New technology and the liberalization of telecommunications markets are putting increasing stress on the accounting rates regime—the system used by telecommunications carriers to settle their international traffic accounts. While operators in most countries acknowledge that the current system is unsustainable, many developing countries have resisted the pressures for radical change, arguing that it will cause an unbearably large drop in their operators’ profitability. Many depend heavily on international revenues to subsidize network development and public services. Several of the most vulnerable countries derive up to 50 percent of their telecommunications revenues from international settlements (figure 1). And for about thirty countries changes to the settlement regime will have a significant effect on current account and fiscal balances. In several of these countries the telecommunications sector is characterized by distorted pricing structures, ineffective policies, and a monopoly service provider.

The international accounting rates regime can be traced back to the establishment of the International Telecommunication Union in 1865 and the need to develop a simple mechanism for compensating international operators for delivering international calls from their point of origin to their destination. Under this arrangement, for the traffic flowing between two countries, the operators at each end negotiate a multiplication factor known as an accounting rate. In most cases the two operators take the net traffic flowing between them in a given period, say a quarter, and multiply this by half of the accounting rate, a factor known as the settlement rate. The country that receives more traffic earns a net settlement payment, usually denominated in U.S. dollars or special drawing rights (SDRs), at the end of the period (box figure 1). The system also provides simple means to compensate operators serving as points of transit between the two terminal points.

In the example in box figure 1 the negotiated accounting rate is US$1.40, the settlement rate is US$0.70, and the collection charge, the amount charged to the customer, is US$3.49 a minute in the United States and US$6.41 a minute in Colombia. The net settlement payment is (284.8 million – 61.5 million) x 0.70 = US$156.3 million.

Note: PTO is public telephone operator.
Source: U.S. Federal Communications Commission data.
Developing countries’ ability to resist changes in the system will be limited, however, because the economic incentives and technological opportunities for bypassing the system are strong. As a result, and in response to accounting rate reforms already being discussed, developing countries have about a four-year window to develop new mechanisms for financing network expansion (with increased reliance on sources of funding external to the telecommunications company), adopt more transparent practices for supporting universal service (local access, traditionally subsidized by international revenues, will have to be provided at prices closer to true costs), and build modern regulatory structures capable of addressing interconnection issues in a cost-based manner. The critical issues for these economies: how to prepare for the new era in international telecommunications relationships, and how to finance the transition.

This Note briefly reviews the growing pressures on the current arrangements, analyzes the countries most affected, discusses the future of international telephony pricing, and outlines new sources of assistance to help developing countries make the transition.

**Forces for change**

The accounting rates system worked relatively well when international services were jointly provided by the traditional monopoly service providers and there were no significant traffic imbalances between countries. Even with thousands of bilateral relationships, the system was straightforward and inexpensive to administer, and its basic principles were codified in an agreed framework developed within the International Telecommunication Union (ITU). But simplicity came at a price. The rates not only were disconnected from costs—depending more on the partners’ negotiating abilities—but also imposed artificially high prices on consumers.

Today regulatory and technological changes have created many more possibilities for bypassing the conventional accounting rates regime. In the 1990s, for example, as an initial step toward competition in international telecommunications, regulators in some countries permitted the resale of international services over capacity leased from facilities-based operators, such as international operators of submarine cable systems and satellite networks. This rapidly growing traffic is not subject to settlement under the accounting rates system, as the new entrant pays only a monthly or annual fee for the facilities leased at both ends of a relationship.

Technological progress is opening new ways for operators to deliver traffic, undermining the accounting rates regime and increasing the competitive pressure for traditional telephone services. Internet telephony, for example, bypasses the accounting rates regime and allows providers to undercut operators of conventional networks. India’s recent decision to fully liberalize the licensing of Internet service providers is likely to cause significant competitive pressure for domestic and international telecommunications operators in that country. The emergence of new global mobile personal communications by satellite (GMPCS)—such as Globalstar, ICO, and Iridium—will add to the stress on the accounting rates regime. GMPCS business plans typically assume that gateway earth stations will be able to interconnect with the public switched telephone network at rates substantially lower than those used in conventional relationships involving developing countries. So these new entrants can be expected to add their voices to those pushing for a reform of the regime or for substantial cuts in the accounting rates.

Several other practices also distort traffic flows, although they do not bypass the accounting rates system. The most common of these is the use of calling or “home direct” cards and callback. This practice turns calls around, increasing the net flow of traffic in the direction opposite to normal and thus skewing traffic settlements in favor of the country where the call was originated—often at the expense of countries with more competitive and efficient services. The growing distortion in traffic flows
and in settlement payments caused by calling cards and callback has been an important driver of the demands for change in the regime.

A more systemic impetus for change is the World Trade Organization (WTO) Basic Telecommunications Agreement, which became effective in February 1998. Under this agreement many countries have made a commitment to allow foreign operators to set up operations in their territory in the near future. As these transnational networks multiply, accounting

FIGURE 2 ACCELERATING IMBALANCES

Incoming, outgoing, and balance of traffic in Senegal, 1990–96

Millions of minutes

Incoming, outgoing, and balance of traffic in Mexico, 1991–97

Billions of minutes

Source: World Bank staff estimates based on International Telecommunication Union data.
rates will become even more irrelevant because a subsidiary of a foreign operator can typically exchange international telecommunications traffic with its home base or other subsidiaries without having to worry about accounting or settlement rates.

Together these changes siphon traffic out of the accounting rates regime and foster growing traffic imbalances. In the United States, for example, outgoing traffic exceeded incoming traffic by 51 million minutes in 1975. By 1996 this imbalance had grown to more than 11 billion minutes, translating into net settlements to the rest of the world approaching US$6 billion a year. In the cases of Senegal and Mexico net settlements have been growing steadily since 1990 (figure 2).

Operators paying net settlements have been renegotiating accounting rates. These negotiations have not kept pace with the growth in traffic, however, and outpayments have continued to rise, especially for U.S. carriers. As a result, U.S. international operators have been looking for other ways to reduce accounting rates. The most recent development was the 1997 unilateral decision by the U.S. Federal Communications Commission (FCC) directing U.S.-licensed international operators to agree on benchmark settlement rates with their international partners over the next four years. Most of the proposed benchmarks imply reductions of more than 60 percent. The premise of the FCC decision is that high settlement rates are equivalent to a subsidy from U.S. consumers to foreign operators and that with the growing liberalization of telecommunications markets—particularly in the wake of the WTO Basic Telecommunications Agreement—such distortions need to be corrected swiftly. The European Union, which liberalized its basic telecommunications infrastructure on January 1, 1998, is also allowing alternatives to accounting rates for international telephone traffic among its fifteen members. Indeed, the European Union has recommended a system whereby foreign

**FIGURE 3** TOP TEN NET PAYERS AND NET RECEPIENTS OF INTERNATIONAL ACCOUNTING RATES SETTLEMENTS, 1995

![Bar chart](https://example.com/bar-chart.png)

*Source: U.S. Federal Communications Commission data.*
operators can interconnect at any level of a member country’s network hierarchy and pay only an amount corresponding to the cost of interconnection. The European Commission estimates of the effects of these changes suggest that net settlement payments will be orders of magnitude smaller than under the current accounting rates.

**Potential effects of reform**

From the United States, for which the most complete data on international settlements are available, almost 70 percent of the nearly US$6 billion in settlement payments goes to developing countries. The flow is highly skewed: the top four net receivers (Mexico, China, India, and the Philippines) accounted for almost 30 percent of the U.S. deficit in 1995, while the fifty or so countries of Sub-Saharan Africa accounted for only 2.5 percent (US$125 million). The top ten payers and recipients on a global basis are shown in figure 3.

In the countries receiving large net flows, changes in the settlement regime will have significant effects on operators’ revenue-generating capability and profits. For the ten economies most dependent on settlement payments, these account for up to 50 percent of telecommunications revenues. Moreover, for many developing countries U.S. settlement payments are a major source of hard currency, an important consideration since most equipment used to build out the network is imported and must be paid for in hard currency. The effects will depend not only on the size and pace of cuts in the accounting rates, but also on the operators’ willingness to pass on the benefits of lower accounting rates to their customers. (Detailed analyses of the costs of providing international telecommunications services, the potential changes in the international settlements regime, and the effects of the changes on operators in developing countries are being conducted by the ITU and the European Commission, for example, with support from the World Bank’s Information for Development, or infoDev, Program.)

Among the countries receiving large net settlement flows from the United States, those whose carriers and economies are most vulnerable to the effects of the transition are, not surprisingly, typically small countries with monopolistic carriers. This picture is incomplete, of course, since it focuses on correspondent relationships between the United States and the rest of the world. African countries with important relationships with Europe also depend on accounting rates revenues from countries other than the United States.

**Toward a new regime**

What role international organizations, particularly the ITU, will play with respect to the international accounting rates regime is an important issue. Many organizations, including the FCC, have stated that they would prefer to achieve a multilateral solution to the accounting rates problem. Whether this is possible, given the growing ease of bypassing the system, is an open question. The role of national regulatory bodies, many of which are only now being established, also needs to be determined. National regulators will need to understand and predict the direction of change so that they can continue to meet their obligations to the public. And once new systems emerge, international operators and national regulators alike will have to face the challenge of operating under a regime of multiple settlement arrangements. Where there are multiple international operators on both sides, several different settlement schemes could be in effect at the same time. Competition among these operators will ensure that the least costly and most innovative system will win out.

Proposals to reform the international accounting rates system have generally fallen into two broad categories:

- Instituting reform within the current accounting rates system.
- Replacing the accounting rates system.

A review of these options indicates the direction in which international settlement arrangements are likely to evolve.
Within the current system the simplest and most obvious reforms are to reduce the accounting rates; to change the split of the accounting rate from 50/50 to one that reflects the difference in the cost of delivering a call between the two ends of the relationship; and to abandon the requirement by some national regulators that all international operators in the country have the same accounting rate with corresponding international operators in another country, or receive the same proportion of return traffic as they send out. The ITU is proposing cost-based reforms within the current system.

Among proposals for settling international payments outside the accounting rates system, one of the most popular is the concept of transparent, cost-based, nondiscriminatory call termination charges. Under this scheme an operator would fix the charge for terminating an incoming international call received at its international gateway at the subscriber’s premises. Since this charge would be applied on a nondiscriminatory basis, it would be the same for all international operators. It would be transparent because it would be published. The size of this charge remains to be resolved. It might be set arbitrarily by the international operator, or it could be based on cost studies. If set by the operator, chances are that the charge would be well above cost where there is still a monopoly. If the charge is based on the cost of providing the termination service, it would have to be established according to some mutually agreed costing methodology. The ITU, which is adopting the termination charge method along with two other new methods, is also trying to establish agreed cost models and methodologies. This task will not be easy. Most countries have different accounting practices and define costs differently.

Another possible method is an interconnection arrangement like the one the European Union is implementing to create a single market. Under an interconnection arrangement a foreign international operator is free to interconnect with a national operator’s domestic network at virtually any point in that network. The foreign operator pays for the cost of the facilities used from the point of interconnection to terminate the call. It can establish a gateway or point of presence in the country of destination or simply deliver the traffic through leased circuits to the point of interconnection with the destination operator. The charge for interconnection could, of course, be subject to abuse, especially where the destination operator is a monopoly.

A variant of interconnection arrangements is end-to-end service provision. As liberalization proceeds, it increases the possibilities for an operator to be present at both ends of a relationship. An operator could conceivably provide the service from originating to destination subscriber using only its own facilities, and there would no longer be a need for special accounting and settlement arrangements between operators. Global alliances of operators—such as Worldcom, Global One, and Unisource—are already providing end-to-end services, mainly to corporate customers outside the conventional system.

The sender-keeps-all system, in which the originating operator keeps all the revenue it collects and exchanges no traffic information or accounts with the destination operator, will continue to be used as an alternative to the accounting rates system. It is simple to implement and involves virtually no transaction costs. But the system is often criticized because it produces no financial flows to compensate for the cost of building and maintaining the network at the terminating end and thus does not promote network development at the periphery. Sender-keeps-all is the system most commonly used between Internet service providers.

**Conclusion**

The pressures for reform of the accounting rates system pose a short-term threat to the revenues of telecommunications operators, but they also offer potential benefits. The introduction of cost-based interconnection charges should cut the price of international telephony significantly for all users, accelerating their inclusion in the global information society. Public pressure for
reform will increase as the cost of transmitting voice data and images continues to fall and depends less and less on distance. U.S. consumers, for example, will demand to know why they should have to pay 88 cents for some international calls when the price for domestic long-distance calls averages only 13 cents—even though the cost to the operator is almost the same. Indian consumers will ask why they have to pay ten times as much to call a relative in a neighboring country as to call another relative living a similar distance away in India. And Latin American consumers will question why it costs two to three times as much to call Chile from Argentina, Brazil, and Mexico as it does the other way around.

International institutions such as the ITU, the World Bank, and the WTO have an important role to play in promoting dialogue about the reform of the accounting rates regime. The World Bank could also help finance the cost of the transition. In 1998 it announced that it will provide technical and financial assistance to developing countries willing to reform their telecommunications sector as the traditional accounting rates regime is phased out.

The Bank’s support will take three forms. First, when the reduction of accounting rates has a fiscal and balance of payments impact, the Bank can provide sectoral adjustment loans to countries committed to opening their telecommunications sector to competition and private participation. These loans will finance the temporary loss of fiscal revenues. After a transition period of a few years, this loss is expected to be more than offset by higher traffic volume and efficiency gains generated by new entrants. Second, when the self-financing capacity of the state operator is significantly affected and the government agrees to limit its involvement in the ownership and management of telecommunications operations, the Bank could finance a time slice of the sector investment program through sector investment loans. These loans could also finance the cost of redundancies associated with restructuring state operators. Third, through the infoDev grants program, the World Bank will continue to support—in cooperation with the ITU and other partners—efforts to raise awareness about the coming changes in the accounting rates regime. In addition, infoDev will provide assistance to developing country regulatory authorities in developing cost-based pricing policies as part of a long-term tariff rebalancing strategy.

Regulators in several countries implemented uniform accounting rates to protect their competing international operators, especially in relationships with countries that still have monopolies. Uniform rates prevent competing international operators from unfairly undercutting their competitors in conjunction with the monopoly at the other end. The policy of proportionate return traffic requires that the international operator or operators in the corresponding country return the same proportion of international traffic to an originating international operator as it sends to an operator in that country. This practice has been criticized as impeding competition by disadvantaging small entrants to the international telecommunications market.

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