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Global Universal Service and International Settlement Reform

By Francesco Castelli*, José Luis Gómez Barroso**, Claudio Leporelli***[1]

Summary

The objective of this paper is to analyze the international settlement system and its implications for the development of a global telecommunications network in an industry scenario that is moving beyond international accounting rates. The international dimension of funding developing countries' universal service policies is then discussed. It is pointed out that increasing competition in international markets, diverting traffic flows and retail price collection from developing to rich countries could lower the total revenue that the former obtain from international services, even when the received net settlement payments increase. The expected international settlement reforms asked for by the ITU and the US federal regulator could also intensify this phenomenon. Therefore, our conclusion is that such reforms may require adequate safeguards to deliver financial support to developing world network infrastructure, also considering the positive externalities accruing to rich countries.

1. Introduction

Telecommunications services have traditionally been provided by regulated national monopolies with the fundamental goal of "universal telephone service", that is, the provision of person-to-person voice communications to all citizens at uniform (i.e. geographically averaged) "affordable prices". Universal service obligations imposed upon old monopolies stemmed from considering the access to the Public Switched Telecommunications Network (PSTN) as part and parcel of the basket of goods and services that are essential for real participation of people in social life and for the economic development of a country (WIK, 2000; Amendola and Castelli, 1996). The universal service policies and the consequent network deployment plans were historically funded by cross-subsidies within the regulated price structure of national monopolies. Long-distance — both national and international — calls and customers in urban areas subsidized (and still subsidize, although to a lesser extent) telephone access (and sometimes local calls) and customers in rural (high-cost, sparsely populated) areas. When customers make long distance calls, they are subsidizing the extension of the service to high-cost regions and low-traffic and low-income customers.

In last several decades, the dramatic technological progress and the changes observed in the regulatory framework have completely transformed the telecommunication sector. Ever since the early eighties, some pioneering countries (in particular, the US and the UK) have opened their telecommunications markets to competition at a pace faster than they allow in most other natural monopoly *utilities*. The liberalization experience of the US and the UK was soon followed by the remaining Western European countries with different speeds and degrees of depth and enthusiasm. Competition forces (even if they benefit the telecommunication industry as a whole) undermine the sustainability of cross-subsidies and then destroy the traditional funding mechanism of universal service. Therefore, the compatibility of competition and uni-

* Telecom Italia, Public and Regulatory Affairs — Rome, Italy
** Universitad Nacional de Educación a Distancia, Depto. Economía Aplicada — Madrid, Spain
*** Università degli Studi di Roma "La Sapienza", Computer Science Department — Rome, Italy

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e-mail: leporelli@dis.uniroma1.it; tel. +39.06.48299235;
fax +39.06.48299218.

versal service obligations has became the object of intense political and economic debates (EC, 1994; Gasmi et al., 2000; WIK, 2000).

Western transition models from monopoly to competition were subsequently "exported" to poorer countries, though one might wonder whether their validity is universal when national conditions differ so profoundly.

In high-teledensity economies (the ITU defines teledensity as the number of main telephone lines per 100 inhabitants), the reform mainly aims at introducing dynamism in the sector and at harnessing the deployment and use of new services. Indeed, in least-developed countries, the enforcement of a telecommunication policy is more complex. When networks do not exist, their creation is obviously the first necessary prerequisite, as any project is necessarily based on the development of an infrastructure. Melody (1997, page 20) points out that "It is perhaps a misnomer to consider telecom reform in developing countries as a process solely of reform […]. Their task surely involves reform, but the major objective is to build a national telecom system from the beginnings of the system that the PTOs now provide".

Market forces by themselves do not assure universal service goals, given that no profit-maximizer operator would provide services below cost to rural and/or low-income customers. The consequences of such a market failure are, however, very different in various particular national contexts. Grouping countries into broad income and teledensity categories, we have a variety of national contexts between the following extremes: on one hand, developed countries with high teledensity (greater than 40–45%) and, on the other hand, least-developed countries with low teledensity (between 5% and 1% or less)[2].

In the former case, current universal service objectives concern the provision of telephone services to marginal market segments and, possibly, the extension of the concept of universal service to include on-line information services (Internet). Thus, the problems raised by the safeguarding of the traditional universal service (and possibly by its extension) are *merely* of financial and organizational nature: namely, which is the best way to fund the net cost of universal service obligations (by carriers and/or public funds) minimizing market distortions.

For the rest of the world, and particularly for countries with significantly low teledensity, the very term "universal service" sounds like a joke[3]. In such cases, it seems more appropriate to point out different key policy questions: how to fund and manage the vast infrastructure growth necessary to achieve broad-based economic and social development during the current parallel regulatory and technological transitions.

Low-income countries are facing a major challenge in attracting foreign capital to subsidize their network construction. In fact, their telecommunication industry profits are insufficient and heavily dependent on the "net settlement payments" they receive to terminate (that is, to convey on domestic networks) incoming international telephone services. However, pressure by developed countries (mostly the US) is mounting to reform historical settlement procedures governing international telephone cross-payments. As pointed out by the Secretary-General of the ITU at Telecom99, the international accounting rate regime worked well in the era of national telecommunications monopolies but does not appear well suited in the era of widespread competition.

The relevance of the international dimension of funding universal service for developing countries is made explicit by countries whose ratio of net settlement payments to total telecommunications revenue in a year can be greater than 20% or 30% and can even reach 50%. These economies are thus deeply concerned about the way the traditional system is breaking down, about their investment programs and about the danger of their operators' viability being jeopardized by the pressures to reduce prices for international telephone services.

Liberalization and competition in national markets required specific regulatory interventions to create funding mechanisms for national universal service obligations imposed on dominant fixed operators (relevant examples are provided by France and Italy in Europe, and by the US). Similarly, increasing competition in international markets may require specific multilateral agreements aimed at not slowing down the connection of developing countries' networks and citizens to the global communication infrastructure. This, on one hand, would achieve the objectives of national telecom policies and, on the other hand, respond to the needs of the global information economy, allowing the positive externalities of a global network to be exploited by developed countries as well.

The objective of this paper is twofold. First, it analyzes the international settlement system in the light of economic principles and the implications of this system for the development of a global telecommunications network in an industry scenario that is moving beyond international accounting rates. Second, the international dimension of funding universal service policies in developing countries is discussed. Our conclusion is that increasing competition in international markets, diverting traffic flows and retail price collection from developing to rich coun-

[2] The 42 countries with a teledensity lower than one account for only 2.9 million main lines (0.36 % of the worldwide total), but have a total population of about 783 million people (13.5 % of the global population). (ITU 1998a, 7).

[3] Indeed, the term often used to describe the efforts to extend the service to those places where the telecommunication infrastructures are in the initial stage is not universal *service* but universal *access* (ITU 1998b). In addition, Milne (1998) contains an interesting and widespread classification of the stages of the universal service policy.

tries could lower the total revenue that the former obtain from international services (final customer bills plus net settlement payments), even when the received net settlement payments increase. The possible envisaged international settlement reforms — suggested by the ITU and the US federal regulator with different timetables, objectives, and worldwide consensus — could also intensify this phenomenon. It is therefore pointed out that the reform of the current international settlement system may require the contemporary introduction of suitable safeguards apt to guarantee financial support to network development policies in low income-low teledensity countries.

The paper is organized as follows. Section 2 briefly shows how innovative calling and marketing schemes have rapidly increased the competition in the international service markets. The new industry framework has determined pressures to reforming the international settlement system with possible advantages for developed countries and risks of drawbacks for low-income countries. Section 3 analyzes economic rationales and pro and cons of the reform proposals suggested by the ITU and by the US Federal Communications Commission. Section 4 addresses the critical issues of two difficult transitions and their interdependencies. On the one hand, the possible negative impacts on the universal service policies stemming from a too-"literal" transposition of western liberalization models to developing countries with completely different industry structures and social and economic needs are pointed out. On the other hand, it is suggested that both the positive externalities for the rich economies deriving from a global infrastructure and the funding from international revenue settlements give a worldwide dimension to the universal service policies in low teledensity countries. Therefore, it is desirable to match the prevailing directions of the international settlement reform and the global universal service objectives. Finally, Section 5 presents a short summary and conclusions but also raises questions to be tackled and doubts to be clarified in future research.

2. A New Environment for Settlement Procedures in International Telecommunications

The system ruling settlement procedures in international telecommunications emerged at a time when only national monopoly carriers provided international services, and has remained fairly static for more than a century. To provide switched telephone services between country A and B, an international carrier of country A must agree upon the terms and conditions with an international carrier of country B. Notably, the carriers must agree on how they will compensate each other for the facilities, equipment, and personnel used to provide international service. Such compensation, averaged on a "per minute" basis, is referred to as the "accounting rate" (ar). By convention, the accounting rate settled by the countries A and B (ar_{AB}) corresponds to the cost imputed to one minute of an "end-to-end" international call between the same countries. Then, assuming that the international transmission link is jointly owned, a country A (B) carrier owes to a country B (A) carrier one-half of the agreed bilateral accounting rate ($ar_{AB}/2$) to terminate a minute of service in carrier B's (A's) country (see Figure 1). This latter charge is referred to as the "settlement rate" (sr_{AB}). Finally, prices charged by international carriers to final customers are referred to as "collection rates" (cr)[4].

For each pair of countries, a single accounting (and settlement) rate is negotiated for traffic going in both directions between them. Accounting and settlement rates vary widely in the many different agreements one country will have with all the others, also due to the different termination costs and bargaining power of operators in still-monopolistic developing countries and operators in liberalized developed countries[5].

Under the current system, the actual payment of money is determined by comparing the traffic flows (T_{AB} and T_{BA}) in each direction for each pair of countries A and B (and operators within each country). If traffic flows are fully balanced ($T_{AB} = T_{BA}$), there is no payment as the settlement rate for terminating traffic is the same in each direction. Otherwise, when more traffic flows in one direction (assume: $T_{AB} > T_{BA}$), the country (operator) from which the most traffic originates (A) pays for the extra or *"net minutes"* that are terminated on its behalf by the country (carrier) B. This amount is the *"net settlement payment"* that equals the settlement rate times the traffic unbalance $[sr_{AB} (T_{AB} - T_{BA})]$.

Over the past few years, the competitive setting of international telephone service supply has been changing quickly, thus placing pressure on the old market structures. Traffic flows have become increasingly unbalanced,

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[4] Standard collection rates are commonly higher than accounting rates (international call prices have to cover total costs imputed to the service). Therefore, collection rates can be represented by the formula: $cr = ar + s = 2sr + s$, where $s \geq 0$ can be seen as a proxy of the explicit" cross-subsidy from international to national access and local call markets. Further implicit cross-subsidies are the following: (1) the inbound subsidy given by the difference between the settlement rate (ar) and the real cost incurred for originating an international call; (2) the outbound subsidy given by the difference between ar and the real cost of terminating the international call in the destination country. Local carriers that are vertically integrated in international markets receive such subsidies directly, while non-integrated local carriers receive (some of) them indirectly, through access charges paid by interconnected international carriers.

[5] Melody (2000) points out that, for example, the rates are relatively low between the US and Sweden, $US 0.06 per minute, and very high between the US and Bangladesh, $US 0.80 per minute. But in each case the rates are the same in both directions. The US charges a low termination rate for traffic from Sweden and a very high termination rate for traffic from Bangladesh. Therefore, when people from Bangladesh make international calls to the US, they are helping to fund the US universal service obligations (see footnote 4).

as have the net settlement payments between countries, leading to large deficits in some countries (mostly US and high-income countries) and large surpluses in others (mostly, but not only, low and least-developed countries).

Increased reliance on settlement payments may lead developing countries to resist attempts to reform the current system because of concern that a change may jeopardize a significant source of revenue and threaten their economic development plans (Stanley, 2000). But Stanley's (2000) apparently straightforward conclusion could partially stem from an incomplete analysis of the problem, as will be pointed out in the following. Innovative calling schemes emerging in increasingly competitive international markets are favoring the avoidance of traditional agreements between operators that have an unclear effect on the net settlement rate of developing countries.

2.1 Innovative calling schemes in international markets

Technological advances promote "alternative calling procedures" based on the idea of international telecommunications as a jointly-provided service. Their development is stimulated by asymmetry in collection charges[6].

Some of them are based on the emergence of new operation modes leading to the introduction of value-added services:

— *Calling cards* are telephone credit cards used to make calls abroad by using a personal identification number and to have the calls billed to a home account.

— *Country-direct services* enable travelers to call a specific number establishing contact with an operator in the home country; from there, the call is switched to the chosen number.

A second group of international calling systems emerges from the opening of public switched telecommunications market to competition allowing foreign points of presence or interconnection:

— *International leased (or resold) lines* allow bypassing of the national switched network connecting customers' premises, either directly or indirectly, to the switching center of an international service provider. The price charged is independent of the usage level.

— *International virtual private network* services, commonly offered by the major operators or their allies, offer individual clients the benefits of a private network (short number dialing, centralized billing, call discounts, etc.), while maintaining the flexibility of the public network.

A third group of alternative calling procedures is based on price arbitrage:

— *Refile,* or *hubbing,* is an arbitrage strategy exploiting the differences in the settlement rates between different pairs of countries conveying traffic through the least cost routing path. (If, for example, the settlement rate between Turkey and the US, plus the rate between the US and Australia is less than the rate between Turkey and Australia, then Turkey-Australia traffic can be profitably refiled through the US.)[7]

— *Call-back* (usually offered providing the customer a dial tone in the second country) simply reclassify traffic that is really originated in foreign countries as domestic traffic for customer pricing and billing purposes. There are several different types of call-back operation[8]: most of them rely on uncompleted call signaling systems, others use the foreign carrier's outbound service to establish an initial connection with a reseller's call conferencing unit or, alternatively, inbound international "free-phone" numbers can be used to establish a connection to the reseller's facility[9].

Finally, other calling modalities are driven by new network technologies bypassing the PSTN and, then, the accounting rate system:

— *Voice over data networks*[10]. Traditional telephony relies on circuit-switching. However, it is also possible to send voice over a data network using a packet switching technique. The most popular form at present is the so-called Internet telephony; the attraction of which lies in the tariff structure conventionally applied by Internet Service Providers (ISPs), which is normally based on unlimited usage for a flat-rate fee, fully independent of the distance or international boundaries.

2.2 The US benchmarking plan to reform the international settlement system

The US settlement deficit has historically been the largest worldwide and has continued to grow during the 1990s, when demand for service from the US grew more

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6 For a detailed description of these procedures, see Cave and Waverman (1998), ITU (1998b) and OECD (1997).

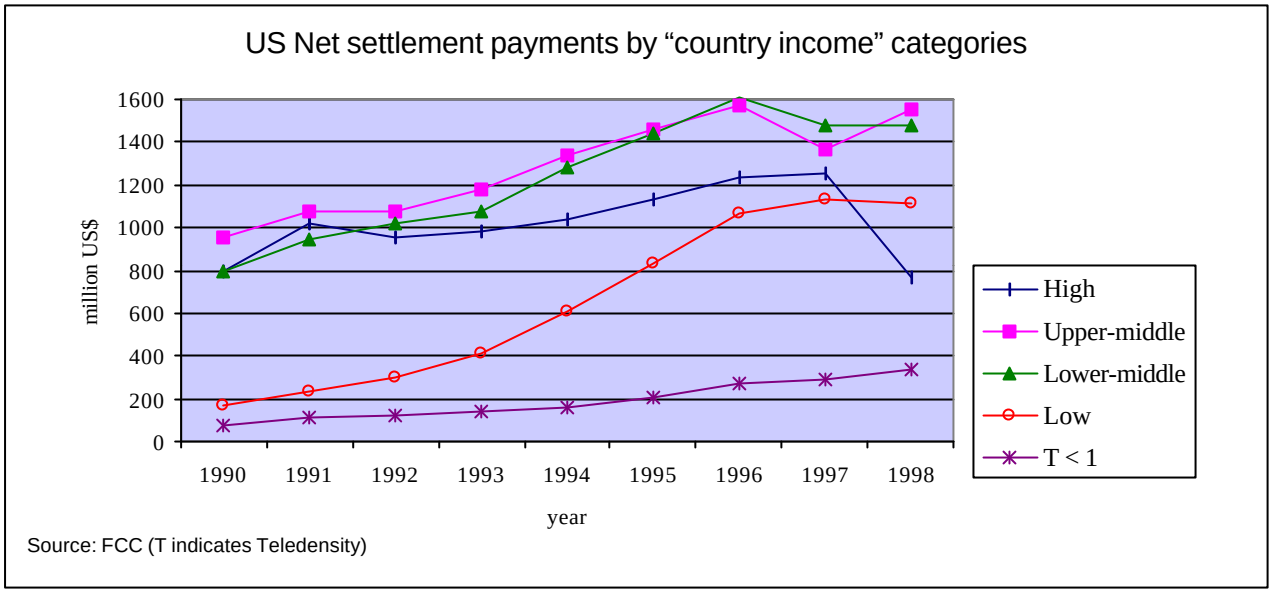
7 OECD (1995) analyses examples and data and describes the impact of hubbing and international traffic refile.

8 See Scanlan (1998, 916), for a description of the different methods.

9 Kelly (1996) provides a review of the pros and cons of the *call-back*. Among the pros: price reductions, increased competition, service innovation, pressure to reform the accounting rate system. Among the cons: reduced investment in new international network capacity, foregone revenues from developing countries, and, sometimes, false or misleading advertising, bad quality, delays in paying debts to PTOs.

10 Mason (1998) gives an ample description of the operation, costs, prices and regulatory questions concerning Internet telephony. Current, and above all future, commercial relevance of Internet telephony is questionable. Mason deems unlikely that the "Internet telephony" is definitively the "killer" application of the accounting rates system, fundamentally due to congestion problems. Nevertheless, Galbi (1998) thinks the opposite.

Figure 1



Source: FCC (T indicates Teledensity)

rapidly than demand for service to the US. It is not surprising that wealthier countries, and in particular the US, have always generated more traffic than the poorer ones. The impressive growth of the US economy throughout the 1990s and its increasing role in the global economy have further stimulated this phenomenon.

This growth caused the increase of the US net settlement payments from US$ 2.8 in 1990 to almost US$ 5.3 billion in 1998. Such growth was accompanied by a marked change in the distribution of US settlement payments: low-income countries and countries with teledensity lower than one increased the net settlement payments received from US carriers from US$ 0.25 billion in 1990 (9% of the total) to US$ 1.5 billion in 1998 (28% of the total); high-income countries received almost the same amount in 1998 that they received in 1990, but their share of total US carriers’ net settlement payments decreased from 29% in 1998 to 15% in 1990 (see Figure 1).

This increasing outlay is considered by Stanley (2000) to be the reason that induced the USA to become the standard bearer for the reform of the accounting rate system in order to put a stop to this — in their viewpoint — “unfair” situation. The US Federal Communications Commission (FCC) is pushing hard to reduce the accounting rates. On August 7th, 1997, it issued an order on “International Settlement Rate Benchmarks” adopting a set of maximum settlement rates, called “benchmark rates” (FCC, 1997; Frieden 1998; Stanley, 2000). The FCC expected US carriers to use the benchmark rates in their settlements with foreign carriers, also threatening to authorize domestic carriers to introduce unilateral reductions even failing to reach an agreement with their international partners. The FCC benchmark rates vary on the basis of four countries income categories (high, upper-middle, lower-middle, and low) and a separate category for countries with a teledensity lower than 1%. In practice, the rates for terminating traffic in the US are being capped in a range from 15 to 23 cents per minute. The FCC adopted a sliding scale of one-year intervals starting with the implementation of a maximum settlement rate per minute (msr) equal to 15¢ for high-income countries from 1/1/1999 and ending with a msr = 23¢ from 1/1/2003 for countries with teledensity lower than 1% (see Table 1).

The following points are worth outlining to obtain a better understanding of the FCC position.

The US argues that traffic flows are unbalanced because they mirror the high accounting rates and the market differences between countries. Although the “average net settlement payment per minute” (ANSM)[11] fell from US$ 0.38 in 1991 to US$ 0.20 in 1998 (corresponding to a 47% reduction), the overall outgoing traffic growth was so strong that it overrode the effect of that reduction. In fact, between 1991 and 1998 the US net settlements payments rose by 88% (Stanley, 2000).

Indeed, the FCC Benchmark Order was effective in inverting the trend of the US total net settlement payment, which started to decrease after 1997, when at the same time, the margin between average international price and average accounting rate started to rise (Figure 2).

However, Melody (2000) maintains that the increasing imbalance in US international traffic flows throughout the 1990s can be largely explained by the development of

[11] ANSM is calculated by dividing annual US net settlement payments by annual US minutes of international outgoing traffic.

Table 1:

FCC Benchmarks settlement rate by income group

Country income categories	Benchmark Rates *(US$ per minute)*	Date of application	Country compliance	Minute compliance
High	0.15	1/1/1999	37 out of 42	99.4%
Upper-middle	0.19	1/1/2000	17 out of 32	92.9%
Low-middle	0.19	1/1/2001	17 out of 65	47.5%
Low	0.23	1/1/2002	5 out of 21	9.5%
Low & T<1*	0.23	1/1/2003	3 out of 43	0.9%

* T indicates teledensity
Source: Stanley (2000)

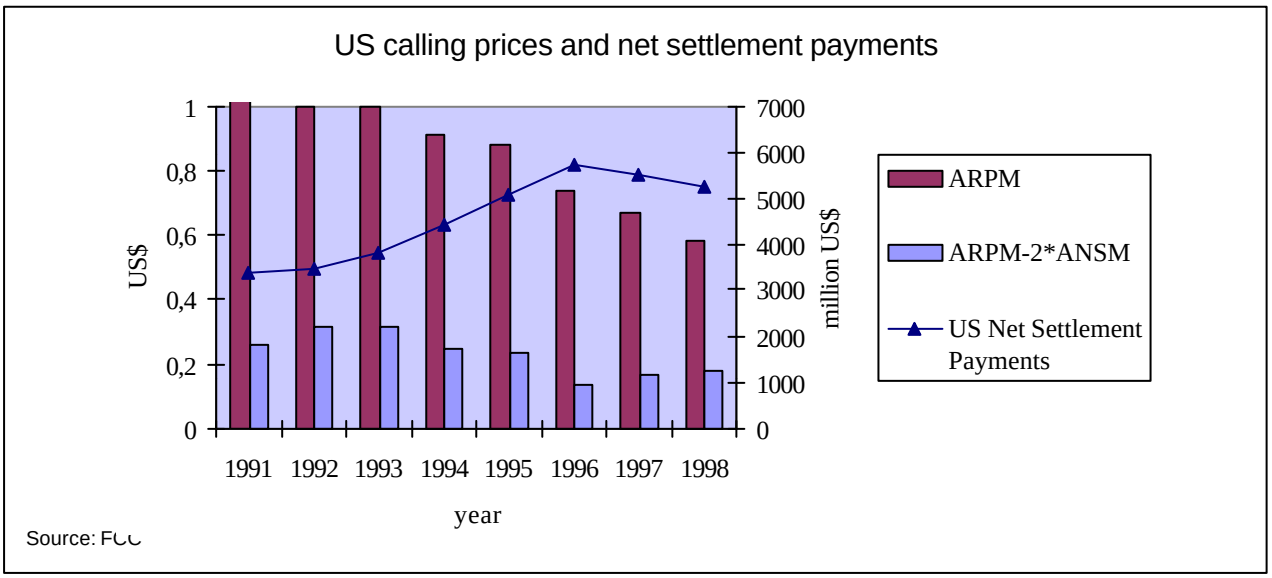
various devices by primarily US-based and developed country operators to compete for the international traffic that would normally originate in other countries (see section 2.1)[12].

Call-back, *home country direct* services and other alternative procedures appear in the statistics as host country (usually US) originated calls, even though the caller is in a foreign country. Instead of the foreign operators collecting customer payment and incurring a settlement obligation to US operators, the latter collect the customer payment and incur a settlement obligation to the former. Thus, the unit incremental cost incurred by US carriers as a consequence of such transformation of potentially incoming international traffic in outgoing traffic is given by the ANSM (assuming that the cost of national origination equates the cost of national termination). The unit net incremental revenue is given by the "average revenue per minute" (ARPM)[13] reduced by the foregone average settlement rates (ANSM). Therefore, we can estimate that new international calling procedures, like *call-back*, guarantee them incremental profits even if they also increase US carriers' net settlement payments. Each minute of incremental traffic generates an incremental unit profit approximately equal to ARPM – 2 ∗ ANSM, where 2 ∗ ANSM is the accounting rate. Given that collection rates are greater than the accounting rate, such an incremental profit is de-

[12] Kelly (1997, 8): "Settlement payments deficits are primarily the result of unbalanced traffic flows which are, in turn, the result of the adoption of alternative call origination procedures. As such, settlement payments deficits are an inevitable outcome of the battle among carriers for market share. In the transition to a competitive environment, net settlement payments can be expected to increase, rather than to decrease".

[13] ARPM is estimated through the annual billed revenue of US facility-based carriers divided by annual US minutes of international outgoing traffic. It is the weighted average of international services collection rates.

Figure 2



Source: FCC

finitively positive. On the other hand, the foregone profit of the (country's) carriers suffering from the *call-back* is commonly greater than the incremental profit of the US carriers. In fact, this foregone unit profit is given by the difference between the average collection rate of the former and their average accounting rate (that is cr – 2 * ANSM where cr is greater than the US's ARPM).

Trends of ARPM – 2 * ANSM during the 1990s (see Figure 2) show that the reduction of settlement rates caused by the implementation of the FCC benchmarks may have definitively created (not only a price decrease) but also an increase of US international carriers' profits at other countries' expenses. In other words, increasing US net settlement payments, rather than revealing a subsidy from US to foreign countries, may hide foregone profits by foreign countries to the advantage of the US.

2.3 The impact of the US plan on developing countries and the ITU proposal of target settlement rates

The US federal regulator can legitimately try to remove the established accounting rate system, but the way it has been adopted — the unilateral adoption of new settlement conditions — could run counter the international telecommunication agreements and, probably, to the obligations the US has taken as a signatory to the WTO agreements[14]. In addition, the FCC action might bring about dividends in the short term to US customers and carriers but it risks disturbing the international harmony and therefore calls for the possibility of a conciliation to reach global solutions[15].

In any case, the real impact of the FCC benchmark on different countries is very difficult to estimate. Cross-subsidies between international and domestic networks are not easily measurable. Countries usually report neither their bilateral traffic patterns nor their settlement payments. All assertions about global trends are extrapolations from the few data available (mainly US data) and caution should be exercised in dealing with them. Inferring general statements from these elements is a risky exercise. For example, some of the poorest economies, such as sub-Saharan Africa, receive modest net payments from the US. Even some of them, for example Somalia, made net payments to the US.

The reasons why a country becomes a "net receiver" of settlement payments are complex. Generally speaking, not only economic, but also social, cultural and technical factors are important[16]. These include, in particular, the impact of different per capita income levels and trade links, and mainly the concentration of immigrants (Mexico, China, India and the Philippines are the top four net receivers of US settlement payments). Policy-makers may have no influence over these exogenous factors.

Nevertheless, country compliance with the FCC benchmark plan (see Table 1) shows that to date, US carriers have achieved little success in negotiating FCC benchmark agreements with the least-developed countries. The reason for that failure was implicitly recognized by the FCC itself (1996, Par. 36): countries whose annual telecommunication revenues come from US payments for more than half of their total suffer the accounting rate drop.

Indeed — though it may be surprising — not all the money arriving in these countries via net settlement payments is to be considered a subsidy . Under current settlement agreements, the lower-cost country will realize the highest unit profit. In fact, US operators charge the identical settlement rate to terminate traffic from a particular foreign country A, as that country charges the US operators for US-originated traffic. Then, given that termination and origination cost in the US is much lower than in developing countries, the US margin of collection rates above actual unit costs might be also greater than the margin gained by operators in high-cost countries. The result of such a comparison will also depend on the differences in collection rates that have historically been higher in developing countries but are now under the competitive pressure from abroad represented by *call-back*, refill, etc. It is interesting to see in Table 2 that the US margin of average price above average imputed cost (ar) has clearly been increasing, both in magnitude and in percentage, during all of the 1990s. In addition, Table 2 shows that in the last decade, even if international service average prices were strongly reduced, the market average Lerner index (often used as a proxy of the allocative efficiency of a market) did not undergo significant variations[17].

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[14] In particular, Tyler and Bednarczyk (1998, 808) maintain that the decision to apply to the corresponding operators for permission to start up new means of communication at desired levels seems to violate the commitments the US accepted within the WTO concerning the market access to foreign operators.

[15] Frieden (1998) and Tyler and Bednarczyk (1998) state that the international telecommunications were based on a high degree of mutual and voluntary cooperation between operators and governments, and that the FCC approach does not create a good atmosphere for future cooperation.

[16] Stanley (1997, 380–384) suggests that other factors, apart from economic factors (differences in per-capita rent, price disparities of the calls, the kind of change or problems related to the economic globalisation), play a role, such as tourism, immigration and even the location of US military bases in many places. Besides, Walker (1996) also mentions telephone "familiarity" (for example, 8 minutes of daily use in France as opposed to 20 in the US), the earlier availability of International Direct Dialing and a decade of vigorous multicarrier international competition.

[17] Indeed, Table 2 shows both a "short-run" Lerner index (ARPM–ANSM)/ARPM and a "long-run" one (ARPM-2*ANSM)/ARPM. In fact, in the short run, the international capacity cost is sunk and the only incremental cost is the settlement rate paid to the destination country, that is, ANSM. Otherwise, in the long run, the country's own capacity cost also becomes "incremental" and then the total incremental cost is 2*ANSM, that is, the accounting

Table 2:

US margins of collection charges above settlement costs

	1991	1992	1993	1994	1995	1996	1997	1998	1999
ARPM	1.02	1	1	0.91	0.88	0.74	0.67	0.58	0.54
ANSM	0.38	0.34	0.34	0.33	0.32	0.3	0.25	0.2	0.17
ARPM-ANSM	0.64	0.66	0.66	0.58	0.56	0.44	0.42	0.38	0.37
(ARPM – ANSM)/ARPM	*63%*	*66%*	*66%*	*64%*	*64%*	*59%*	*63%*	*66%*	*69%*
Margin on call-back*	0.26	0.32	0.32	0.25	0.24	0.14	0.17	0.18	0.2
% Margin on call-back	*25%*	*32%*	*32%*	*27%*	*27%*	*19%*	*25%*	*31%*	*37%*

* The margin on call-back is approximated by the figure (ARPM – 2 * ANSM) and the percentage margin by the figure (ARPM – 2 * ANSM)/ ARPM.

Source: Elaborations on FCC data

Hence, the net result depends not only on the accounting rate and traffic imbalance, but also on the absolute levels of traffic transactions and real national termination/ origination costs. In extreme cases, those who make net settlement payments could not be "the losers"; from this perspective, least-developed countries might even be cross-subsidizing low-cost countries if the settlement rate became lower than with the high-cost country.

In contrast to the FCC, the ITU's Focus Group for the reform of the settlement system paid attention to the fact that developing countries' network costs are higher and that, for customers living in such countries, the availability and affordability of telephone service is currently more relevant than the price of international calls. Therefore, in June 1999, the ITU Study Group[18] issued recommendations that set "indicative target rates" that — if compared to FCC benchmark rates — would require a lower reduction of current settlement rates and longer transition periods for developing countries with low teledensity.

The implementation date is December 31st, 2001 for all countries with the exception of the "least-developed countries" whose target rates should go into effect in a period ranging from 12/31/2001 to 12/31/2004 (depending on the reliance of different countries on net settlement revenues).

ITU's proposal differs from the FCC plan also because its target rates are higher than FCC benchmarking rates for countries with a teledensity of below 20%–30% and lower for countries with a teledensity of over 40%–50%.

In addition, ITU targets — being based on teledensity — take explicitly into account the supra-national dimension of the universal service (global network expansion) and acknowledge that competition-oriented settlement rates cannot be implemented everywhere regardless of (or to the detriment of) the development level of different national markets.

3. Options for Reforming the International Settlement System

In spite of some efforts to resist the pressures towards changes, international telecommunications is quickly moving away from the old structure of bilateral monopolies and is becoming a worldwide oligopoly with lower and lower national barriers.

No provider is immune to changes, even where competition is not established and alternative call procedures (mainly call-backs) are prohibited. Frieden (1997, p. 827) maintains that "no degree of regulatory or incumbent carrier vigilance can eliminate them entirely".

The economic incentives and technological opportunities to by-pass the system are strong. It is possible to set up a call-back business with some computing equipment and few telephone lines. Indeed, network operation costs are becoming less relevant than marketing and other costs. The relation between the investment and the expected profit appears to be such that, not surprisingly, many firms are tempted to enter the market, whether authorized or not.

The demand for these alternative international services will increase if consumers have to face artificially high tariffs offered by their national operators. The only defense

rate. In addition, both the short-run and the long-run Lerner indexes are based on "imputed" costs (settlement and accounting rates) rather than on the actual cost of international calls.

[18] The ITU's Focus Group has been established in March 1998 by the second World Telecommunications Policy Forum, to operate within ITU-T Study Group 3 for the reform of the settlement system. In contrast to the FCC, in its November 1998 report, it took into account the fact that developing countries' network costs are higher, and for customers living in such countries the availability and affordability of telephone service is currently more relevant than the price of international calls. Therefore, in June 1999, the ITU Study Group 3 issued a recommendation.

for national operators is to reduce their international tariffs and compete by incorporating new and innovative services. For many countries, however, this will not be easy (Pisciotta, 1997).

Indeed, the least-developed countries are not the only opponents: "In theory, competition should speed the reform of the accounting rate system, but in practice it is not working as expected, because some regulators, particularly in the United States, impose a uniform accounting rate on competing carriers and apply to traffic the principle of 'proportional return'[19]. This greatly reduces the benefits of competition and tends to promote the cartellization of prices" (ITU, 1998b).

Among the different options for reform, the most conservative would be the reduction of accounting rates preserving the current symmetry for each pair of countries as proposed by the FCC. A change modifying the levels but not the structure of the accounting rates does not solve the structural distortions generated over the years. Tyler and Bednarczyk (1998, p. 808) feel that "the FCC's policies represent a strong pressure to reduce settlement rates in the traditional settlements system, but they do not attack the *structure* of the settlement system *per se*. On the contrary, these policies tend to conserve both the structure and some of its anti-competitive effects".

Many intermediate possibilities of alternative revenue-division mechanisms rest between the current accounting rate system and a possible future (and still far distant) system of international interconnections. ITU (1998b) provides a full review of these alternatives, which can be grouped in the following main categories, each with some pro and cons.

— *Call-termination fees*: the call-originating PTO pays a fixed amount for terminating the call. These call-termination fees are not bilaterally negotiated; each country is free to fix them on condition they are applied with no discrimination among countries and carriers. The problem is that this might degenerate into a race reacting to any increase, thus encouraging a spiral, whereby all partners imitate the country imposing a high fee. In addition, the incentives to deviate from the non-discrimination principle could be high and it would be difficult to envisage a supra-national organism able to enforce the observance of the aforementioned principle and punish any detected violation.

— *Sender keeps all*: the call-originating PTO keeps all of the revenues it collects. This procedure is not sustainable in reality unless there are balanced traffic flows. Another main inconvenience would be the elimination of financial flows from the core (developed countries) to the periphery (developing ones) of the worldwide network.

— *Volume or value-based payments (or, equivalently, discounts):* the payments made by the sending operator are tied directly to the volume or value of calls sent, on a descending unit cost scale. An undesirable fact is that payments may generally be negotiated on the basis of market power rather than on actual costs. However, such a scheme could also have desirable efficiency effects, due to the fact that it allows the reduction of settlement rates along high-traffic routes whose costs are lower than average, thanks to the exploitation of scale and scope economies[20].

All the aforementioned approaches cannot completely replace accounting rates. Nevertheless, they have a certain utility. Carriers are likely to combine different elements by developing a list of options for specific routes or partnerships according to the circumstances.

Indeed, the most advanced solution would be introducing cost-related international interconnection agreements between operators, substituting the current accounting rate system. This reform could require the unbundling of the three basic network elements which settlement rates comprise (international transmission link, international gateway, and call termination or national extension), allowing carriers to make economically rational *make-or-buy* decisions for each separate basic component (Kelly, 1997).

If such international interconnection services were introduced, in the long run, current differences between national and international competitive settings would be eliminated. This solution, however, would need a gradual adoption process with intermediate steps until the whole situation settles.

When trying to advance towards a cost-reflecting international interconnection system, it would be logical that the first step be to break the basic principle of a symmetric division (50/50) of the accounting rate. The terms of the problem and its relation to the current FCC approach are expressed by Walker (1996). "The thrust of the US campaign for accounting rate reform has, in the main, yet to address the fact that the logical consequence of embracing "cost-

[19] The FCC regulation required US international carriers to receive traffic coming from a foreign carrier in the same proportion as they transmit traffic from the US to that carrier. This policy implies that the total net settlement cost paid by a US carrier depends on its market share and the total return traffic received by the US.

[20] This approach could also be compatible with the price structure that would be suggested by the implementation of the *Ramsey rule* (or *inverse-elasticity rule*) to the problem of determining the efficient price structure which should be implemented to cover the total costs incurred to originate and terminate international calls. It makes the following reasonable assumptions: (1) the price elasticity of the traffic demand from developed to developing countries is lower than the elasticity of the traffic demand in the opposite direction, mostly due to the income effect; (2) the elasticity of the traffic demand between developed countries is greater than the demand elasticity between developing countries, mostly due to the substitution effect among alternative services and providers. On the basis of these assumptions the Ramsey rule would suggest the imposition of higher price-cost margins (or equivalently high settlements rates) on international calls involving developing countries.

based accounting rates" is a departure from the existing expedient of equally dividing the total accounting rate between correspondents. In other words the USA appears content for the overall level of the accounting rate to be cost-based but to continue with non-cost based divisions".

There is a general agreement, whereby the use of old-fashioned and inefficient technologies convert costs in developing countries much more than in developed ones. Walker (1996) suggests a first shift from the old 50/50 distribution rule to a new one-third/two-third division of the total accounting rate between the developed and the developing world respectively. This suggestion was based on the finding that the international cost of terminating telephony in developing countries is, on average, 2.08 times higher than in the developed world.

Apart from varying the 50/50 distribution, a sustainable reform of the accounting rate regime should be accompanied by a general process of harmonization in the international rate structure (to avoid inefficient arbitrage and refiling). This step would be readily accepted by the least-developed countries, who oppose any change. As already mentioned, given the cost difference, the current accounting rate system is an inefficient mechanism for transferring funds from high-teledensity countries to the poorest countries. A system in which prices are charged according to costs with asymmetric rates for call termination should be more effective for doing so.

However, it is probably difficult for developing countries to accept a significant lowering of their settlement rates in exchange for a simple shift in the 50/50 distribution rule. The reform of the international settlement system can be seen as a strategic game among countries with different, and often diverging, objectives and payoffs. If a new worldwide, sustainable and co-operative arrangement is to be negotiated and put into practice, developing countries (which appear to be the "losers" in the reduction of current settlement rates) should also be compensated with structural market changes supported by the developed countries (which, at least partially, appear to be the "winners" in the reduction of current settlement rates). Such structural changes may only come from increasing network penetration in developing countries. Meanwhile, the following could be stimulated: (1) the growth of outbound traffic towards industrialized countries, (2) the increase of the margins on that traffic (putting points of presence in developed countries, acquiring end-to-end transmission capacities instead of half-circuits), (3) the use of innovative ways of operation to their own advantage.

4. Matching Supra-National Universal Service Objectives and International Settlement Reform

So far, we have seen that sticking to the old regime may be a source of increasing inefficiencies both in a worldwide perspective and considering single national interests. "Accounting rates are a price for the termination of traffic; they should not be viewed as either a source of foreign exchange or as a transfer of capital to invest in infrastructure. In viewing accounting rates in this light, developing countries will distort prices, undermine their long run efficiency and penalize their industry and residential users." (OECD, 1997; p. 7).

The breakdown of the traditional accounting rates regime is a threat, but also an opportunity to reform the old structure. Most developing countries hit by the breakdown have a telecommunication sector characterized by a monopoly provider imposing distorted pricing and ineffective policies.

Therefore, low-teledensity countries are currently asked to make two difficult transitions — towards a new domestic market structure and towards a new international settlement system — with the objective of preserving or, hopefully, increasing the total resources they obtain domestically and from abroad to expand their infrastructures.

4.1 Universal service objectives and liberalization models in developing countries

Admittedly, high penetration levels of telecommunications networks and services cannot be reached immediately by developing countries. It would therefore be important to remember that the objectives of universal service differ for developing and developed countries, and it might be possible to put forth a gradual evolution and a level-based service classification. Hudson (1997) suggests three levels: one for home services, another for community infrastructures (post offices, libraries, communities) and a third "institutional" level (schools or hospitals).

Some observers argue that low income countries' telecommunications policy should pursue the creation of a system based on independent regulatory structures able to address the privatization and liberalization process[21]. This approach is based on the belief that competition between operators can do more for the network development than a monopoly situation. Petrazzini (1997) and Chowdary (1998), for instance, expect that market competition will give the impetus towards ideal scenarios, in which access is universally ensured and domestic revenues offset the declining revenue coming from foreign trade[22].

[21] Privatization and liberalization are the two keywords, although they are not always concomitant. Pisciotta (1997, 338) states that "Countries infrequently combine privatization and liberalization. To a great extent, in countries with low teledensities, this is due to a concern that multi-carrier markets cannot achieve universal service, especially when rates need to be rebalanced at the same time".

[22] Chowdary (1998, 265) asserts that "for the first time in history, increasingly open and linked economies and facilitated foreign

The competition model certainly was successful (although with some negative aspects) in developed countries with medium and high teledensity. However, it seems to be very difficult for market forces to be able to provide the incentives to invest in the poorest areas and to guarantee universal access at affordable prices in countries with very low teledensity.

Sy (1999; pp. 336–338) gives a full and very critical vision based on the experience of Africa. "The biggest challenge in the privatization of Africa's telecommunications will be to balance the needs of foreign private carriers for return and income and the needs of domestic users — including universities, research institutions, informal sector workers, non-governmental organizations, individual and organized farmers and civil society organizations — in search of affordable telecommunications tariffs. Primary and secondary schools may also want to benefit from reduced tariffs. Who will subsidize such needs in countries where poverty has destabilized entire social groups — including civil servants, whose income has been slashed by reform, inflation, unemployment, devaluation and extremely costly imported goods?". "Privatization is not a panacea [for under-developed countries]. It can lead to disaster where there is a lack of effective regulation and adequate specialized human resources with a progressive vision".

The new entrants "cherry-pick" the market, selectively choosing the areas where the mark-up of prices over costs is the largest. This means businesses could, in most cases, be the main beneficiaries of the possible tariff decrease. In the cases where facilities are offered to lucrative clients, there is no impact on the network extension. And a solid development will take place only if all economic sectors draw benefits from the progress and if there are not great disparities in global accounts.

Dokeniya and Melody (1998, pp. 3–4), clearly outline this point: "Competition might be a problematic strategy for network expansion for a variety of reasons. Competition undercuts the incentives of both the incumbent and the entrants to make large sunk investment in network expansion and provision of universal service. Competition might result in a price war and 'cream-skimming', movement of investment to the most lucrative sector at the expense of segments that are poorly developed (for instance, rural areas), thus hurting the goal of universal service, and resulting overall in an unbalanced development of the infrastructure. The design of the regulatory structure therefore needs to ensure, on the one hand that the new entrants have sufficient incentives to invest in network expansion and provide services in under-served areas, and on the other, that the monopoly's obligations to provide universal service is not eroded by its inability to ensure profitability in the face of competition".

A tentative conclusion is that, in low income — low teledensity countries, liberalization and competition, in the short and medium terms, are not the answer to the problem of universal access. At the most, in the early stages of national infrastructure development, a constrained competition (e.g. duopoly) can be made compatible with universal service objectives through suitable regulatory provisions, like the imposition of yearly coverage obligations in given areas (*metas*) to fixed operators in many countries of Latin America (AHCIET, 1999). In any case, such mixed models of strongly regulated competition appear to be applicable only in countries whose teledensity is greater than a given minimum threshold (at least 5-10%).

Countries with still lower teledensity critically rely on profits earned from accounting rates and may also need aid schemes outside the settlement payment system to meet the challenge and finance their transition to widespread access to the communication infrastructure.

4.2 The international dimension of the universal service

Network operators have traditionally used (and still use) net settlement payments from abroad to cross-subsidize their domestic network expansion and, in some cases, to keep the price of telephone access at a socially acceptable level. A recent ITU survey shows that the value of settlements made from developed to developing countries has been in excess of US$ 40 billion since 1993.

As explained in Section 2, developing countries' opposition to the reform derives from the uncertainty as to what would replace these net settlements revenues in the event of a collapse of the accounting rate system. Developed countries, led by the US, are pushing for a reform decreasing their net settlement payments to developing countries. It can be seen, however, that also rich countries, in accordance with the aspirations of the ITU and G7, may be interested in the achievement of universal access to the benefits of a widespread global infrastructure.

As recognized by the ITU (1998a, p. 7), "Any multilateral approach to meeting universal access should be asymmetric in nature. In other words, the subsidies made from high teledensity economies [not necessarily from the telecommunications industry] to low teledensity ones should be unilateral, and should not carry the expectation of reciprocal treatment". Such a unilateral subsidy could have both social and economic reasons.

The social reason lies in fundamental human rights. There is a broad general agreement on the fact that the "right to communication" would belong in that category because it is a prerequisite or a "necessary tool" that en-

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direct investments are making it *easy* for the less developed countries to put in place state-of-the-art telecom gear to connect their countries to the emerging global information infrastructure" (emphasis added).

ables people to benefit from other fundamental rights (ITU, 1998b). "The view that people matter more than market forces can regain ground, enabling telecommunications to offer vast potential for democratic development and for rebalancing a world that is becoming smaller every day" (Sy, 1999; p. 341).

There is, however, also an economic justification for supporting the infrastructure diffusion in developing countries: the significant direct and indirect network externalities accruing to developed economies. The traffic growth from developing economies can bring about a non-negligible profit to the advantage of developed economies as well. First, from the point of view of sector companies, equipment producers are favored by a growing demand and operators can draw advantage from the new opportunities offered on currently under-developed markets that are transformed into "profitable" ones. Second, Walker (1996) argues that "the quickest way to diminish call and cost imbalances between developed and developing countries [and hence the best way to solve the problems related to international traffic] is to raise network quality and telephone penetration levels to near OECD levels everywhere in the world". From a wider perspective, Tyler and Bednarczyk (1998, p. 801) point out that economic growth in developed countries also depends on the extension of trade and opening of new markets in poorer countries. "Future growth prospects are constrained by the low telephone penetration, congestion, and other service problems in developing countries. It is very much in the interest of telecom operators and users (and thus the whole national economies) in advanced industrial countries that telecom operators in developing countries continue to be able to finance their network expansions and upgrades, to reduce these constraints".

4.3 Moving beyond the current international settlement system

For any action to be effective, the global consensus is necessary. This might take the form of a more generous approach towards termination cost disparities between countries. A sincere and deepened commitment is required, for example, the recognition of the question of the universal service as a transnational problem.

One of the main differences between the FCC Benchmarking Order and the ITU proposal relies on the greater attention the latter pays to the different conditions of infrastructure and regulatory development in different countries.

The ITU has just declared that the rates have to tend towards the costs; although it has no mechanisms to enforce its "easily ignorable recommendations" (Frieden, 1998). The ITU is, in fact, a forum for collective, co-operative decision-making in which countries and carriers will engage in strategic behavior. As one could expect, the dominant players in these negotiations are the countries generating the largest volumes of international traffic, and particularly the US (that will be unlikely to withdraw the FCC plan in favor of the ITU initiative, which appears to be less advantageous for international US carriers). In addition, there is a gentlemen's agreement in the WTO whereby any subject related to the accounting rates is not treated as a commercial matter and will not be discussed until the agreement is completely overhauled.

"Heretofore, multi-lateralism has generated little more than a heightened appreciation of the problem and a growing concern that inaction or ineffectuality may disqualify trade and telecommunication policy making forums from making worthwhile contributions" (Frieden, 1998).

In particular, it is important that the agreements be global. The *Balkanization* of the solutions could bring about losses of networking and other positive externalities.

A possible solution could be based on the addition of a country-specific surcharge to the international termination rate destined for network development. To avoid these funds being funneled into carriers' general budgets, hence not reaching the stated objective, some security mechanism should be established, such as their inclusion in a specific universal service fund (accessible only at given conditions).

This approach has already been implemented in the domestic interconnection regime in the US and other countries. Furthermore, it is in keeping with the WTO agreement regarding each country's faculty to define its own domestic universal service obligations and finance them in the way it considers most suitable. In practice, "any Member has the right to define the kind of universal service obligation it wishes to maintain. Such obligations will not be regarded as anti-competitive per se, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member."[23].

It is worth noting that surcharges have already been experimented with in international settlements (even if with different objectives, such as to oppose refiling and rerouting national fixed-to-mobile calls from abroad). This approach would be fully equivalent to the definition of new

[23] *Transparent* means that all the rules, regulations and documents governing a particular measure should be available to the public. Thus, an incumbent operator might be obliged to publish separate accounts for the various portions of its operations. Application of USOs in a *non-discriminatory* manner implies that the same rules be applied to either domestic and foreign operators. *Competitively neutral* implies that no potential service provider should be unfairly prevented from entering the market, and no existing service provider should be unduly advantaged or disadvantaged as a result of the introduction of USOs.

(reduced) bilateral accounting rates accompanied by the abandonment of the old 50/50 division rule (recognizing the higher termination cost of developing countries). The cost orientation of the settlement rates, however, would not eliminate the erosion of poorer countries' potential profits through call-back and refiling if they continue to impose higher markups than richer countries over international service costs.

Another possibility is to resort to international funding institutions (like the World Bank) to direct targeted assistance towards the development of countries which are at the bottom of the teledensity scale by providing guarantee mechanisms ensuring that programs contribute to the enhancement of households' telephone penetration[24]. Besides, the programs fostering general economic development (based on a deep knowledge of the situation, problems and needs of these countries) must attach special importance to telecommunications[25].

5. Concluding Remarks

Given the price structure of nearly all the carriers, when someone somewhere in the world makes an international call, he is helping to fund the universal service obligations of the called country, both in the developed and in the developing world. In poorer countries, revenues from international services (both outgoing and incoming) represent a much more relevant share of carriers' total revenues than in richer countries. Therefore, the international dimension of funding the network expansion and reduction of the waiting list for a basic connection to the PSTN is particularly relevant for developing countries.

The growth of the international service demand (on the basis of a sharp price decrease and a high price elasticity) and the success of *reverse-billing* and *call-back* in attracting originating traffic away from low-income countries has had two opposite consequences on the profit balance on international service markets. On one hand, traffic flows and net settlement payments towards underdeveloped countries have increased. On the other hand, however, the domestic cross-subsidy between network access and usage has decreased. This phenomenon is due both to the reduction of the outgoing traffic and to the cross-border competition that implies a certain reduction of developing countries' collection rates (and profits).

Even if the specific national contexts can be very heterogeneous, it has been pointed out that, on average, net settlement payments to developing countries are not expected to increase as much as to offset the decrease of domestic cross-subsidies.

In addition, it appears that the current accounting rate system will no longer be sustainable in the future as a consequence of the emerging competitive forces in the international telecommunications markets. In fact, competition among developed countries' carriers pushing prices towards costs provides incentives to reduce the current level of accounting rates. On the other hand, arbitrage (least cost routing) and refiling provides incentives to reduce the widespread "non-cost-based" heterogeneity among the accounting rates of different country pairs. In any case, if accounting rate reform is not achieved, then an increasing share of the traffic currently carried by the public telephone system will simply shift to the Internet, where there is no formal settlement system.

The implementation of lower settlement rates will not undermine a relevant funding source for infrastructure investments in the least-developed countries only if it is offset by an *actual* increase of incoming traffic and/or alternative funding sources. Recent US experiences have shown that many developing countries incurred an increase in the net settlement payments they received from US carriers following a decline in settlement rates. However, the *strategic* increase of incoming traffic, due to the different forms of cross-border competition, cannot be accounted for as a cross-subsidy from developed to developing world, as it hides actual profit shifting. Therefore, the design of a sustainable new settlement regime that does not leave developing countries worse off requires further analysis and the modeling of traffic flows and competition among countries with different levels of market development and different termination costs and regulatory regimes. This is, hopefully, a direction for future work.

It has been pointed out that both the reform proposals currently on the table — the FCC *benchmark rates* and the ITU *target rates* — address only one aspect of the problem: the generalized reduction of the accounting rates currently in force. Unfortunately, both of these proposals do not fully take into account that the termination cost floors are indeed very different in developed and developing countries. This means that: (a) the minimum symmetric settlement rate that can be accepted by a developing country, to exchange traffic with a developed one, is its termination cost; (b) if such a minimum symmetric settlement rate were implemented, the richer country would be subsidized by the poorer one.

Therefore, it is envisaged that in the near future, the likely problem of differentiating settlement rates between

[24] Braga *et al*. 1998 describes some possible aid initiatives.

[25] Forge (1995) makes recommendations on how the World Bank, other funding organizations and governments could act. For example, they might "develop a business Internet with low-cost, flat-rate access as part of or with links to the Internet and having a global communications infrastructure network, a Commercenet/electronic data interchange-style environment (including electronic funds transfer), and platforms for freely acting electronic markets in services". To do this, these institutions would give "initial financing" on condition that "governance, education programs, and freedom of trade and competition in all areas are in place".

countries with different termination costs will be at stake. Its solution will require a much greater mediation and negotiation effort in conciliating diverging interests than the current transition towards lower, but symmetric, rates.

As already suggested by the issuing of the FCC "benchmarking" Order and the ITU Focus Group, the evolution towards a new international settlement system will be the result of strategic interactions at two levels: that of the international fora and organizations in which national regulators and institutions pursue country-specific objectives, and that of international competition among carriers bargaining for the new settlement rates that pursue their own private objectives. One of the main tasks of the ITU in the near future is the attempt to reach worldwide agreement among carriers, regulators and member states within a reasonable transition period, also taking into account supra-national externality effects and objectives.

This paper limits itself to a simple statement of the alternative, or also complementary, ways of preserving or fostering investment plans in developing countries' telecommunications infrastructure represented by western economies' support programs. Such an approach, based on subsidies coming from outside of the telecommunications sector, would be justified in view of the positive externalities accruing to the worldwide economy from the development of the global information infrastructure as envisaged by the G7.

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Zusammenfassung

Globaler Universaldienst und Reform der internationalen Ausgleichszahlungen in der Telekommunikation

Der vorliegende Aufsatz analysiert das internationale System der Ausgleichszahlungen und seine Auswirkungen auf die Entwicklung eines globalen Telekommunikationsnetzwerkes. Dies geschieht anhand eines Szenarios, das über internationale Verrechnungssätze hinausgeht. Die internationale Dimension der Finanzierung von Universaldienststrategien in Entwicklungsländern wird anschließend diskutiert. Es wird darauf hingewiesen, dass der sich verschärfende Wettbewerb auf internationalen Märkten, der Kommunikationsströme und Einnahmen von den sich entwickelnden auf die reichen Länder verlagert, zur Verringerung der Gesamteinnhamen der ärmeren Länder führen kann, auch wenn die erhaltenen Netto-Ausgleichszahlungen steigen. Die erwartete Reform des Systems der Ausgleichszahlungen, das die ITU und die US-amerikanische Regulierungsbehörde anstreben, könnten dieses Phänomen weiter verstärken. Die Schlussfolgerung der Autoren lautet daher, dass diese Reformen adäquatebegelitende Maßnahmen erfordern, die den Aufbau einer internationalen Netzinfrastruktur finanziell unterstützen. Hier sollten auch die positiven Externalitäten, die den reichen Ländern zugute kommen, berücksichtigt werden.