AMERICAS TELECOMMUNICATION INDICATORS 2000

Executive summary

April 2000

INTERNATIONAL TELECOMMUNICATION UNION

1. A DECADE OF REFORMS

No region of the world has embraced the privatization of telecommunications as enthusiastically as Latin America. Of the 89 incumbent public telephone operators worldwide that had been privatized by the end of 1999, one quarter were in the Americas region. Even more impressive is the degree of private participation in the sector. While more than two-thirds of the countries of the Americas region have either partially or fully privatized their telecommunication companies, in other regions like Africa and the Arab States, this percentage drops to 28 and 33 per cent respectively (Figure 1, top chart).

No region of the world has embraced the privatization of telecoms as enthusiastically as Latin America

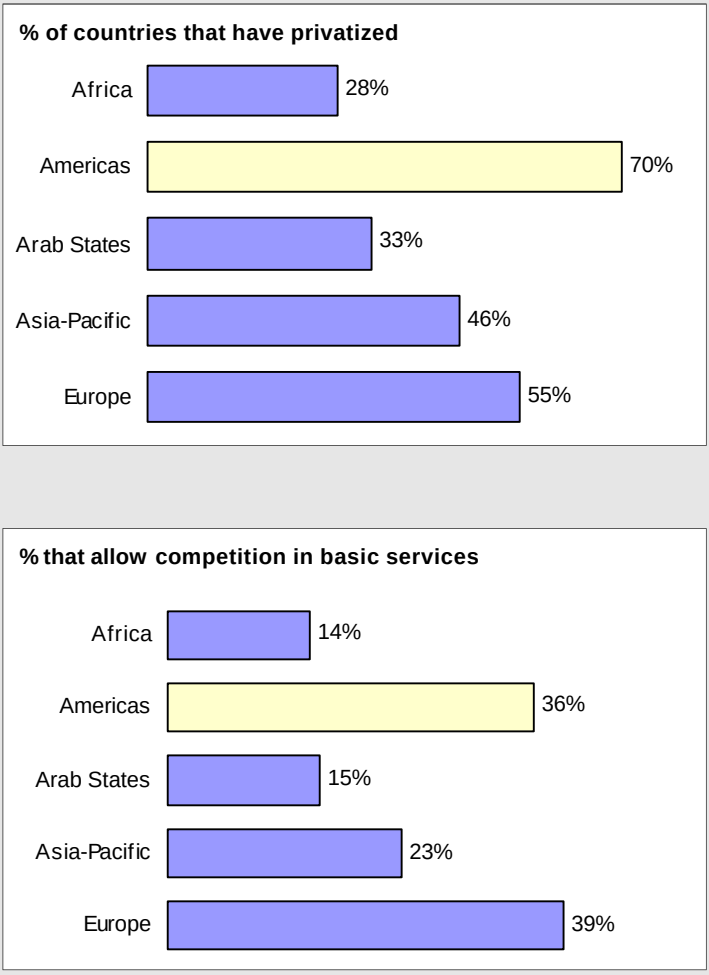
Little more than a decade ago, Chile was the first country in Latin America to sell its state-owned telecommunication company. Ten years later, in nearly every country in the region, the major telecommunication operator is either fully or largely-owned by private investors. What lay behind the rush to privatize? Firstly, politics played an important role. A decade of economic crises during the 1980s left many Latin governments strapped for cash and unable to resist the demands of financial institutions. This led to further international loans being dependent upon privatization. The sale of monopoly phone companies turned out to be most lucrative, raising more than US$ 40 billion for governments of the region. Secondly, the proceeding was infectious. The practice spread to other countries and its introduction was facilitated by ensuing network growth, shorter waiting lists and better quality of service.

But the glitter of privatization has begun to fade. By itself, it was never enough to overcome the underlying socio-economic barriers to widespread telecommunication access. Unfortunately, the initial success of privatization misled policy-makers into believing that the solution to all their problems was the sale of the public telephone operator. Although the situation has improved Latin America still faces the hard fact that not much more than one-third of the region's households have a telephone. A lack of competition, and performance targets set for monopoly providers which generally proved easy to meet, meant that prices have remained high. After the early years following privatisation, investment in the fixed-line network actually fell in many countries.

Now, however, there are signs that the competitive market structures that have worked so well in the mobile market are being adopted for fixed-line networks. This policy shift is coming as exclusivity periods granted to incumbent operators come to an end or as countries that are privatising for the first time, such as Brazil, choose to license competitors almost straight away. The negotiating process at the World Trade Organisation has played an important part in this change of direction. Out of the 33 countries that make up the Americas region, 81 per cent have committed to progressively liberalize their basic services market.

Figure 1: Increasingly private and competitive

Percentage of countries that have privatized their national telecommunication operators and percentage that allow competition in basic telecommunication services, by region, 1999



Note: In the bottom chart, basic services refers to fixed-line local or long-distance services.
Source: ITU World Telecommunication Regulatory Database.

2. THE MOBILE JUGGERNAUT

The combination of private ownership and increasing competition has placed mobile markets in Latin America amongst the fastest growing in the world. The number of mobile cellular subscribers in Latin America soared to over 39 million in 1999, up from just 100'000 subscribers in 1990, and 3.5 million in 1995. This means that today, one in every four telephone users in Latin America depends on a mobilephone and, in some markets, the ratio is one in two. Paraguay and Venezuela have become the first countries in the region, and two of only a dozen in the world, where mobilephone users outnumber those who depend on a fixed-line connection.

... the overall trend towards higher growth rates in mobile is inextricably linked to increased competition and service innovations, such as Calling Party Pays and pre-paid...

Over US$ 10 billion has been raised in Latin America from new mobile cellular licenses since 1990. These payments come from the more than 60 new mobile cellular companies that have sprung up in the region since 1990. By the end of 1999, two-thirds of Latin America had a competitive mobile market (see Figure 2, top chart). One exception has been the Caribbean where exclusive concessions have often been granted to a lone cellular operator, generally the fixed-line incumbent.

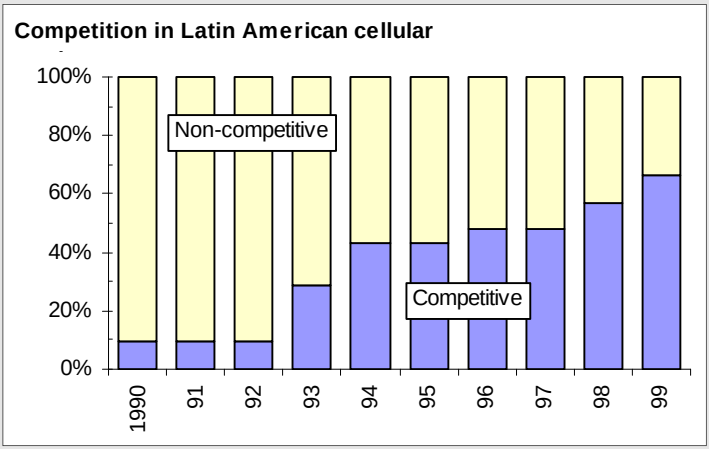
The profile of the telecommunications market in the Americas region is rapidly changing as the number of new cellular subscribers has started to exceed by far the number of new subscribers to traditional fixed line services (Figure 2, bottom chart).

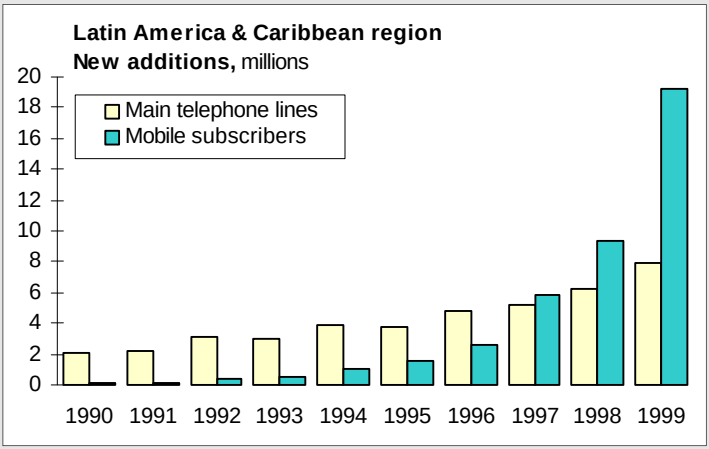
Unsurprisingly, the overall trend towards higher growth rates in use of mobile since 1996 is inextricably linked to increased competition and service innovations, such as Calling Party Pays (CPP) and pre-paid. The increase in subscribers as a result of implementation of CPP is striking. Peru adopted CPP in May 1996 and by the end of the year, the number of cellular subscribers increased over 150 per cent compared to the previous year.

Another major driver of cellular growth in Latin America, as well as elsewhere in the world, has been pre-paid service. In Venezuela, pre-paid subscribers increased over three-fold during 1999, accounting for 73 per cent of the subscriber base, while the contract subscriber base dropped by some 15 per cent. In Mexico, the exponential growth of mobile telephony can be at least partly attributed to the introduction of pre-paid services in 1993. By 1998, the country had the largest number of cellular pre-paid subscribers in the region, some 60 per cent of all mobile users. By the end of 1999, almost 85 per cent of Telmex cellular subscribers were on the pre-paid plan “Amigo”.

Figure 2: Mobile market trends

Percentage of countries with competitive mobile markets, Latin America, and new subscribers added each year to mobile and fixed-line networks, Latin America and Caribbean, 1990-99





Note: Top chart shows percentage of countries in Latin America with choice of one (non-competitive) or more than one cellular operator (competitive).

Source: ITU World Telecommunication Indicators Database.

3. INTERNET HEADS SOUTH

The number of Internet host computers grew faster in Latin America than any other region of the world in 1999

Latin America is getting feverish about the Internet. The number of Internet host computers grew faster in Latin America than any other region of the world in 1999 (Figure 3, top chart) and reached a significant milestone, surpassing one million. Internet users in Latin America climbed almost 14-fold between 1995 and 1999, from just half a million to over 9 million. This Internet expansion is even more striking considering that general economic growth in the region was flat in 1999.

What is driving this rush to the Internet? Falling prices are an important factor. Internet access charges are dropping, more flexible pricing plans have been introduced and local telephone call charges have been reduced for Internet usage in some countries. Innovative marketing ploys, such as bundling personal computers with Internet access subscriptions, are also driving growth. Another factor is growing content. Companies are tumbling over themselves to produce content in Spanish, the world's fourth-largest linguistic group with some 300 million speakers.

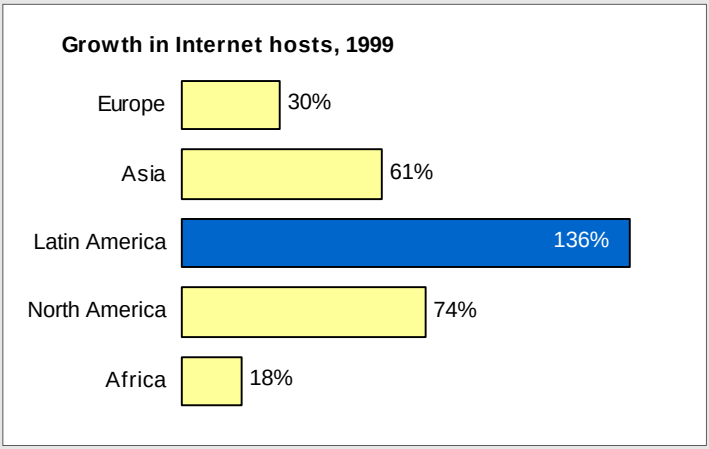
Wiring the masses

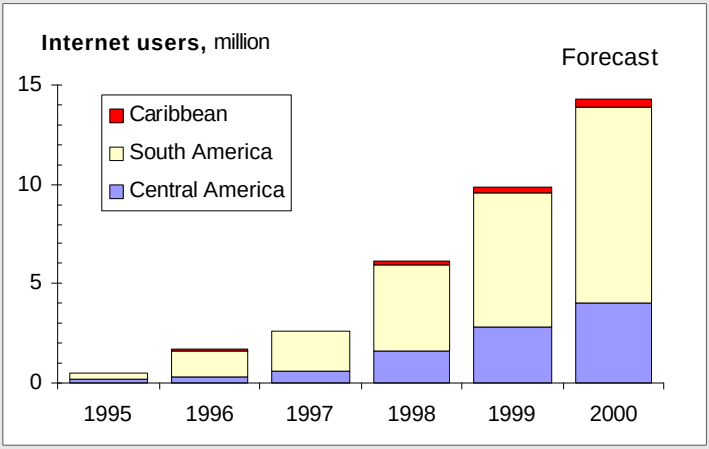
Many inhabitants of developing countries either cannot afford individual Internet service or do not have easy access. There are a growing number of initiatives to overcome this problem by installing Internet terminals in public locations, as well as in cybercafés. This often has the added advantage of mutual support and learning among novice users. Programmes include:

- In Argentina, the government, under the programme "argentina@internet.todos" is in the process of finalizing the installation of some 1'000 telecentres which will provide access to the Internet for low-income and remote communities.
- In Barbados, all primary and secondary schools will be IT-equipped during the next seven years as part of the EduTech 2000 project.
- In Belize, the telephone company has 'wired' 21 schools. The Internet for Schools program, initiated in 1995, aims to provide all secondary and tertiary educational institutions with free Internet access.
- In Chile, the Telecommunication Development Fund is being used to assist the development of community telecentres, part of a project to provide Internet access to all of Chile's communes by the year 2006.
- TELECOM in Colombia has a Social Internet programme to take the Internet to all Colombian municipalities. In the poorest municipalities, it provides free Internet access. It is also working with the Ministry of Education to wire 2'000 schools.
- The Red Cientifica Peruana (RCP) has become famous as a result of its public Internet centres. RCP manages 30 and provides support for another 470 such centres, and there are plans to install an additional 400, as well as 5'000 payphone-type Internet cabins.
- In Uruguay, the state-owned telecommunication company ANTEL's Third Millennium project is installing 25 Digital Community Centres in all state capitals and large cities. They provide access to the Internet and videoconference facilities.

Figure 3: The Americas Online

Growth in Internet host computers by world region, 1999 and estimated Internet users, Latin America and the Caribbean, 1995-2000





Source: Top chart, ITU adapted from Internet Software Consortium (http://www.isc.org).
Bottom chart, ITU World Telecommunication Indicators Database.

4. PERFORMANCE EVALUATION

Every country in the Americas region can claim to have grown its telecommunications sector during the 1990s. Demand for telecommunication services was so high that it would have been hard not to make supply-side improvements. But it is only by comparing one country against another that real progress can be monitored.

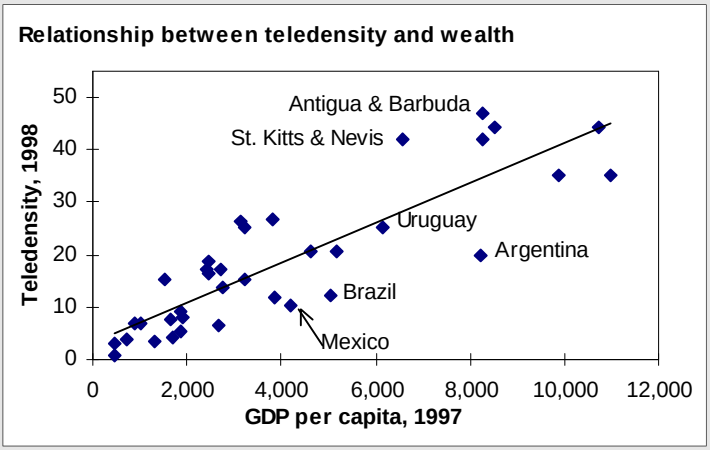
In the Americas region, mobile is more of a substitute than a complement to fixed-line telephones

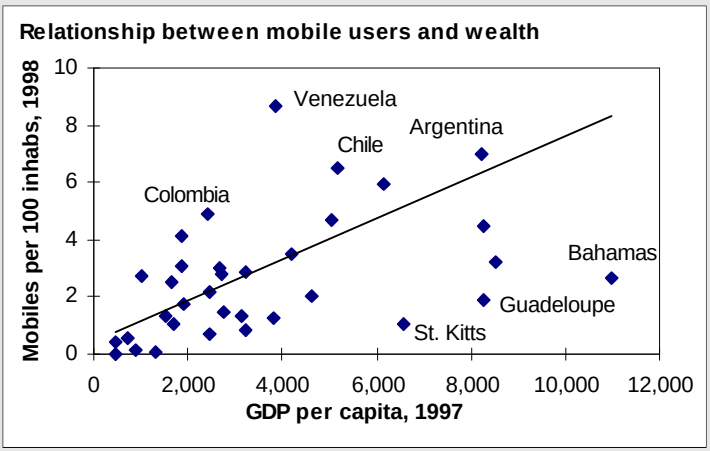
One way of measuring performance is to compare the penetration rate of telephone lines and mobilephones with other countries with a similar level of wealth. The relationships are shown in Figure 4 for fixed-lines (top) and mobilephones (bottom). Those countries which are above the "best-fit" line have more telephone lines than would be expected, given their relative wealth, whereas the countries below the line have fewer lines. For teledensity, it is mainly smaller economies which feature above the line while the major economies of the region are below it. For mobile density the relationship appears to be the reverse. For mobiles, the countries above the line generally have multiple players providing mobile service. By contrast, in the smaller economies of the Caribbean, the majority of economies have only one service provider. The lack of competition would appear to be a hindrance to market development.

It is also useful to examine to what extent the performance of a country's telecommunications sector is changing over time. Among countries which have improved their rankings for fixed-line teledensity during the last decade are several that privatised their incumbent operators in one or more tranches early on, including Jamaica (1989, 1990), Chile (1988, 1989, 1990) and Guyana (1991); one which privatised more recently, El Salvador (1998); and one which has long been privately-owned, St. Kitts & Nevis. This seems to suggest that privatisation can help in improving the national operator vis-à-vis other countries that have not privatised. The top performers in mobile service have tended not to do as well in fixed-line service, suggesting that, in the Americas region at least, mobile is more of a substitute than a complement to fixed-line telephones. What characterises the top mobile performers is that they all permit competitive service provision. In the case of Paraguay, the competitive market structure has proved so successful that there are

Figure 4: Telecommunications and wealth

Relationship between penetration rate of fixed and mobile services, and GDP per capita, Latin America and the Caribbean, 1998





Source: ITU World Telecommunication Indicators Database.

now more mobilephones than fixed-line ones. Significantly, all the mobile top performers are in South America where competition has been more the norm than in Central America or the Caribbean.

For most indicators, it is the introduction of competition, rather than just the privatisation of the incumbent, that seems to bring about the more significant shifts in performance. But for quality of service, it is often privatisation, and the injection of the profit motive and modern management techniques, which is sufficient to bring about change. One of the most dramatic demonstrations of this is in the reduction in waiting lists and the incidence of faults. For instance, in Argentina, the average waiting time for a new telephone line declined from 3 years in 1991 to 15 days in 1998 while the number of faults per 100 main lines fell from 42 in 1991 to just 17 in 1998.

Successful policy must include the three elements of competition, private sector participation and independent regulation

Successful policy must include the three elements of competition, private sector participation and independent regulation. For much of the decade, the continent has been marked by privatisation without competition and, particularly in the Caribbean, an unclear separation between regulatory and operational functions. Now, as a new millennium dawns, there are signs that the right mix is slowly coming together:

- In several countries of the region, such as Argentina, Mexico or Peru, long periods of exclusivity enjoyed by a privatised incumbent operator are coming to an end and competition is being introduced;

- In other countries which are just embarking upon the liberalization process, such as Brazil, El Salvador or Guatemala, privatisation is being undertaken concurrently with the introduction of competition;

- In still other countries, such as Jamaica or Trinidad & Tobago, governments are bringing forward the end of exclusivity periods.

5. THE RISE OF TELECOM REGULATORS

During the 1990s, some 86 new separate telecommunication regulatory agencies were created around the world. In the Americas, of the 22 regulatory agencies that were in existence by early 2000, 18 had been created during the 1990s (Table 1). This process was closely related to the trend towards privatization in the region. The Americas region now features the highest proportion of separate regulatory agencies in the world.

One of the central aims of buttressing the autonomy and professionalism of new regulators is the depolicization of the national telecommunications market. However, achieving these goals has been easier said than done. In Argentina, for example, the administration that ruled the country between 1990 and 1999 intervened at the regulatory agency on several occasions and in each instance, all or most of the directors fo the collegiate body were removed.

The Americas region now features the highest proportion of separate regulatory agencies in the world

In some 40 per cent of the countries of the Americas region that adopted the World Trade Organization's Regulatory Reference paper, the state still maintains a stake or full control over the telecommunication operator and no independent regulatory agency exists. These countries—mostly from the Caribbean—will have to either sell 100 per cent of the company or create an independent regulatory entity to comply with the requirement that the regulator should be "separated from, and not accountable to, any supplier of basic telecommunication services."

Regulatory agencies of the Americas have been granted the power to oversee a significant portion of the telecommunications market. In some cases, however, key regulatory functions are shared with the sector Ministry, remain under the total control of the Ministry, or are split among various regulatory agencies operating in the same industry. Telecommunication regulators have generally been granted jurisdiction over new services, such as the Internet. In a few cases the management and promotion of Internet services fall under other agencies within the state. The splitting of functions and jurisdiction among government agencies is likely to generate turf battles among them as convergence of technologies, services and markets moves from rhetoric to reality.

6. ENHANCING SECTOR EFFICIENCY

The debate continues in the telecommunications industry over the necessary level of regulatory intervention. Some argue for the abolition of industry-specific regulators and the transfer of regulatory functions to competition authorities and the judicial system. This overlooks the growing importance of independent regulation as a means for achieving effective competition in communication services. But regulation *per se* is no panacea. The success or failure of national administrations in stimulating market development is strongly linked to the institutional arrangements that underlie a regulatory agency's operation and the powers with which they are invested. The main regulatory challenges they now face relate to issues such as interconnection, universal service and tariff rebalancing.

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To bring home some of the many benefits that efficient **interconnection** holds for the local market and the national economy, regulatory agencies around the world have adopted approaches that either emphasize regulatory intervention or keep the regulator at arms length from commercial negotiations between operators. In the Americas region countries have relied more on approaches that give the regulator leverage to move the negotiation forward to reach timely and equitable agreements. Interconnection principles of most countries in the Americas are also in line with, or quite close to, those proposed by the Reference Paper attached to the World Trade Organization's Basic Telecommunications Agreement.

As competition spreads across market segments and technological convergence blurs service boundaries, the availability of alternative infrastructures becomes an essential precondition for the ability to provide low cost information and communication services to end users. The demand for additional transmission capacity at lower rates is calling into question the extent to which the telecommunications interconnection paradigm should be applied to other types of networks. One of the consequences of this approach would be to extend interconnect

obligations to alternative of network operators such as cable TV companies, satellite operators, large ISPs, backbone providers and public utilities). A policy of this nature would be particularly important for the development of the Internet. Few countries in the Americas region are currently considering regulatory reform of this nature. In fact some regulatory agencies, such as the FCC of the United States, have adopted a position that differs considerably from this approach, rejecting recent petitions that would have forced cable TV operators to lease capacity to ISPs to serve their subscribers.

An increasing number of nations in the Americas are moving towards competitive tendering for niversal service subsidies

Most developing countries are faced with two **universal service** challenges. The first is to increase the availability of telephone service. Though the region has made major strides in this area, there is still considerable work to be done. Interim strategies are also needed for providing easy and affordable access to those without a telephone in their home. The second challenge is to look at ways in which the existing infrastructure can be better managed to extend the reach of services. The broadening of the universal service paradigm, however, poses new dilemmas related to the scope of the concept; that is, which services should be included and which should be kept on hold for a future time?

Financing universal service programs remains a considerable barrier despite significant reductions in the cost of equipment and services and the increase in economies of scale of most markets around the world. Universal service has been, until recently, generally financed through cross-subsidies. In most of these cases, the obligation to fulfil universal service targets was imposed on the incumbent operator. To overcome potential distortions generated by a non-transparent system, an increasing number of nations in the Americas are moving towards mechanisms by which subsidies, if required, are provided by competitive tendering basis to carriers interested in taking up the business opportunity. Chile, Colombia, Guatemala, and Peru are among the countries in the region that have adopted this approach. One finding from this “lowest subsidy”

approach is that, in some cases, low-income communities and rural and remote areas have greater purchasing power than was expected.

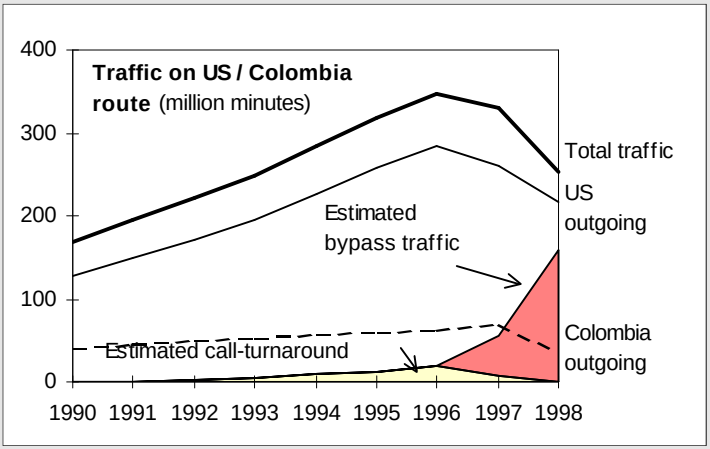
Privatization and the rise of competition in the region brought about considerable transformation of the economics of the sector. **Tariff rebalancin**g, for example, has become pervasive and most countries in the region are in the process of, or have completed, rebalancing in their national markets. Price rebalancing has been triggered by a number of factors such as direct competition or pressures exercised by indirect competition from a number of new technologies and services—such as call back, refile, Internet telephony, and so on—that bypass the services of the incumbent operator.

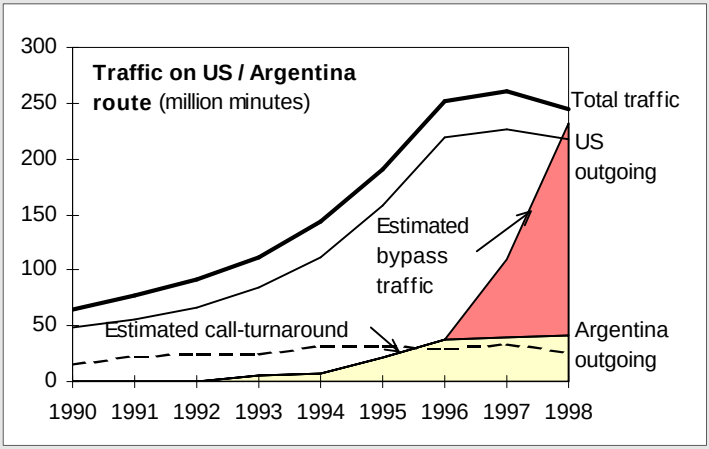
The majority of countries, while reducing their settlement rates, have not met FCC benchmark levels

There is also the political and economic pressure exerted by dominant players in the global telecommunications marketplace—such as the Benchmarks on international accounting rates imposed by the United States Federal Communications Commission. The Benchmarks impose a cap on the per minute settlement rate that US carriers can pay their foreign correspondents. Some of the countries in the region have fallen into line with US demands. But the majority of countries, while reducing their rates, have not met the benchmark levels. Some of these countries, such as Argentina and Colombia have been 'punished' by US carriers that have routed increasing volumes of traffic to those countries via refile or routes which bypass the accounting rate mechanism, such as the Internet (see Figure 5). At the level of settlement rates that prevailed in 1998, the losses incurred by Argentina and Colombia from bypass traffic were over US$ 60 million for each country.

Looking to the future, there are a number of new challenges regulators will face, notably in the new round of World Trade Organization services negotiations, the licensing of spectrum for additional mobile operators and in managing the transition to a competitive market.

Figure 5: Where did all that traffic disappear to?
Telephone traffic on US and Argentina and US and Colombia routes, 1990- 1998





Note: "Estimated call-turnaround" traffic is the volume of traffic on a particular route that has been re-routed so that it appears that it is coming from the United States. This includes call-back, calling card and home-country direct traffic. It is estimated by applying the ratio between incoming and outgoing traffic that applied before 1992 to the subsequent traffic balance. "Estimated bypass traffic" is the volume of traffic on a particular route which is estimated to be rerouted via a least cost route (e.g., refile) or outside the accounting rate mechanism (e.g., via the Internet) such that it is not reported in official traffic statistics. It is estimated by comparing the projected growth in the total volume of traffic on the route, based on trends before 1996, with what actually happened after that date.

Source: ITU estimates, ITU/TeleGeography Inc., "Direction of Traffic" Database.

AMERICAS TELECOMMUNICATION INDICATORS

In addition to the analysis of trends in the telecommunications markets of the region, the report also provides a comprehensive set of the latest available data for the 43 economies of the region including fixed line and mobile cellular markets, as well as data on tariffs, revenues, investment, employment, information technology, and international traffic. The data are taken from the ITU's World Telecommunication Indicators Database, available for purchase on a one-time or subscription basis from the ITU's website at: http://www.itu.int/ti/publications/world/world.htm. A summary of statistics for the leading operators in the region is provided in Table 2. Selected telecommunication indicators for year-end 1999 are shown in Table 3.

Annexes to the report provide more detail on the privatizations that have taken place in the region, the current status of incumbent operators, the commitments individual governments have undertaken under the World Trade Organization's General Agreement on Trade in Services (GATS) and the universal service policies adopted in different countries. A directory provides contact details for all the regulatory bodies, telecommunication administrations and public telecommunication operators (including mobile services providers) in the region.

The report is available in electronic format (as a PDF file) from the ITU website at: http://www.itu.int/ti/ or as a published report, in English or Spanish, from the ITU bookshop in Geneva (fax: +41 22 5194; e-mail sales@itu.int).

Table 1: The class of 1999

Separate telecommunication regulators in the Americas: date and instrument of creation, reporting structure, and financing, 1999

Country	*Regulator*	*Created*	*Reports to*	*Financed by*
Argentina	Comisión Nacional de Comunicaciones	Decree N1626. Began 1996.	Minister of Infrastructure	Fees from regulated companies
Bolivia	Superintendencia de Telecomunicaciones	Law 1600 (Ley SIRESE) of 1994. Began 1995.	Ministry of Economic Development	Regulatory fees from operators
Belize	Office of Telecommunications	Began 1988.	Ministry of Utilities, Transport & Communication	Government appropriation
Brazil	Agência Nacional de Telecomunicações	Telecommunication Law of 1997. Began 1997.	Independent, but linked to the Ministry	Government appropriation, licence and spectrum.
Canada	Canadian Radio-television and Telecom Commission	1968 Broadcast Act and 1976 CRTC Act.	Parliament through the Minister of Heritage	Government appropriation
Colombia	Comisión de Regulación de Telecomunicaciones	Law 142. Began 1994.	Head of state	Fees from regulated companies
Costa Rica	Autoridad Reguladora de Servicios Públicos	Law 7593 of 1996.	Legislative Assembly	Fees, government appropriation.
Dominican Republic	Instituto Dominicano de Telecomunicaciones	General Telecommunication Law Nro. 153-98. 1998	Independent with oversight of Contraloría General de la República	Percentage of CDT; spectrum and license fees, government appropriation.
Ecuador	Consejo Nacional de Telecomunicaciones	1995 Special Telecom Reform Law. Began 1995.	Head of state	Licence and spectrum fees
El Salvador	Superintendencia General de Electricidad y Telecom	Siget Law, Decree 808, October 1995.	Ministry of Economy	License and spectrum fees and other sources
Guatemala	Superintendencia de Telecomunicaciones	1996 General Telecom Law. Began 1996.	Ministry of Communic., Transp. and Public Works	Spectrum fees
Guyana	National Frequency Management Unit	Telecommunications Act 1990. Began 1992.	Independent	License fees

Table 1: The class of 1999 (cont'd)

Country	*Regulator*	*Created*	*Reports to*	*Financed by*
Haiti	Organe Executif du Conseil National des Télécommunications	Began 1969.	Ministry of Public Work, Transport and Communications	State budget and contributions from operators
Honduras	Comisión Nacional de Telecomunicaciones	1995 Telecommunication Law. Began 1996.	Ministry of Finance	Government appropriation
Jamaica	Office of utilities Regulation	1995	Ministry of Commerce and Technology	Public Utilities companies
Mexico	Comisión Federal de Telecomunicaciones	Federal Telecom Law. Began 1996.	Secretary of Communication and Transport	Government appropriation
Nicaragua	Instituto Nicaragüense de Telecomunic. y Correos	1995 General Telecom Law. Began 1996.	President of the Republic	Licence and spectrum fees
Panama	Ente Regulador de los Servicios Públicos	Law 26. Began 1996.	President of the Republic	Regulatory fees and government appropriation
Paraguay	Comisión Nacional de Telecomunicaciones	Telecom Law 642/95. Began 1995.	Ministry of Public Works and Communications	Licence and spectrum fees
Peru	Organismo Supervisor de Inversión Privada en Telecomunicaciones	Law 262685. Began operation in 1994.	Functional dependence to the President of the Council of Ministers	Provision of regulated services
United States	Federal Communications Commission	The Communications Act. Began operation in 1934.	Independent with congressional oversight	Licence/regulatory fees, government appropriation
Venezuela	Comisión Nacional de Telecomunicaciones	Decree 1826. Began 1991.	Ministry of Transport and Communications	Government appropriation, fees and taxes on operators

Source: ITU World Telecommunication Regulatory Database.

Table 2: Major Public Telecommunication Operators in the Americas region
Ranked by revenue and main telephone lines (excluding North America)

Top 10 Telecom Operators, *ranked by1999 telecom revenue*

		Telecom revenue		*Net income*		*Employees*	
		Total	*Change 1998-99*	*Total*	*Change 1998-99*	*Total*	*1998-99*
	Operator (Country)	*(M US$)*	*(%)*	*(M US$)*	*(%)*	*(k)*	*(%)*
1	Telmex (Mexico)	10'075	17.6	2'629	46.4	*63.9*	1.3
2	Tele Norte Leste (Brazil)	4'659	4.8	53	-32.3	24.4	0.9
3	Telefónica (Argentina)	3'399	-1.1	456	-10.7	12.8	15.0
4	Telecom (Argentina)	3'183	0.3	358	-4.3	14.0	4.1
5	Embratel (Brazil)	2'864	-16.9	228	112.9	*8.2*	-20.8
6	CANTV (Venezuela)	2'832	25.9	147	-43.7	14.8	-6.2
7	Telesp (Brazil)	2'559	-34.0	407	-13.7	14.6	-22.9
8	Tele Centro Sul (Brazil)	1'690	-24.7	120	-57.7	10.0	-21.9
9	CTC (Chile)	1'671	1.7	-99	-	9.9	10.5
10	Telefónica (Peru)	1'290	-3.7	204	-11.8	4.8	-14.5
	TOP 10	**34'223**	**-0.6**	**4'601**	**2.4**	**177.5**	**-3.7**

Top 10 Fixed-line Operators, *ranked by 1999 main telephone lines*

		Main lines		*Telephone service revenue*		
		Total	*Change 1998-99*	*Total*	*Change 1998-99*	*% of total*
	Operator (Country)	*(k)*	*(%)*	*(M US$)*	*(%)*	*revenue*
1	Telmex (Mexico)	10'878	9.6	6'410	-3.4	64
2	Tele Norte Leste (Brazil)	9'723	24.6	4'659	63.5	100
3	Telesp (Brazil)	8'251	32.1	2'559	3.0	100
4	Tele Centro Sul (Brazil)	4'718	24.9	1'690	17.4	100
5	Telefónica (Argentina)	3'934	-1.0	2'526	0.3	74
6	Telecom (Argentina)	3'423	2.2	2'310	-1.9	73
7	CTC (Chile)	2'592	-2.6	972	-7.0	58
8	CANTV (Venezuela)	2'586	-1.1	2'099	21.5	74
9	Telefónica (Peru)	1'689	8.6	882	4.1	68
10	CRT (Brazil)	1'630	13.3	635	2.9	100
	TOP 10	**49'424**	**14.0**	**24'741**	**11.4**	**69**

Table 2: Major Public Telecommunication Operators in the Americas region
Ranked by international outgoing traffic and by mobile subscribers

Top 10 International telecommunication carriers, *ranked by 1998 outgoing minutes*

		International outgoing telephone traffic		*International telecom revenue*		
	Operator (Country)	*(M minutes)*	*Change 97-98 (%)*	*(M US$)*	*Change 1997-98 (%)*	*As % of total revenue*
1	Telmex (Mexico)	1'023	1.4	949	-34.4	11
2	Embratel (Brazil)	533	11.8	534	65.4	16
3	Telintar (Argentina)*	362	46.0	484	-5.1	100
4	Telecom (Colombia)	204	32.6	*420*	...	32
5	CANTV (Venezuela)	165	3.1	340	-11.7	15
6	CTC (Chile)	156	199.3	123	68.6	8
7	CODETEL (Dom. Rep.)	133	15.3	...	...	...
8	Telefónica (Peru)	87	2.6	187	-20.9	14
9	Entel (Chile)	80	0.5	74	-56.3	13
10	ANTEL (Uruguay)	80	16.3	118	-12.2	17
	TOP 10	**2'822**	**15.3**	**3'229**	**-23.5**	**16**

Top 10 cellular operators, *ranked by 1999 subscribers*

		Cellular subscribers		*Mobile telecom revenue*		
	Operator (Country)	*Total (k)*	*Change 1998-99 (%)*	*Total (M US$)*	*Change 1998-99 (%)*	*As % of total revenue*
1	Telmex (Mexico)	5'272	149.4	1'364	65.8	14
2	Telesp Celular (Brazil)	2'893	60.4	1'222	31.4	100
3	Telcel (Venezuela)	2'219	90.0	664	80.5	100
4	Tele Sudeste (Brazil)	1'851	139.8	824	61.5	100
5	IUSACELL (Mexico)	1'323	78.8	440	48.9	100
6	BCP (Brazil)	1'291	96.8	...	...	...
7	CANTV (Venezuela)	1'181	84.8	670	65.7	24
8	Movicom (Argentina)	1'171	32.5	*750*	...	100
9	CTC (Chile)	1'154	108.2	207	27.8	12
10	CRT (Brazil)	968	78.3	*328*	...	30
	TOP 10	**19'323**	**95.7**	**6'468**	**65.8**	**30**

Note: United States dollar values are calculated using the annual average exchange rate. Financial changes are in terms of United States dollars. Data refers to year ending 31 December except for Argentine operators (year ending 30 September). Figures in italics are estimates or refer to earlier year. *Absorbed by Telecom Argentina and Telefónica
Source: ITU.

Table 3: Telecommunication Indicators

		Population	*GDP*	*Main telephone lines*		*Cellular mobile subs.*		*Internet*	
		Total (M)	*per capita (US$)*	*Total (k)*	*per 100 inhabitants*	*(k)*	*per 100 inhabitants*	*Users (k)*	*Users % of pop.*
		1999	*1998*	*1999*	*1999*	*1999*	*1999*	*1999*	*1999*
1	Belize	0.24	2'558	*31.6*	*13.75*	*3.4*	1.49	*10*	4.3
2	Costa Rica	3.93	2'763	802.6	20.41	143.0	3.64	*150*	3.9
3	El Salvador	6.15	1'984	468.1	7.61	382.6	6.22	*40*	0.7
4	Guatemala	11.09	1'754	605.3	5.46	351.2	3.17	*65*	0.6
5	Honduras	6.32	859	279.2	4.42	78.6	1.24	*20*	0.3
6	Mexico	97.37	4'330	10'926.8	11.22	7'621.6	7.83	2'453	2.6
7	Nicaragua	4.94	452	*140.0*	*2.98*	69.0	1.40	*20*	0.4
8	Panama	2.81	3'305	462.5	16.45	242.0	8.61	*45*	1.6
	Central	**132.84**	**3'631**	**13'716.0**	**10.34**	**8'891.4**	**6.69**	**2'803**	**2.1**
9	Bermuda	0.06	33'469	*53.7*	83.95	*12.6*	19.64	25	39.1
10	Canada	30.49	19'962	*19'206.0*	63.50	*5'320.0*	17.59	11'000	36.3
11	United States	276.22	32'198	*179'822.1*	66.10	85'018.5	30.78	110'000	40.7
	North	**306.77**	**30'975**	**199'081.9**	**65.84**	**90'351.0**	**29.48**	**121'025**	**40.2**
12	Argentina	36.58	8'257	7'356.8	20.11	*2'530.0*	7.00	900	2.5
13	Bolivia	8.14	1'077	471.9	5.80	401.7	4.93	*35*	0.4
14	Brazil	167.99	4'675	24'985.0	14.87	15'032.7	8.95	4'000	2.4
15	Chile	15.02	4'921	*2'753.0*	18.57	*964.3*	6.50	625	4.2
16	Colombia	41.56	2'844	6'665.4	16.04	3'133.7	7.54	600	1.6
17	Ecuador	12.41	1'620	1'129.5	9.10	383.2	3.09	*20*	0.2
18	French Guiana	0.17	…	49.2	28.26	18.0	10.34	*2*	1.2
19	Guyana	0.86	881	64.0	7.49	*1.5*	0.17	3	0.4
20	Paraguay	5.36	1'646	297.0	5.54	435.6	8.13	*20*	0.4
21	Peru	25.23	2'530	1'688.6	6.69	990.0	3.92	389	1.5
22	Suriname	0.42	1'976	70.8	17.05	17.5	4.21		0.0
23	Uruguay	3.31	6'335	896.8	27.07	316.1	9.54	*250*	7.6
24	Venezuela	23.71	4'088	2'585.9	10.91	3'400.3	14.34	400	1.7
	South	**340.75**	**4'425**	**49'014.1**	**14.39**	**27'624.5**	**8.12**	**7'244**	**2.2**
25	Antigua & Barbuda	0.07	8'266	*34.0*	46.80	*1.5*	2.06	*4*	5.5
26	Aruba	0.10	17'109	*33.2*	36.69	*5.4*	5.72	*4*	4.3
27	Bahamas	0.30	11'001	111.2	36.90	15.9	5.28	*12*	4.1
28	Barbados	0.27	8'731	*113.0*	42.18	*12.0*	4.48	*6*	2.2
29	Cuba	11.16	1'329	433.8	3.89	5.1	0.05	*60*	0.5
30	Dominica	0.08	3'236	*18.7*	25.23	*0.7*	0.86	*2*	2.6
31	Dominican Rep.	8.36	1'925	*763.9*	9.28	*255.9*	3.11	*25*	0.3
32	Grenada	0.09	3'635	*27.5*	29.78	*1.4*	1.53	*2*	1.9
33	Guadeloupe	0.45	8'509	201.0	44.69	88.1	19.59	*4*	0.9
34	Haiti	8.09	452	*60.0*	0.80	-	-	*6*	0.1
35	Jamaica	2.56	2'707	*474.0*	18.68	*79.0*	3.11	*60*	2.4
36	Martinique	0.39	10'747	171.9	43.82	102.0	26.00	*5*	1.3
37	Neth. Antilles	0.21	…	*75.9*	36.59	*16.0*	7.52	*2*	0.9
38	Puerto Rico	3.89	9'020	*1'261.7*	32.69	*580.0*	15.03	*110*	2.9
39	St. Kitts and Nevis	0.04	6'840	*17.2*	43.82	*0.4*	1.13	*2*	4.9
40	St. Lucia	0.15	3'815	*40.4*	26.57	*1.9*	1.25	*5*	3.4
41	St. Vincent	0.11	2'824	*21.0*	18.79	*0.8*	0.67	*2*	1.8
42	Trinidad & Tobago	1.29	4'726	*264.1*	20.58	*26.3*	2.05	*25*	1.9
43	Virgin Islands (US)	0.12	…	*64.9*	54.82	*25.0*	21.13	*12*	11.1
	Caribbean	**37.74**	**2'683**	**4'187.3**	**11.34**	**1'217.4**	**3.30**	**348**	**0.9**
	Americas	**818.11**	**14'228**	**265'999.3**	**32.74**	**128'084.2**	**15.69**	**131'240**	**16.4**

Note: For data comparability and coverage, see the technical notes.
Figures in italics are estimates or refer to years other than those specified.
Source: ITU (Internet host data: Internet Software Consortium, RIPE).

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