led to growing support for telecommunications deregulation in the United States.

Another group that might oppose these proposals is the major manufacturers of telecommunications satellites and associated products and services (for example, booster rockets and launches). These manufacturers have developed a close relationship with INTELSAT, and they are well aware of INTELSAT's tendency to invest in excess capacity. Opposition from this group, however, may be far from unanimous. Some manufacturers would realize that lower prices and greater competition could improve the market for satellites, launches, and related services. The lure of producing and launching satellites for private firms would certainly lead to dissension within the industry and would undermine its ability to lobby with a uniform voice.

Many developing countries appear to object to altering INTELSAT. This objection, however, is not universal since a number of such countries have made agreements with PanAmSat. Many of these countries are well aware that potential competition can result in lower prices and improved services from INTELSAT and its rivals. Greater competition is likely to help, not hinder, the development process. While some developing nations may enjoy the prestige of participating on a one-country–one-vote basis in the Assembly of Parties, economic considerations are likely to prevail.

A final group that raises objections to competition is the U.S. defense establishment. National security procedures could be complicated by multiple communications networks, but the advent of fiber-optic cables presents at least as many complications. Similar objections were raised regarding the breakup of AT&T, but it does not appear that security has been compromised as a result.

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Indeed, having multiple systems increases the number of backups (so-called redundancy) available. The shoe is now on the other foot as AT&T attempts to gain permission from the FCC to connect with INTERSPUTNIK. AT&T notes that in addition to improving East-West relations, "use of INTERSPUTNIK will increase route diversity resulting in greater network reliability and resiliency." In short, separate competitive systems could result in a net enhancement of overall security, particularly in light of the changes that are taking place in Eastern Europe and the U.S.S.R. In addition, because the military is a large user of international commercial satellite services, competition is likely to bring down the costs of its operations.

In summary, some of the groups likely to oppose these changes may be better off in a competitive environment, but this is probably not true for the monopoly PTTs. For these reforms to take hold, a constituency needs to be developed to counter the objections of entrenched special interests. If the United States lifted its restriction on access to the public switched network, this constituency would emerge through the pressures of businesses wishing to bypass the PTTs.

While lower prices and a wider range of services can be predicted with a high degree of confidence, precise quantitative projections are difficult to develop. On the basis of the current volume of U.S. usage—which would undoubtedly increase as prices fell—we estimate that U.S. customers alone would save on the order of $150 million annually from lower charges for existing international satellite services. This estimate does not include any of the potentially enormous benefits that would accrue from either new services or worldwide deregulation of telecommunications

services. For example, a study of the international telecommunications market reveals that international callers are overcharged by $10 billion annually. Thus, introducing greater competition in this market alone could lead to substantial efficiencies.

Conclusions

U.S. policy in international telecommunications has helped sustain a monopoly that has outlived whatever usefulness it may have had. We have outlined the options for moving to a more competitive environment that would result in a wider menu of services in international communications and lower prices.

The United States can be a pioneer in moving toward a more competitive and efficient industry structure in international telecommunications. The first logical step is to lift the restriction denying private entrants access to the public switched network. Whether this would be sufficient to break the monopoly remains to be seen. There are very strong interests in place, both here and abroad, that benefit from the monopoly. As we have tried to point out, however, the costs of keeping these special interests happy are quite high. What is needed is an opposing force that will push for reforms that are long overdue. The proposals suggested here would help unleash that force, and in so doing, would provide greater impetus for high-technology innovation.

Selected Readings

Cowhey, P. and Aronson, J. "The Great Satellite Shootout." *Regulation*. Vol. 9, No. 3 (1985).

Johnson, L. "Use of Excess Capacity in Overseas Telecommunication Facilities to Deter Competitive Entry." RAND Working Draft WD-3959-1-MF. Santa Monica: 1988.