

Competition in International Voice Communications

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Foreword

Competition in international voice communications is a global phenomenon. Virtually all high-income countries and selected developing countries have adopted a model based on low barriers to entry, multiple technological options, and competition. As a result, prices dropped dramatically and volumes increased, to the full benefit of the consumer. Moreover, low cost international communications proved to be a key enabler of economic competitiveness. International communications has been regarded increasingly as a key determinant of industrial location, job creation, trade facilitation, and trade integration.

Some developing countries, for example, Chile and El Salvador have introduced and sustained full competition in international communications, which has resulted in notable successes. Despite these encouraging examples, about 74 percent of developing countries have retained barriers to entry in the international communications business, and about 85 countries still maintain monopolies.

If the benefits of competition are so evident, and there is great success from selected developing countries, then what are the reasons for resisting competition? This paper, prepared by a team from the Policy Division of the Global Information and Communications Technologies Department of the World Bank, explores possible reasons. It draws on the team's experience in covering an active policy dialogue on telecommunications reform in some 60 countries.

The paper investigates the emergence of full competition in international communications as a global phenomenon; assesses arguments and reasons commonly brought by governments to resist the introduction of competition; and illustrates some regulatory requirements to implement full competition.

While part of the world makes international calls at a price of a few cents a minute, other very poor countries pay exorbitant prices for international calls. The paper looks at some of the reasons for this divide; and the findings are interesting and relevant to economic development.

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Acknowledgments

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Acronyms and Abbreviations

\$	United States dollar unless otherwise noted
BT	British Telecom
ECA	Eastern and Central Europe
EU	European Union
FCC	(United States) Federal Communications Commission
FDI	Foreign direct investment
GATS	General Agreement on Trade in Services
GBP	Great Britain Pounds Sterling
GDP	Gross domestic product
HHI	Herfindahl-Hirschman index
IP	Internet protocol
ITU	International Telecommunications Union
LAC	Latin America and Caribbean
MYR	Malaysian Ringgits
MNA	Middle East and North Africa
OECD	Organization of Economic Cooperation and Development
PAT	Profit after tax
PSTN	Public switched telephone network
VoIP	Voice over Internet protocol
WTO	World Trade Organization
YC	Year that competition was completed

International Voice Communications

The Industry Moves Towards Full Competition

Market Trends

Over the last 20 years, the international voice communications market experienced substantial changes. International call volumes increased and prices dropped dramatically. International call revenues declined both relative to revenues from other communications services, and in absolute terms. This transformation in the industry was due to the adoption of new technologies¹ in a competitive environment. Technology change and regulatory reform led to a new market structure based on lower entry barriers and competition, affected the business model of firms in the telecommunications industry, and created pressures to modify the settlements system—a century-old set of bilateral agreements that ruled international communications.

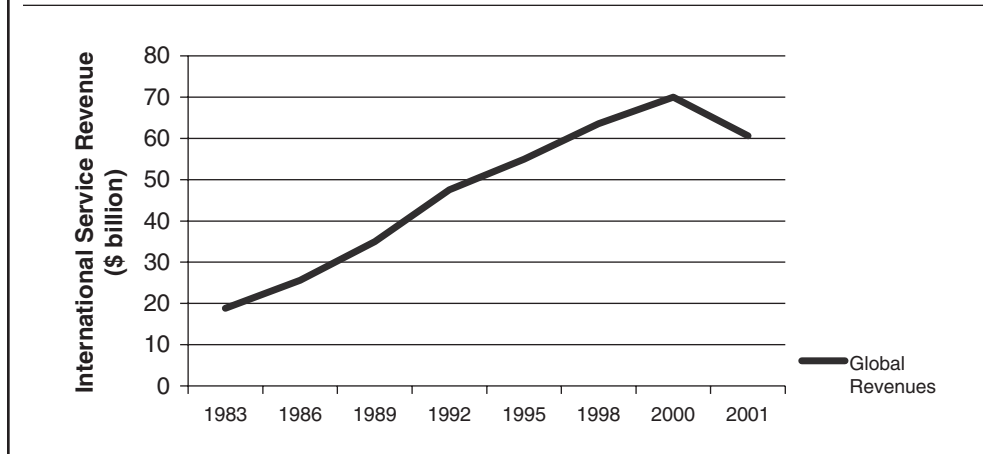
International call *volume* increased from less than 20 billion minutes in 1984 to over 144 billion minutes in 2001, a 13 percent annual growth rate.² International outgoing traffic per subscriber also increased from less than 60 minutes in 1990, to about 120 minutes in 2001, a 6 percent annual growth rate—a higher pace than the global economy's annual growth rate during the same period (2.7 percent).

The *price* of international retail calls fell. TeleGeography estimates that the average retail price per minute of an international call dropped from \$1.57 in 1983, to \$0.42 in 2001. The impact of price in competitive routes, such as New York/London, was even more dramatic, dropping from \$0.30 in 1997 to \$0.04 in 2003. Another competitive route is

1. Key technological improvements occurred in the international voice communications market since 1980. Progress in fiber optic technology and the emergence of Internet protocol (IP) personal computer-based distributed telephone technology lowered entry barriers.

2. TeleGeography.

Figure 1. Growth of International Service Revenues: International Service Revenues Increase by 10.9 percent from 1983–1992, and 2.8 percent from 1992–2001



Source: TeleGeography Global Traffic Statistics and Commentary 2003, ITU, pp. 12, 33. Missing years are estimated.

Santiago/Miami, which in 1997, was priced at \$1.60 per minute,³ while in 2003 the price was closer to \$0.15 per minute.⁴ International wholesale prices have fallen even more sharply. For example, the wholesale price of a call from the United States to Chile or to the United Kingdom is around \$0.015 per minute.

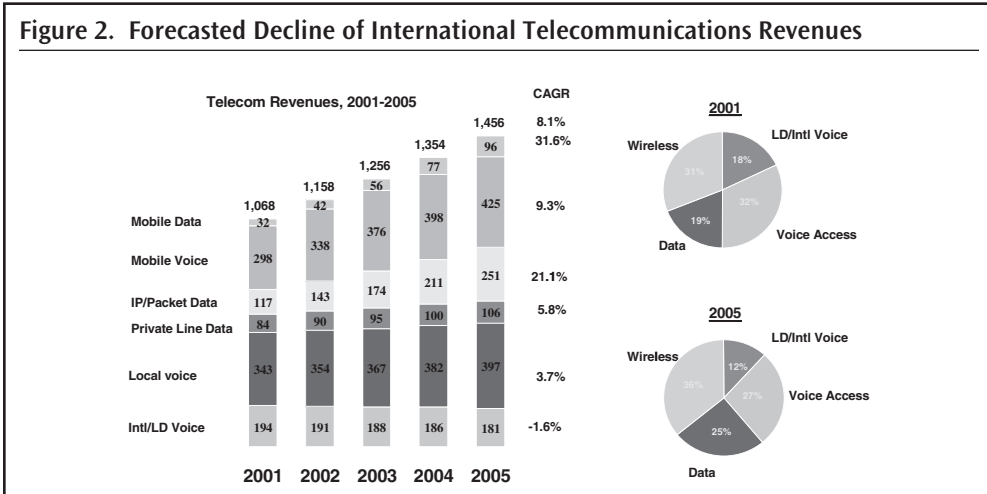
Industry *revenues* experienced modest growth, and recently, a decline. Competition has stimulated volume and reduced prices. But the price reduction had a substantial impact on revenues, causing stagnation and decline. During 1992 to 2001, revenues from international communications grew at a rate of 2.8 percent annually, close to global gross domestic product (GDP) growth. The global international communications industry generated \$70 billion in 2000, its peak year, decreasing to just over \$60 billion in 2001 (decreasing by 14 percent; see Figure 1). This decline can probably be attributed to the worsening global economic conditions in 2001 and 2002. Good economic conditions may have contributed to the superior growth experienced in the 1990s.

The radical transformation in the international telecommunications market has effected the overall telecommunications industry *revenue mix*. Revenue growth from international communications has been lower than the growth in two other market segments: mobile and data communications.⁵ The relative decline of international revenues is expected to continue. Other sources (IDC 2002, IntelSat) have forecasted that international revenues will decrease in the near future by 1.6 percent per year. In contrast, IP/Packet data has been forecasted to grow by 21.1 percent per year, and mobile voice revenues by 9.3 percent per year. As a consequence, long distance and international voice services, accounting for 18 percent in 2001 of overall sector revenues, are expected to decline to 12 percent in 2005.

3. Published ENTEL retail tariff. Source: SUBTEL

4. The price \$0.15 is probably the lowest available in the Chilean market. The incumbent price is \$0.97.

5. Siemens research presents global revenue growth by market segment. Growth rates show that international communications grew by only 12 percent in 1996–2000. In the same period, mobile communications revenues boomed by 127 percent. Over the same five years, data communications revenues doubled.



Source: IDC 2002, Intelsat

The decline of international revenues had an *impact on the business model* of market players. Incumbent operators were affected by these changes. For example, in Hong Kong the incumbent operator witnessed a decline in international service revenues over total corporate revenues from 53 percent to 21 percent in five years. Similarly, SingTel’s international wholesale revenues went from 40 percent of total revenues in 1997, to 15 percent of total revenues in 2001. Telmex international revenues (originating revenues only) over total revenues dropped from 19 percent to 8 percent in the same period (TeleGeography 2003). Other changes in the business model and practices involved the need for frequent (monthly or fewer) updates of international call prices, and the need to enhance the billing system.

As a consequence of the relative decline in international revenues, some incumbents have diversified their business activities, entering into new lines of business. For example, a large number of incumbent operators have focused on the development of mobile operations and data (such as, Telecom Italia Mobile and Telekom Malaysia). Other operators have changed their business model, and have expanded their operations abroad (such as BT). A common change in the business model consisted of changes to the tariff structure (tariff rebalancing). Incumbent operators implemented tariff rebalancing to reduce their dependence on revenues from international communications. In some cases, rebalancing was the choice of the operator. In other cases, rebalancing was mandated by regulation, to prepare the incumbent operator for competition. There has been a positive impact of rates rebalancing on network development. In Latin America (and elsewhere) rebalancing generated new revenues which allowed for an expansion of the local network, as shown by Ros and Banerjee (2000), Gutierrez and Berg (2000), and Wallsten (1999).

Changes in international communications affected the business model of nonincumbent operators as well. New mobile operators (for example, MediTelecom in Morocco, and Tunisiana in Tunisia) profited from the introduction of competition in the international communications market by developing their own competitive gateways. Competition in the mobile sector is important to the development of competition in international communications. It is a powerful force, in addition to being in many cases the only legal competition. In

many developing countries the number of mobile subscribers is surpassing that of fixed-line subscribers (Wellenius and Rossotto 1999).

This rapid transformation of the industry created pressures to modify the “settlement system,” the set of bilateral agreements, established initially in the late nineteenth century to administer payments between national monopoly providers of international telegraph and telephone services (Kelly 1997). An increasingly high quota of the global traffic moved away from these bilateral administrative agreements, and was settled using market-based systems. In particular, the factors that contributed to the changes of the settlements system were: (a) the growth of alternative ways to bypass the system, such as callback, refile and voice over Internet protocol (VoIP) termination;⁶ (b) the growth in the number of fully competitive markets, with several players negotiating termination charges; and (c) the pressures from regulatory agencies such as the United States Federal Communications Commission (FCC) and international organizations such as the International Telecommunications Union (Kelly 1997). In addition to these forces, global corporate data networks were increasingly used to carry voice transmissions, and contributed to attracting traffic away from incumbent operators. The incumbents also contributed to undermining the settlement system, as they received termination income from new global competitive carriers with whom they had agreements outside of the system.⁷ Two changes were brought about as a result of these pressures: accounting rates became more cost-oriented, and a higher percentage of traffic was carried outside the settlement system.

The Dynamics and Benefits of Full Competition

When regulatory barriers to entry are removed, the market structure for international voice communications shows most of the features of a competitive market: multiple suppliers, low barriers to entry, and stiff price competition. This market segment contrasts with other parts of the telecommunications industry, such as mobile or fixed local loop access, in which the market structure resulting from competition tends to be, respectively, an oligopoly, or a market characterized by a dominant firm with fringe competition (Rossotto, Kerf, and Rohlfs 1999). This difference is due to the lower initial capital requirement to be a competitor in the international communications market.

Table 1 presents the market share of selected countries’ incumbent operators three, five, and ten years after competition is introduced. The year in which competition is introduced is shown as YC, while YC+3, YC+5 and YC+10 refer, respectively, to three, five and ten years after competition is introduced. Table 1 also shows an index of market concentration, the Herfindahl-Hirschman index (HHI), three and five years after competition is

6. Artificially high termination rates created and strengthened the gray market through incentives for entrepreneurs to make quick and substantial gains. Most of the gray marketers were local companies, officials of ministries in developing countries, or employees within the incumbent’s own structure.

7. Incumbents also rerouted calls using new competitive carriers to remove excess traffic for which they would otherwise have to pay high rates to their settlement partner. In other cases, incumbents with insufficient traffic to fulfill their side of the settlement agreement received traffic destined for the settlement partner’s hub that originated in a different part of the world.

Table 1. International Communications Draws Closer to a Perfectly Competitive Market (market shares as a percentage of outgoing minutes)

Country (incumbent)	Incumbent market share at YC+3 (%)	Number of competitors at YC+3	Incumbent market share at YC+5 (%)	Number of competitors at YC+5	Incumbent market share at YC+10 (%)	HHI at YC+3	HHI at YC+5	HHI at YC+10	Number of suppliers in 2002
Chile (ENTEL Chile)	40	7	37.3	9	32.5	3008.2	2394.1		34
Dominican Rep. (CODETEL)	77	3	72.2	4	n.a.	6176	5604		5
Finland (Sonera)	66	8	54.7	8	n.a.	5019	3920		32
Malaysia (Telekom Malaysia)	77	5	61.1	10	n.a.	6112	4177		16
Mexico (Telmex)	68	16	66.6	21	n.a.	4974.8	4836.7		21
Philippines (PLDT)	69	9	79	12	49.9	5295	6238		11
Sweden (Telia)	76	13	66	60	43.4	6226	4984		120
United Kingdom (BT)	67.7	100	54.9	215	33.3	5291	4039		500
Average	67.6		61.4		39.77	5262	4524		

Source: World Bank calculations, based on TeleGeography 2003 data.

introduced, and the number of suppliers in 2002. HHI is the sum of the squared market shares of different competitors. An HHI of 10,000 indicates a perfect monopoly; HHI values between 2,000 and 5,000 are an indication of an oligopoly. Values close to or lower than 2,000 indicate features closer to a competitive market.

The data indicate that when full competition is introduced in international communications, the resulting market structure resembles a tight oligopoly with increased competition.

When full liberalization occurs, the incumbent operator may retain a dominant position for a few years, but the erosion of its dominant position is inevitable. In all four cases (Chile, the Philippines, Sweden, and the United Kingdom) for which data are available, the market share of the incumbent decreases to less than 50 percent, 10 years after full competition is introduced. Other more recent liberalization experiences (for example, Germany and Israel), for which 10 years of data are not yet available, suggest that the erosion of market shares of the incumbent might happen in a shorter period of time. The market share of Deutsche Telekom in the German international market went from 100 percent in 1998, to 48.7 percent in 2001. Bezeq's market share in the Israeli international communications market fell from 100 percent in 1996, to 41.1 percent in 2001 (TeleGeography 2003).

Competition in the international communications market is sustainable over time. In seven out of the eight cases there was a drop in HHI from YC+3 to YC+5, indicating a decrease of market concentration.⁸ New entrants established at the time of liberalization were able to retain and increase market shares. New entrants, possibly exploiting technological advancements, entered the market and contributed to its fragmentation. In markets for which data are available there is evidence that the drop in industry concentration continues after YC+5. For example, in the United Kingdom, the HHI for 2003 (YC+10) is 2026, a drop of over 2,000 points with respect to YC+5.

Where full competition is introduced, a high number of firms will operate in the market segment. The Dominican Republic's small market sustains five competitors; Chile's sustains 34; and the United Kingdom's sustains 500. In addition to the data presented in Table 1, it is interesting to note that the trend has continued, even during the sector's financial crisis in 2000 to 2001. The number of suppliers in the United Kingdom's market grew from 306 in July 2000, to 500 in July 2002. In the same period, the number of suppliers in Malaysia grew from five to 12, and in Argentina from four to 66 (TeleGeography 2003).

The market structure of a liberalized international communications market is closer to a competitive services industry, or goods industry, than it is to a network utility. Looking at measures of concentration alone, the international communications market has values closer to a large, competitive distribution market—like the chocolate market—than to the local fixed-line access market (Table 2).

Developing countries can opt for partial or full competition in international voice communications. Compared with gradual liberalization, full competition results in lower prices and higher welfare gains. Figure 3 shows that international call charges in fully competitive markets can be as low as one-third of the prices in partially competitive markets, resulting in substantial benefit to consumers.

8. The exception is the Philippines where carriers conduct extensive price fixing among themselves so as to prevent new operators from entry and to retain higher price levels.

Table 2. Degree of Concentration in the International Communications Market

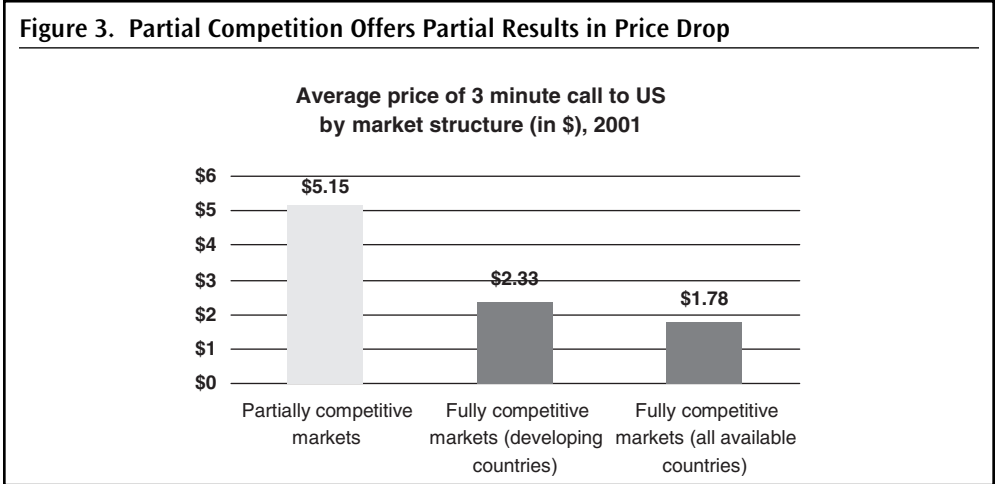
Market Segment	HHI (2003)
United Kingdom international voice	2,026
United Kingdom cellular	2,600
United Kingdom fixed-line domestic voice	Over 7,000
Chile international voice	2,386
Sweden international voice	2,523
United States international	2,218
United States chocolate (2000)	2,149
Mexico international voice	4,886
Mexico chocolate ⁹	1,875–2,220

Sources: TeleGeography; Mexico FCC; *Business Rankings Annual 2003*.

In Chile, following full opening of international services to competition in 1994, the weighted average call charges to major destinations by 1998 had declined by 50 percent, compared with a similar basket in 1991, under limited competition. Traffic also increased fourfold to 215 million minutes. This resulted in an estimated consumer surplus of about 125,000 million pesos (\$275 million) from 1994 to 1998. This is approximately 2.7 percent of total revenues from the major operators during the same period.

In addition, full competition requires less regulatory intervention than partial competition, reducing the administrative burden and cost for

the government and operators. In the partial competition model, administration is based on regulatory barriers to entry. Examples of these barriers to entry are the presence of numeric restrictions on the operators in the market and the asymmetric treatment between the incumbent operator and competitors. For example, in a partially competitive environment, the government needs to spend time and resources to decide when to allow new entrants into the market, and when to allow carrier preselection. Operators need to lobby the government to



Source: ITU

9. Mexico Federal Competition Commission, Annual Report 1994–1995. <http://www.natlaw.com/pubs/spmxtat3a.htm>. The Mexico FCC assessed the impact of certain mergers in the Mexico chocolate market, concluding that the HI value emerging from those mergers—2220—would not hinder competition.

maintain or remove regulatory entry barriers. In contrast, in a fully competitive environment all operators meeting standard, objective criteria are free to compete. The fully competitive model not only reduces costs considerably, but also decreases opportunities for corruption, especially in environments with weak governance.

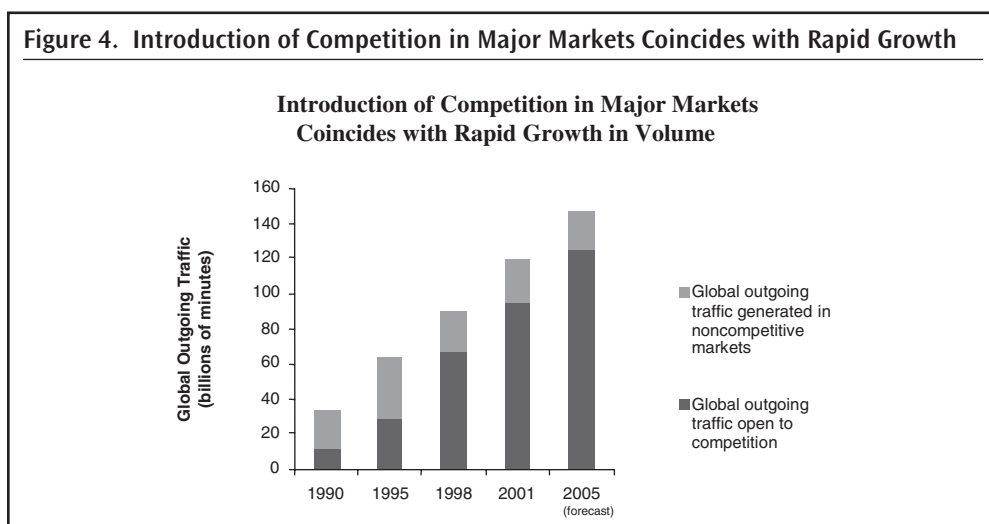
Regional Differences in the Implementation of Reform

Many major national markets, accounting for about 75 percent of global traffic, are now open to competition (ITU 2002). However, most developing countries did not follow this trend, and retained entry restrictions. This “policy divide” has implications on sector performance.

Measured by volume, competition has become a global phenomenon. In 1998, 74 percent of global outgoing traffic originated from markets open to competition, compared to 35 percent in 1990 (ITU 2002). After the liberalization of international communications was introduced from the 1980s to the mid-1990s in Australia, the European Union (EU), Japan, the United Kingdom, and in the United States all major international communications routes were open to competition. In addition, competition has been established in several emerging markets, including Argentina, Bolivia, Brazil, Chile, Dominican Republic, El Salvador, Guatemala, India, Mexico, Malaysia, and the Philippines. However, *the 25 percent of global outgoing traffic that is not open to competition originates almost exclusively from developing countries.*

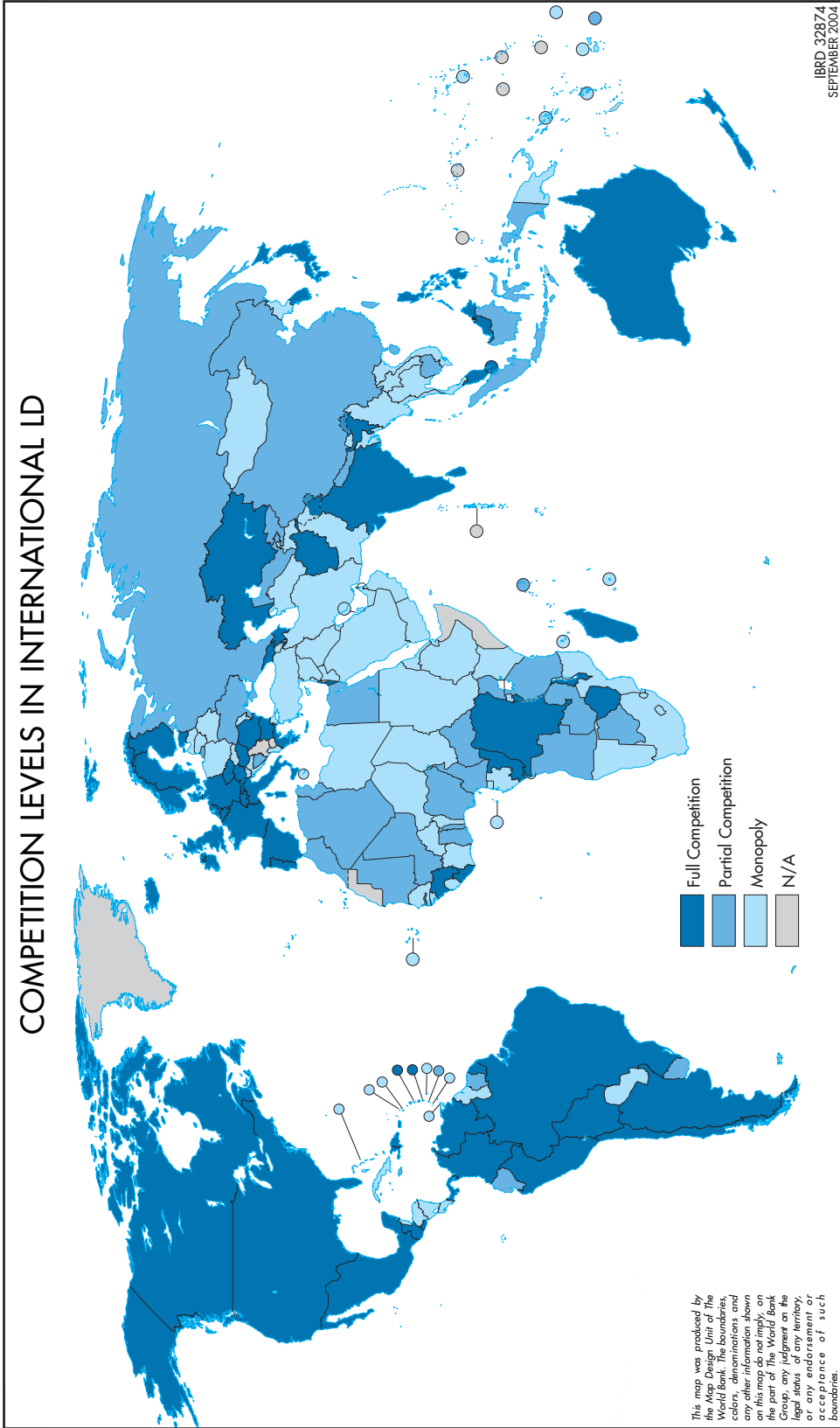
The introduction of competition in major markets coincided with rapid growth of volumes. In 1990 to 1998, the size of the market open to competition doubled, and the volume of the outgoing traffic grew by 450 percent (ITU 2002). Figure 4 shows rapid traffic growth originating in countries that are open to competition.

Globally 88 countries have a monopoly, 33 have introduced “partial competition,” and 65 have full competition in international voice communications. The Organization of Economic Cooperation and Development’s (OECD) high-income countries have full compe-



Source: ITU

Figure 5. Latin America is a Leader in Competition Among Developing Regions, Africa and the Middle East Lag Behind



Source: World Bank updates to ITU, World Telecommunications Regulatory Database, 2002.

tion. Non-OECD high-income countries (such as Andorra and Malta), and high-income countries in the Middle East (such as Bahrain and Kuwait), retain a monopoly.

As of 2003, about 26 percent of developing countries (37 out of 156) have adopted full competition. Most of the countries that now offer competition were monopolies five to 10 years ago. Figure 5 shows that 37 of the 156 developing countries (as classified by the World Bank) have adopted full competition. And 33 developing countries are classified as having “partial competition” in international communications. These countries have introduced some degree of competition, but have also retained certain restrictions.¹⁰

Outside the OECD region, where full competition is the norm, the majority of countries in the Latin America and Caribbean (LAC) region introduced full competition (among them, Argentina, Bolivia, Chile, Colombia, El Salvador, Guatemala, Peru, and Venezuela). A few countries in the Europe and Central Asia (ECA) region have introduced competition (among them, Estonia, Hungary, and Ukraine). A majority of African countries retain a monopoly. The Asia-Pacific region presents a mixed picture, with fully competitive countries such as Malaysia, and the Philippines; countries with partial competition such as Cambodia, and China; and countries with a monopoly such as Myanmar, Vietnam, and Pacific Island states. The Middle East and North Africa (MNA) region’s predominant market structure is the monopoly, with partial competition emerging in North Africa. No country in MNA has adopted full competition.

Three-quarters of developing countries still maintain restrictions on market access. What are the implications of this policy divide? Developing countries that restrict entry to the international communications market face: higher prices, lower outgoing volume, and reduced network investments.

The prices for international communications are higher, with negative consequences for consumers and domestic enterprises. Figure 6 shows the price of a three-minute phone call to the United States from different regions. Africa has the highest price at over \$5.00—where only 17 percent of the countries have full competition. The two regions with the lowest international communications prices are LAC and ECA where 45 percent and 29 percent of the countries have, respectively, full competition.

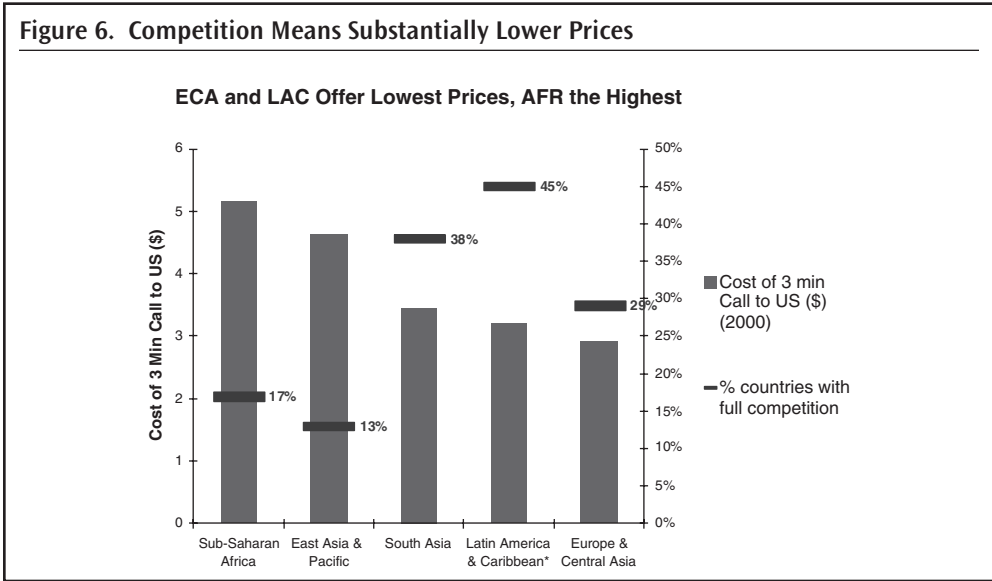
There are no comprehensive and comparable data for MNA, the only region where no country has adopted full competition. Four out of 16 countries have adopted partial competition, while the remaining countries maintain monopolies. As an indication, an average tariff calculated on a sample of 12 MNA countries indicates a price of \$5.42 for a three-minute call to the United States.¹¹ This price is higher than the average for Africa—the region with the next highest price, which also maintains a high number of monopolies.¹²

Call volumes will be lower. Consumers will make fewer calls, and they will try to bypass the system. The impact of competition on volume in selected fully competitive developing countries coincided with a rapid growth of incoming and outgoing traffic. Several examples, including Chile (Figure 7), support this evidence.

10. “Partial competition” occurs where there is a numeric restriction on the number of international carriers, or where competition is limited to resale, or is otherwise constrained.

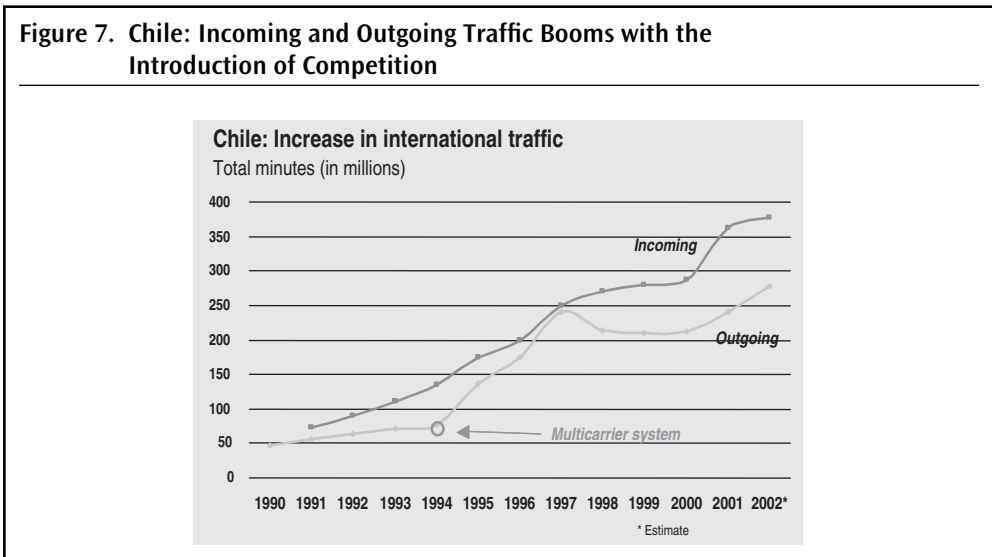
11. World Bank, World Development Indicators, citing ITU data, 2003. Data are from 2000.

12. The price reduction experienced in fully competitive markets not only means significant increases in competitiveness for businesses, but also the possibility for disadvantaged groups in the society to call relatives living abroad. The international long-distance prices in developing countries with fully competitive markets, like El Salvador, match the price of a local call.



Source: World Development Indicators 2003, World Bank, citing International Telecommunications Union data. *LAC data are for 1999. MNA data were unavailable. There are no countries in the MNA region with full competition.

Countries that retain a monopoly will attract less investment to the network and be excluded from the development of international backbone networks. The share of new investment from competitors over total investment in telecommunications is increasing. Countries that are opening their markets to competition are attracting more investment (Hausman, Leonard, and Sidak 2003). Introducing competition is a better way to integrate the country with the



Source: Subtel

development of regional high bandwidth networks. This has been the case in the EU, where a common liberalized framework allowed the development of pan-European networks. Thanks to a common, pro-competitive regulatory framework, high-bandwidth, pan-European networks have reached peripheral and lower income regions of Europe, such as in Estonia, Hungary, and Poland. Liberalization led to higher transparency and better governance. This is due to the fact that when other carriers or investors buy into an incumbent at privatization, they demand increased accountability and transparency. The implementation of a common regulatory framework, allowing for full competition for the accession countries in Eastern Europe, let operators of pan-European networks extend their presence in Estonia, Hungary, and Poland and to reach these countries with high bandwidth networks. Liberalization also contributed also to the growth of local operators.¹³

The push for competition has led policymakers in Europe, the United States, and in selected developing countries to establish principles and rules of an open and competitive market for international voice communications. The United States, as a precursor of sector regulatory reform, and one of the biggest markets for international communications, is one of the most influential proponents of sector reform. The EU has also played a key role by fully liberalizing its international voice communications market in 1998, and requiring new accession countries to open their markets as a prerequisite to gaining membership. One notable case among developing countries is Chile—now considered one of the best examples of how full competition can be introduced effectively and reap the full benefits of reform.

Following these early liberalization efforts, many countries have introduced competition. But in the process to open the market, some countries have retained regulatory restrictions to market entry. As a result, with respect to international communications, regulatory frameworks can be included in three categories: full competition, partial competition, and protection of the monopoly. Table 3 shows the main regulatory features of full competition, partial competition, and monopoly.

13. An important example of this development is the growth of the operator Tiscali, now one of the strongest Internet service providers and alternative network operator in Europe, which originated from a peripheral region of Europe (the island of Sardinia), and developed as a Pan-European operator, including network points of presence in the Czech Republic and Hungary. Another example is the operator Telia International Carrier, which has a 22,000 km network linking 25 cities in Western Europe, with PoPs in the Baltic countries, Czech Republic, Hungary, Poland, and Russia. GTS has a network of over 22,000 km covering all major Western European cities, with PoPs in the Czech Republic, Hungary, Poland, Romania, Russia, and Ukraine (IDATE, 2001).

Table 3. Main Regulatory Features of Full Competition, Partial Competition, Monopoly in International Voice Communications

	Full Competition	Partial Competition	Protection of the Monopoly
Restrictions on the number of operators in the market	No restriction	The government determines the number of operators allowed in the market	Only one operator
Nature of the license(s)	Class license or authorization	Individual license	License protecting the incumbent operator
Competition at network operator or service provision level	Competition at both levels, network operator and service provision	Competition limited to resale (service provision level) or to “own customers” ¹⁴	No competition at either level
Investment requirements	None	Investment obligations in addition to the international gateway	Not applicable
Fair competition thresholds	Regulatory asymmetry in favor of new entrants	Regulatory asymmetry in favor of the incumbent	Not applicable
Carrier selection	Yes	No	Not applicable
Technological neutrality and VoIP	Technologically neutral licenses; VoIP allowed or not regulated	Technology specific licenses; VoIP often prohibited	VoIP prohibited; government efforts in enforcing prohibition
Limits on foreign ownership of international communications operators	None	Yes	Not applicable
Interconnection	Clearly defined in the regulatory framework, transparent, non-discriminatory, cost-oriented	Flaws in the interconnection regime	Not applicable

14. For example, in Morocco, the second global system mobile for communications operator has the right to offer international services to its own final clients. It cannot terminate international traffic originated in other networks.

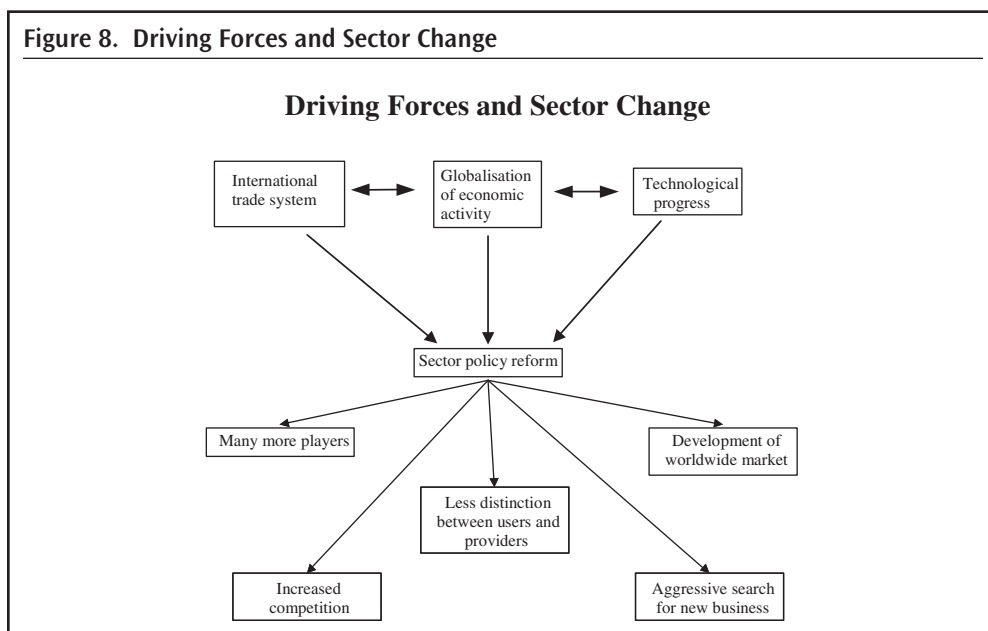
The Driving Forces Behind Competition

Competition in international communications has been driven by globalization of economic activity, technological change, and international trade (Figure 8).

Growth in the movement of goods, people, and capital across national borders has increased the demand for low-cost, high-quality international communications. Key technological progress occurred at the same time in the telecommunications industry, notably the emergence of IP telephony, which enabled the provision of international communications at a much lower cost. Also, reducing barriers to trade in goods and services increased integration of economic activity. In this context telecommunications services became fundamental enablers of trade and a crucial input for export oriented companies. They became more prominent in the overall global trade agenda. International institutions such as the World Trade Organization (WTO) and the World Bank, and other relevant players like the EU and the FCC have promoted market-based reform to the provision of telecommunication services.

Globalization of Economic Activity

Globalization of economic activity increased the demand for international telecommunications services. Trade in goods increased from 33 percent to 40 percent of world GDP from 1990 to 2001 (World Bank 2003b). Mobility of people increased as well. From 1995 to 2000, about 11.6 million people migrated from developing to developed countries (United Nations Development Programme 2002). Foreign labor in the United States increased from 19.7 million people in 1990, to 28.4 million people in 2001 (World Bank

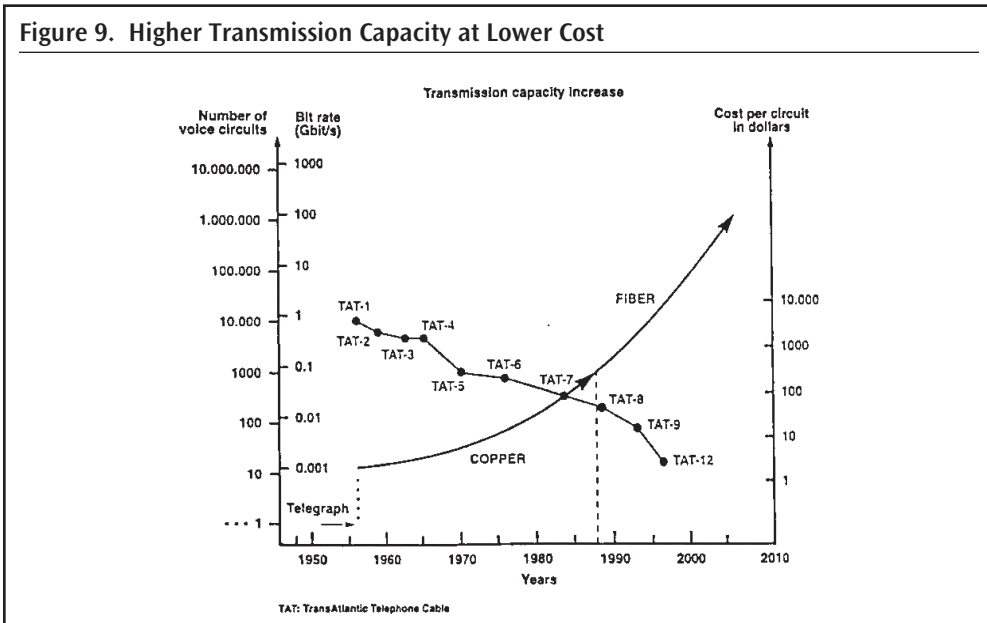


Source: Adapted from Wellenius and others (1989)

2003b); and the movement of labor increased demand for international calls, including by poorer migrants from developing countries. The last decade also saw an increase in cross-country financial transactions. On a global scale, foreign direct investment (FDI) grew from \$203 billion in 1990, to \$746 billion in 2001, with FDI of middle-income countries increasing from \$21 billion to \$162 billion gross, as the percentage of GDP increased from 2.7 percent to 5.1 percent (World Bank 2003b).

Globalization requires high-quality and low-cost communications to promote better access to markets and to increase economic integration and global competitiveness. For example, in Lithuania, the high international charges are identified as a bottleneck to the development of a knowledge economy, and as a constraint for regional and international integration (World Bank 2003a). Tunisia's high charges are also identified as a disadvantage to developing export-led telecommunications intensive services, such as call centers and electronic delivery of software (World Bank 2002). Low-cost, high-quality international communications networks are a prerequisite for the development of high-growth value-added services; while information communication technologies-related services (World Bank 2002) are considered key to the success of national trade facilitation policies, and for the development of electronic commerce (Schware and Kimberly 1995; 2000).

High-quality, low-cost communications can be effectively provided only in competitive markets. Several studies (Dökmeci and Berköz 1996; Rossotto, Sekkat, and Varoudakis 2003) found that the introduction of competition in international communications lowers the input costs for firms (lower cost of international calls, access to global data networks), and spurs productivity gains (better integration in the client-supplier chain). These two factors improve the competitiveness of export-oriented firms and stimulate economic growth. Therefore, firms searching to expand globally have pushed for competition in international communications around the world.



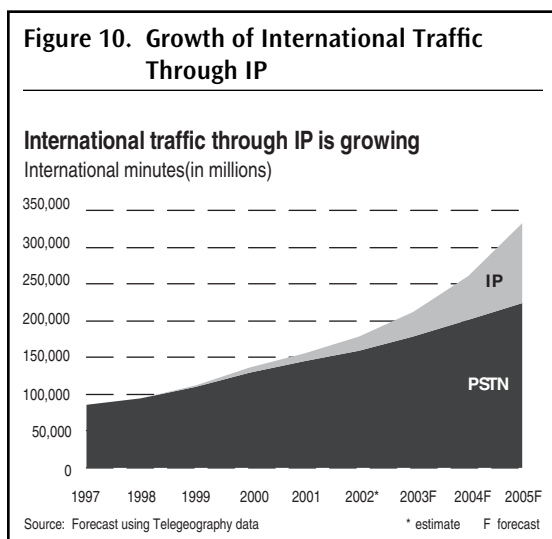
Source: Saracco and others (2003)

Technological Change

Technological change reduced network costs and increased their capacity. Until the beginning of the 1980s, the cost of transmitting a telephone call was particularly sensitive to distance and traffic volume. With the advent of digital technology, the capacity of existing wire networks has increased substantially. By 2005 capacity is expected to increase by a factor of 1,000. From 1955 to 1985 the introduction of optical fiber enabled transmission capacity to increase 100-fold (Figure 9). During this same period, major intercontinental submarine cables reduced the cost of a single circuit by a factor of 10,000 (Saracco, Harrow, and Weihmayer 2000). Progress on the transmission side was coupled with switching improvements, a multiplicity of technological options for reaching end customers, and the emergence of IP-based networks. The development of IP-based services over increasingly broadband wireless connection to customers is expected to further revolutionize cost structures and business models.

Telephony through IP-based networks¹⁵ contributes to competition, through lower investment and operating costs, and by opening alternatives to traditional technical and

15. The development of Internet technologies and the increase in bandwidth capacity permits the transport voice communications in a more effective and reliable manner. Voice traffic is converted into coded small data packets that travel through the Internet network to a specific destination, where it is converted into voice stream. Although it is usually difficult to notice if a call is being carried by IP or by traditional switched-networks, some countries have allowed IP-based international traffic with the condition that it does not miss a quality threshold of a circuit-switched voice call.



Source: TeleGeography

is relatively higher. For example, from the total traffic originating in the United States, only four of the top-10 traffic destinations are developing countries; whereas nine from the top-10 IP voice traffic destinations are developing countries. In 2001, East Asia, Eastern Europe, and Latin America were the primary destinations of global IP voice termination (TeleGeography).

International Trade System

The establishment of an international trade system promoting increased economic integration was a major driver for the introduction of competition in international communications. The WTO framework has played a key role in pushing for competition in international long-distance as a way to increase trade in services (Sherman 1998; Blouin 2000). This has unfolded in three directions.

First, through negotiations under the WTO, countries that have liberalized—such as the United States and the United Kingdom—sought the deregulation of the telecommunications sector of their commercial partners.¹⁷

Second, once countries commit to open their markets under the WTO framework, they have a legally binding obligation that has precedence over national law, strengthen-

commercial solutions, often outside of the traditional accounting rate system.¹⁶ Prices for wholesale international long-distance calls through IP networks cost 30 to 50 percent less than traditional networks and commercial arrangements. Most of the major international carriers have announced plans to increase their international voice traffic through IP networks. If the current IP traffic growth trend continues, by 2005, about 45 percent of the total traffic could be carried through IP-based networks (Figure 10).

The largest share of IP voice traffic terminates in developing countries, where the cost of switched-networks

16. Despite successive modernization attempts, the accounting rate regime still results in user prices that are well in excess of cost. Carriers using IP telephony do not usually follow the accounting rate regime, thereby substantially reducing cost.

17. The United States also promoted the inclusion of services in the Uruguay Round under the General Agreement on Trade in Services (GATS), which contains a special annex dedicated to telecommunication services.

ing the credibility of their commitment (Sherman 1998; Schwarz and Satola 2000; Blouin 2000; Intven 2000).¹⁸

Third, in the process of accession to the WTO in telecommunications, countries commit to adhere to the GATS fundamental principles (nondiscrimination, transparency, and reasonable regulation and competition safeguards) and, often also adopt the Reference Paper of the Negotiating Group on Basic Telecommunications (April 24, 1996). These principles introduce regulatory requirements that are important to implement full competition, as indicated in Chapter 4 (Schwarz and Satola 2000; Intven 2000; Rossotto 2003).

18. Countries that commit to introducing competition in telecommunications services within the WTO framework commit to introducing competition both at the service provision and network operating levels, unless otherwise specified in their schedule of commitments.

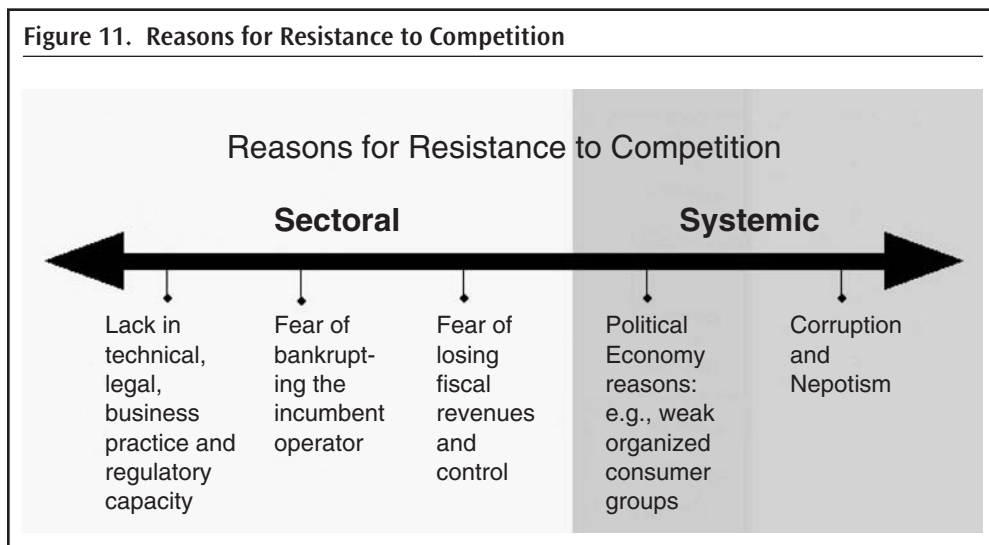
Understanding The Resistance to Competition

Despite the benefits and the track record of developing countries that have successfully implemented full competition in international voice communications, policymakers in some developing countries resist introducing competition. Policymakers who oppose full competition present the following sector-specific arguments: their lack of institutional capacity to implement reform, their fear of undermining the sustainability of the incumbent operator, and their fear of losing fiscal revenues and control. Additionally, liberalization is sometimes constrained by corruption and nepotism.

Sector-specific Factors

Lack of institutional capacity. Developing countries maintain, and private sector investors confirm that developing countries often lack the technical, legal, business practice, and regulatory capacity to enable reform. However, there is ample evidence, including from some of the poorest developing countries, that these minimum requirements needed in a fully competitive environment can be met at an early stage. Some of the regulatory rules and decisions, for example, can be embedded in operating licenses and contracts (Smith and Wellenius 1999).

Fear of undermining the sustainability of the incumbent operator. The desire to protect the incumbent operator is commonly cited as a reason for governments' reluctance to introduce competition in international voice communications, competition is usually supported by officials of the ministry in charge of telecommunications and managers of the incumbent operator. There is concern among staff about possible threats to continuity of employment and level of remuneration. The argument is that a rapid shift to a fully competitive market would reduce drastically the revenues and profits of the incumbent operator, thereby, com-



promising its financial viability. A related concern is that, in this event, subsequent privatization would be more difficult.

However, international experience shows that incumbent operators can adapt, successfully, to the changing conditions in the telecommunications market following the introduction of competition in international voice communications. Of the 65 countries where full competition has been introduced, none has experienced bankruptcy.

Competition in international voice communications, through the radical changes it provokes, does change the revenue structure of the industry. It forces the incumbent operator to operate at levels of higher efficiency and transparency, and implement a new pricing structure that is aligned to real costs. Furthermore, competition induces major changes in the business model of telecommunications operators.

Boxes 1 and 2 show how BT and Telekom Malaysia—both successful incumbent operators in a liberalized environment—have implemented changes to adapt to the new market environments.

Competition in international voice communications stimulated change in the incumbent operator in both examples. The key to this change was flexibility and diversification. Competitive pressures in international voice communications created incentives for the incumbent operators to launch new services. This benefited the consumer as well as the financial health of the companies and countries. Both operators were able to safely maintain financial profitability, and the states were able to collect additional revenue.

There are also examples of incumbent operators that rely solely on revenues from international termination services for stable revenues. For UTEL in Ukraine and FINTEL in Fiji the immediate impact of competition in international voice communications will be stronger. When full competition is introduced, a steep decline in turnover and profitability is to be expected as rates fall to the level of the global competitive market. A decrease in revenues from international call termination is already taking place, even if the monopoly is *de jure* maintained. Refile, “country direct services,” reorigination, call-back, and other means of bypass are gradually eroding revenues.

Box 1. BT: Effect of Competition on Financial Results

A good example of the effect of competition on the financials of an incumbent voice services operator is the case of BT. Until the mid-1980s, BT was a monopoly. Revenues from international voice services accounted for 40 percent of total BT revenues. When limited competition was introduced, revenues from international voice services declined to represent 14 percent of BT revenues. In the same period, the market share of BT fell to 67 percent. When full competition was introduced in 1996, the international revenues fell to represent 8 percent of BT's revenues, and BT's market share fell further to about 40 percent.

This forced BT to change. While BT's international revenues were declining in relative and absolute terms, BT was able to increase its turnover in higher growth activities, such as mobile communications, which grew from 5 percent to 8 percent of overall turnover, and business services, such as data and corporate solutions. BT also increased its foreign presence. Business services and revenues from foreign acquisitions represented around 20 percent of BT's revenues in 1999. Interconnection revenues from competitors grew to 4 percent of turnover.

As a result of the success of BT in changing its revenue structure and business model to face competition, overall revenues grew by 31 percent, and the profit after tax (PAT) went from GBP 1,736 million to GBP 3,002 million, a 73 percent increase. The ratio PAT/sales improved from 12.5 percent to 16.5 percent.

Far from provoking the incumbent operator into bankruptcy, competition in international voice communications stimulated change and forced the enterprise to react to the new market forces.

Pounds m.	Pre-competition		Post-competition	
	1995	Revenue Share (%)	1999	Revenue Share (%)
Inland calls	4,941	36	5,178	28
International calls	1,935	14	1,501	8
Subscription	2,534	18	3,337	18
Private circuits	1,024	7	1,165	6
Interconnection		0	645	4
CPE supply	1,041	7	870	5
Mobile	657	5	1,400	8
Directories	371	3	491	3
Other (business services + foreign)	1,390	10	3,636	20
Total	13,893		18,223	
Markets share in international (%)	67.7		39.7	
Stock price (pence)	352		1,459	
Profit after tax	1,736		3,002	
Profit after tax/sales (%)	12.5		16.5	

Source: Analysis of data adapted from www.bt.co.uk.

In the case of diversified incumbent operators, and of incumbent operators that specialize in international voice communications, the fear of financial upset is not a reason to hold on to outdated business models and pricing structures. It is good practice, however, to ensure that incumbent operators have the tools to react, if change is the key to adapting to the introduction of competition. Both BT and Telekom Malaysia had the

Box 2. Telekom Malaysia: Adapting to a Competitive Environment

A good example from a developing country is the introduction of competition by Telekom Malaysia in 1996. In 1997, the market share of Telekom Malaysia on Malaysia's international voice communications market was 80 percent. In five years it decreased to 54.7 percent. In 1997, Telekom Malaysia was enjoying monopoly profits. In that year, it realized MYR 1,786.4 of PAT, on a turnover of MYR 796, a 26 percent profit/sales ratio.

Also in this case, competition in international voice communications forced the operators to change. Telekom Malaysia successfully diversified its revenue sources. In particular, the development of data and Internet services, a high growth segment, contributed to sustained revenues. In 2001, five years after introduction of competition in the international voice communications market, Telekom Malaysia's turnover increased to MYR 7,909. Also in this case, the incumbent operator was far from bankrupt, achieving MYR 858.6 PAT, in a difficult year for telecommunications and technology companies worldwide. Its PAT/sales ratio decreased to 11 percent, a value more in line with telecommunications companies operating in a competitive environment.

	Pre-reform	Post-reform
RM	1997	2001
Turnover	6796	7909
*Of which Internet and data	208.5	1152
PAT	1786.4	858.6
PAT/sales	26%	11%
Market share in international	67.7%	54.7%

Source: Telekom Malaysia annual reports. Available at:
<http://www.telekom.com.my/corporate/intro.php>

chance to diversify and adapt their businesses. It is crucial that incumbent operators in developing countries use their opportunity for capacity building in revenue diversification, setting and adapting to changes in the pricing structure, and training in competitive and open business practices to facilitate the transition to an open and competitive market.

In countries with a state-owned incumbent operator, competition reduces government control over a major source of fiscal revenues. Under a monopoly the incumbent operator bills customers for international calls; the revenues go to the state budget through either a dividend policy agreement (if the incumbent is corporatized), or directly to the state (if telecommunications operations are run through a government department). In cases where the country is a net recipient of international accounting rate settlements, the operator collects settlements revenues—and this is, often, a substantial source of foreign currency.

The introduction of competition brings changes to both channels of revenue collection. First, competition brings new private operators into the market. The state has only indirect control over the revenue collected by the new operators, typically through sales taxes. Second, the new operators (both in the originating and in the destination country) bypass the traditional settlement rates system, thereby reducing the amount of revenue received directly from the state.

The net effect of these changes depends on a series of parameters, including: the dividend policy before competition, the rate of value-added tax, the market share of the incumbent in a liberalized market, the settlement rate, the fees from the award of new licenses, and the elasticity of demand.

If competition in international voice communications is isolated from other sector reforms, there are some cases where, in the short-term, revenue collection may decrease. The introduction of competition, however, does not necessarily lead to the loss of revenue. As shown in the examples of BT and Malaysia Telecom, when reform is undertaken appropriately and with flexibility, revenue channels are redistributed and total revenue remains comparable or may increase.

It is unlikely that the government could, in any case, continue to collect monopoly rents since bypass, even where illegal, erodes the revenue base. High charges for international voice communications provide an incentive to bypass the system, through call-back, refile or “directs” using VoIP and public switched telephone network (PSTN) technology. The revenues originating from these operators are difficult to tax, therefore, this causes a natural erosion of the tax base.

High international voice communications charges provide incentives to originate the call outside the country. The use of settlement rates as a fiscal instrument is constrained by the FCC’s decision to apply lower benchmarks on settlement rates. This has driven down the settlement prices, and will harm countries that still rely on settlement revenues as a source of hard currency. For example, in Myanmar settlement revenues are estimated to constitute between 7 and 13 percent of government budget revenues. The introduction of competition opens the market to all players, and generates transparent revenue for taxation. In most cases, the reluctance to lose control is not justified and originates from a short-term view of fiscal contributions.

Countries with a state-owned monopoly operator have high international charges and low telecommunications investment per capita. The monopoly rent, therefore, is used mainly to satisfy fiscal needs. For example, in Myanmar, a three-minute call to the United States costs more than \$23.00, and the investment per capita is \$0.10. In contrast, countries with full competition in international communications have cheaper international charges, and a high investment per capita. For example, in El Salvador, under full competition, the cost of a three-minute call to the United States is \$1.23, and the investment per capita is in excess of \$25.00.

Systemic Factors

Political economy. In some countries, powerful political forces are opposed to reform. Table 4 provides examples of the beneficiaries of reform and those of the *status quo*.

The beneficiaries of the *status quo* are few and often a well-organized political constituency, capable of influencing the ministry responsible for telecommunications and the ministry of finance (Smith 1995). On the other hand, the beneficiaries of reform are many; they comprise a large consumer and enterprises base and do not usually find an adequate way to voice their interests. As studies indicate, where benefits of reform are diffused among many beneficiaries, those beneficiaries find it difficult to organize themselves into pressure groups (Olson 1971). Therefore, in monopoly situations, there is often no organized constituency working to introduce competition in international voice communications—or if one exists, it is a weak one.¹⁹

19. In some cases, the independent telecommunications regulator and the trade ministry can act as catalysts for reform, and counterbalance the power of the incumbent telecommunications operator.

<i>Pro-reform Actors (demand side of reform)</i>	<i>Status Quo Actors</i>
■ Consumers, often underrepresented	■ Incumbent operators
■ Urban consumers who may cross-subsidize rural access	■ Risk or change-averse staff in fear of losing employment and remuneration
■ Rural consumers who may benefit from post-competitive rural rollout	■ Political leadership
■ Enterprises, often not organized in pressure groups	■ Trade unions
■ Small operators, without lobbying means, private sector competitors e.g., VoIP and call-back operators	■ Major global carriers that enjoy exclusivity in international voice communications in the market
■ Independent regulators, often with inadequate means	■ Sector ministries, in fear of losing political power
■ Ministries of trade, to comply with WTO commitments and facilitate trade and exports	■ Ministries of finance, for fear of harming fiscal revenues, especially in countries where there are difficulties in raising sufficient taxes from other sources
■ Politicians facing a debt crisis and looking for benefit of ownership shares and licenses	■ Low income consumers who may lose subsidies after tariff rebalancing
■ World Bank, WTO, EU, US FCC, IMF, to foster economic development and reduce poverty	■ Politicians able to extract rents in status quo regime

The resistance to competition in international communications is higher than the resistance to reform in other segments of the telecommunications market. This can be ascribed, partly, to international voice communications licenses not being associated with large “price tags,” unlike, for example, licenses in the cellular segment. In the case of privatization and sale of cellular licenses, the expectation of large proceeds provides incentive to respond to beneficiaries of the reform process, such as potential competitive operators, officials in the ministry of finance. In turn the prospect of privatization and sale of licenses is also a catalyst for international investors—a group with the ability to add pressure to implement reform—to enter the arena.

Small- and medium-sized operators who benefit from the introduction of competition in international communications, do not usually have the means to exert political pressure.²⁰ An exception to this is India, where competition in the international voice communications market was introduced under the pressures of software and information technology export-oriented companies. The companies’ management complained about the high cost of international voice communications which they argued were hindering the capability to provide real-time information technology assistance and electronic delivery of software. Reform was linked to local groups who lobbied against the high cost and inadequate quality of international voice communications as a constraint to growth and development.

20. Competition in international communications is usually introduced after the general sector reform process has started. For example, competition in international voice communications in Africa and the Maghreb followed the introduction of cellular market competition. Newly established cellular operators exercised political pressure to obtain a separate international gateway.

In the absence of strong, politically organized local advocates of competition, the advocates are often organizations outside of the domestic political system.²¹ Unless the stakes extend beyond telecommunications (for example, when reform is needed for accession to the EU or to the WTO), it is unlikely that external political pressure groups alone can bring reform.

Because sector reform is a political process, good regulatory governance and economic freedom are increasingly identified as key factors for its success (Gutierrez and Berg 2000; Varoudakis and Rossotto 2003). In the paper and database “Governance Matters: Governance Indicators for 1996–2002,” Kaufmann, Kraay, and Mastruzzi (2003) rank countries on the basis of several governance indicators.²² One such indicator is “voice and accountability,” offering a composite governance index showing how, in different countries, local enterprises publicly express concerns in the political process. The voice of the enterprise is one of the indicators considered; others include an assessment of civil liberties and freedom of the press. Figure 12 shows that out of a sample of 20 countries (10 with a monopoly in international voice communications and 10 with competition) the countries that ranked high in terms of voice and accountability offer competition in international voice communications. The eight countries that ranked low retain a monopoly in international voice communications. Of the index’s 10 best-performing countries in terms of voice and accountability, nine have competition in international voice communication.²³

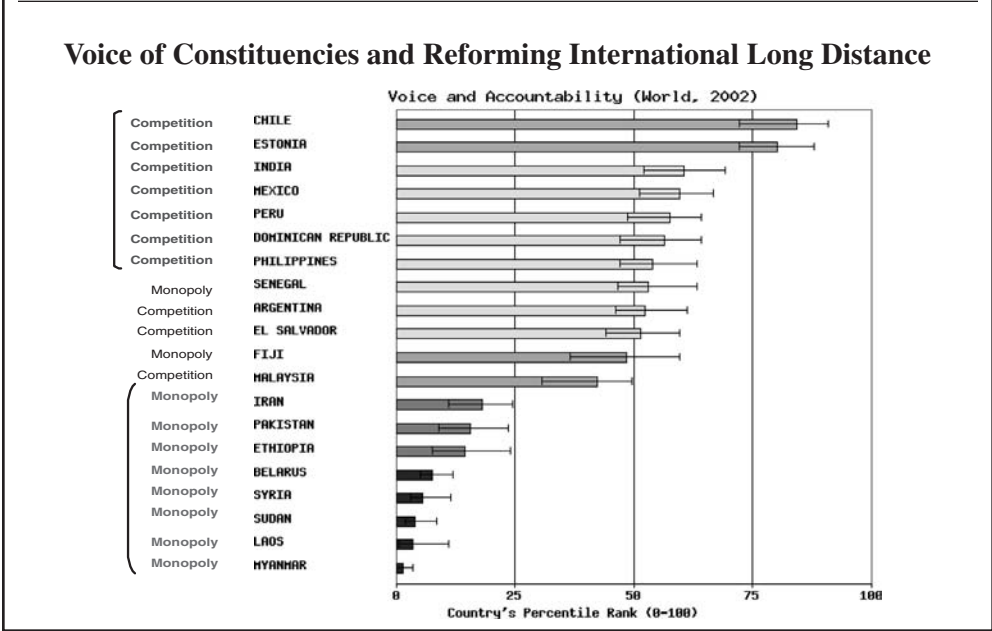
Corruption and nepotism. The rent paid to a monopoly in international communications results in the concentration of large sums of cash, often in foreign currency, in few hands. Li and Xu explain that, if ruling politicians face less political competition, they enjoy more discretion in choosing policies that maximize rents or corruption proceeds, or further their private interests. However, their ability to extract rents may be limited if there are conflicts of interest among different groups of politicians. The configuration of politicians’ interest groups may affect telecommunications policies in ways that are similar to the interest-group politics in more democratic societies (Li and Xu 2002) and may facilitate reform. On the other hand, while corruption in the typical sense involves paying a government official for personal gain, a form of corruption described as “state capture” involves individuals, groups or firms in the public and private sector illicitly providing private benefits to public officials, thereby influencing (to their advantage) the formation of

21. For example, the EU exercised positive pressure in introducing competition in the ECA region, especially for accession countries, with the price of international services decreasing dramatically. The US FCC 1997 Benchmarking Order determined a price cap on settlement rates that United States’ operators should pay to foreign operators for terminating United States traffic. According to the FCC and several authors, this decision acted as a stimulus for developing countries to reduce their costs of international voice communications and implement reform (Stanley 1997; for a different perspective, see Melody 2000). The reduction of settlement rates forces a change in the recipient country’s telecommunications sector, reducing the reliance of the incumbent operator, and of fiscal authorities, on settlement revenues. In other cases, the proponents of reform have been international organizations, such as the World Bank and the WTO.

22. Kaufmann, Kraay, and Mastruzzi recognize that there are margins of errors and therefore the rankings can be subject to a certain variation. Another corruption index, published by Transparency International, is available at <http://www.transparency.org/cpi/index.html#cpi>, while another index discussing corruption and the voice of the enterprise, the *Global Economic Competitiveness Index* published by the World Economic Forum/Harvard University, can be found at <http://www.weforum.org>.

23. Malaysia is the only country outside of the top-10 that has full competition in international voice communications. It is ranked number 12. See also Gutierrez and Berg 2000.

Figure 12. Countries with Limited Economic Freedom Face More Obstacles to the Introduction of Competition

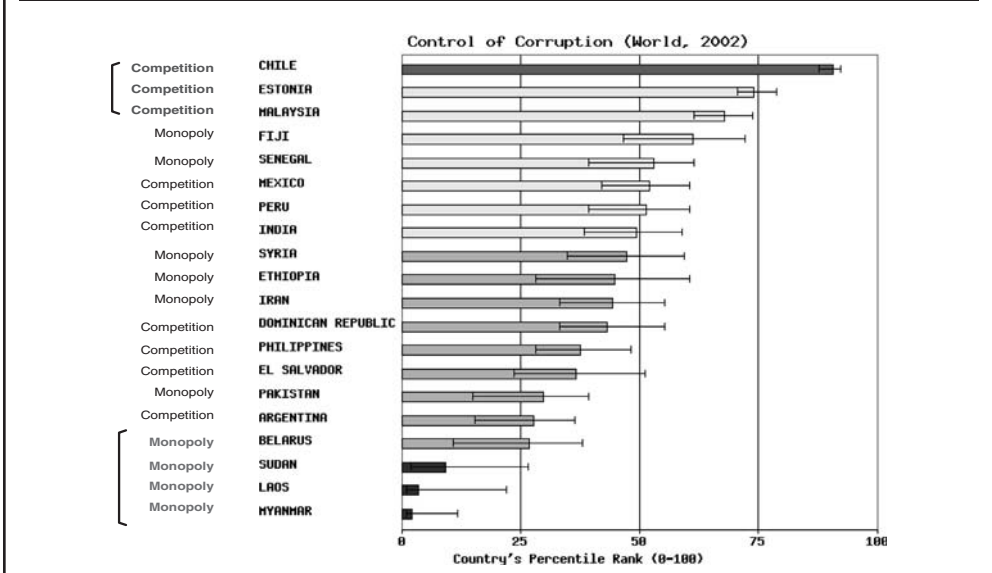


Source: D. Kaufmann, A. Kraay and M. Mastruzzi, 2003: Governance Matters III: Governance Indicators for 1996–2002 (<http://www.worldbank.org/wbi/governance/data>)

laws, regulations, decrees, and other government policies. Powerful local interest groups, such as incumbent operators or private sector companies, may offer funds for legislation that benefit their monopoly or oligopoly status (Hellman and others 2000).

A second indicator of governance introduced by Kaufmann, Kraay, and Mastruzzi in their governance study addresses governments’ efforts to control corruption. Among the 20 countries with the highest anticorruption standards, all 20 offer full competition in international voice communications. Of the 20 countries with the lowest anticorruption standards, only five offer full competition (Figure 13). In the chosen sample of countries, countries with competition in international communications tend to have a higher ranking in terms of anticorruption efforts. While a direct correlation is difficult to certify, private sector operators’ war stories provide anecdotal support. In Sri Lanka, for example, petty crime was reduced, arguably since competition caused the incumbent operator to tackle inefficiency, waste and corruption or face losing its customers (Samarajiva 2001). However, competition alone is not sufficient in alleviating corruption. A study by Iburguen (2003) shows that in Guatemala, good licensing in addition to full competition, were complementary agents for increasing transparency and reducing corruption in the radio spectrum liberalization process.

Figure 13. Controlling Corruption and Reforming International Long Distance



Source: D. Kaufmann, A. Kraay and M. Mastruzzi, 2003: Governance Matters III: Governance Indicators for 1996–2002 (<http://www.worldbank.org/wbi/governance/pubs/data>)

Conclusions and Requirements for Success

This paper argued that opening international communications to competition plays a key role in reforming the telecommunications sector; is sustainable in developing countries; and results in major gains to consumers, business users, and the economy. It has made the case for opening these markets quickly rather than gradually. The transition from monopoly to competitive provision of international services, however, needs to be preceded or accompanied by action in related areas:

- Establishing the principles and rules for fair competition and a core institutional capacity to monitor, investigate, and take action against anticompetitive behavior. In countries without general competition laws and effective enforcement capability, these functions must be incorporated in the legal, regulatory, and institutional framework of the telecommunications sector.
- Establishing a licensing regime that allows new entry without quantitative limitations, and subject only to general requirements applicable to all public telecommunications operators and commercial enterprises. A class license may facilitate, expedite, and enhance transparency in the process of authorizing new entrants.
- Implementing a system whereby the user can select the international operating company for each call.
- Rebalancing the incumbent's tariffs to bring them closer to the industry cost structure, establishing the means to regulate prices in areas where there is not enough competition, and developing a strategy and financing mechanism to extend services beyond the market when required for social or other development reasons.

- Freeing the incumbent to adjust its business strategy and practices along commercial lines to face growing competition in an effective manner. This generally requires the incumbent to be established under company law, is enhanced by the participation of private capital and management, and by training staff in new technical and commercial skills (such as contracts, and collection and billing practices).
- Putting into place the basic elements of a credible interconnection regime that is consistent with internationally accepted principles. This includes sector legislation; regulations; default terms and conditions of interconnection; and a core institutional capacity to monitor, enforce, and adjudicate on interconnection rules and agreements.

This is a tall order, and it means that competition in international services is not a panacea. The conditions necessary for successful implementation are no less important than those required for overall sector reform. Below we examine in detail the issues and options involved in creating some of the conditions necessary for effective competition in international communication.

Interconnection and international accounts. Interconnection is the most important determinant of a successful transition from monopoly to competitive telecommunications markets. Internationally accepted principles for interconnection in competitive markets have been adopted at global and regional levels. Putting in place the basic elements of a credible interconnection regime that is consistent with these principles is a key precondition for effective competition in the provision of international services. The interconnection regime designed for competitive environments is still in use, and coexists, however, with the remains of the accounting rate regime that was developed in the context of national monopolies. Moving decisively to an interconnection regime for international communication is necessary for successful development of this market segment, and to enhance its impact on sector reform and overall economic development.

Interconnection enables new entrants to reach customers connected initially only to incumbent or dominant operators. Interconnection also gives operators choices between developing their own infrastructures and facilities or paying to use those of others, thus reducing barriers to entry and enhancing overall network efficiency. Technical issues, such as the number and specification of the points where networks interconnect, tend to be resolved more readily than commercial issues, particularly, prices. The trend is for interconnection to be treated as a commercial matter between the interconnecting parties. It is often necessary, however, for the regulatory authority to provide guidelines for such negotiations, intervene when the parties fail to agree, and require operators with market power to publish standard interconnection offers approved by the regulator that apply in the absence of agreement.²⁴

In 1997, the WTO Agreement on Basic Telecommunications was the first widely recognized, multilateral treaty to include binding rules for interconnection. Fifty-seven countries, accounting for at least 70 percent of international traffic, committed to the Reference Paper

24. An annotated selection of papers, case studies, and websites dealing with interconnection can be found at <http://rru.worldbank.org/>.

where these rules are defined, and more countries have followed.²⁵ Regional organizations in Asia, Europe, and Latin America have established similar directives for interconnection.²⁶

The WTO Reference Paper establishes basic principles for interconnection, with special attention to operators that control essential infrastructures or have dominant market position. Interconnection to such major suppliers must be ensured at any technically feasible point of the network, in a timely manner, on nondiscriminatory and transparent terms, at cost-oriented prices, and sufficiently unbundled to avoid charges for unnecessary components. The procedures for interconnection, as well as interconnection agreements or model interconnection offers of major suppliers, must be made public.

Putting in place the basic elements of a credible interconnection regime that is consistent with the WTO principles is a key precondition for effective competition in international telecommunications services. Specific initial measures are:

- Sector legislation that establishes the right and obligation to interconnect, the basic principles of interconnection (including nondiscrimination, transparency, and cost orientation), the role of the regulator in enforcing these principles, and the procedures for requesting interconnection and handling disputes (Schwarz and Satola 2000).
- Interconnection regulations that flesh-out the way that principles and procedures established in the law will operate.
- A reference interconnection offer by the incumbent, approved by the regulator, that establishes default technical and financial terms and conditions applicable to other operators that request interconnection.
- A core institutional capacity and authority to monitor and enforce interconnection rules and agreements—including the means to outsource technical expertise—needed to address specific problems.

The interconnection regime's credibility can be enhanced by having the main rules and procedures reflected in contracts and operating licenses, undertaking binding commitments with international and regional organizations, vesting regulatory authority in an entity that is separate from the operators and reasonably free of day-to-day interference by the government and the political system, and other measures (Smith and Wellenius 1999).

Accounting rates. The interconnection regime, designed for competitive environments and increasingly applied to the provision of international communication, coexists with the accounting rate regime.

25. The Fourth Protocol of the GATS (usually referred to as the Agreement on Basic Telecommunications), negotiated under the auspices of the WTO in February 1997 and signed by 69 countries, became effective on January 1, 1998. The Reference Paper is an informal text containing regulatory principles negotiated among WTO members, contained in an annex to the Fourth Protocol. The Reference Paper became legally binding on 57 WTO members that attached it as part of their "additional commitments" in their GATS Schedule of Commitments on telecommunications market access. Six more committed to parts of the Reference Paper, and several other countries that did not commit formally have since reflected the principles of the Reference Paper in national legislation and regulations. See Intven (2000), module 3, "Interconnection," and the Reference Paper in Annex 1.

26. Some of these regional frameworks are binding on member countries (European Union), while others are of an advisory nature (CITEL and Andean Pact in Latin America, APEC in Asia-Pacific). All point roughly in the same directions as the WTO agreement and Reference Paper.

International telecommunications services were traditionally supplied (jointly) by at least two operating companies in different countries. Under this arrangement, each company has its own international gateway and a network (half-circuit) extending to a real or fictitious midpoint between both gateways where they connect. The companies jointly own, operate, and maintain facilities to provide international service, such as pairs or fibers in submarine cables and transponder capacity in satellite systems. Other equipment (such as local switches, transmission, and distribution networks) is owned, operated, and maintained in each country by the individual company (Stanley 2000).

The corresponding relations between the companies are governed by bilateral operating agreements, including the financial arrangements to compensate each other for the costs incurred by one company to terminate calls originated and billed by the other company. The accounting rate per minute of traffic is negotiated bilaterally (mostly). The settlement rate between or among companies usually apportions the accounting rate equally between them, that is, divided in halves between two companies or in thirds if traffic transits through another company. Occasionally, settlement payments are made between companies for the net traffic exchanged.

Accounting rates are meant to compensate for the costs incurred by each company to provide (jointly) the service, but in practice they are bargained between companies with little reference to costs, are influenced by the circumstances of individual negotiations, and thus vary widely among companies. Furthermore, the uniform settlement rate implies that the total costs are evenly divided between the joint providers.

Although accounting rates have been declining, they are still generally higher than the cost of handling and terminating minutes of international traffic in domestic networks. The accounting rate regime has, thus, contributed to maintaining the high price of international traffic, despite dramatic cost reductions resulting from technological innovation and global market growth.

The international accounting rate system is under mounting pressure to align accounting rates with costs and—more broadly, their phase-out—in favor of interconnection arrangements better suited to competitive markets.²⁷ The pressure for change has come from international organizations (ITU, OECD) and some national regulators (FCC), but above all from changing market conditions worldwide. The opportunity for arbitrage between the accounting rates and the much lower underlying costs has led to an increased proportion of international traffic being carried by competitive providers bypassing the accounting rate regime. New modes of service provision have the potential to determine the termination charges for international traffic by market forces rather than bilateral negotiation.²⁸

The direction of change is clear, but in many developing countries it is held back by delays in opening international services to full competition. High accounting rates, besides resulting in high prices, also contribute to large and growing settlement payments by some major operators (especially in the United States) to some other countries. Large settlements discourage the receiving operators from negotiating lower accounting rates, and their gov-

27. The international accounting rate regime was established initially about 100 years ago for telegraph and then telephone services provided by a single monopoly operator in each country. Today it is used extensively despite the advent of widespread competition and massive traffic growth.

28. These new modes include leased-line resale, refile, and related modes, international alliances, international points of presence, and Internet telephony. See chapter 6 of Tyler and Joy (1997), and also Stanley (2000).

ernments from increasing competition. The dependence of some developing countries on international settlements as a source of foreign exchange and fiscal revenue factors into keeping the accounting rate regime alive (Braga, Forestier, and Stern 1999). Fear of abuse of market power also keeps some governments from making the transition from accounting rates to interconnection for international services.

Tariff rebalancing and universal service. A critical step towards competition in international services is to rebalance the incumbent’s retail tariffs to reflect (roughly) industry cost structures. This is necessary for reasons of economic efficiency as well as for the financial viability of incumbents and new entrants. Tariff rebalancing, however, requires regulatory intervention, as the incumbent is likely to remain the sole or largest provider of connections to the end customers. Tariff rebalancing also raises concerns about maintaining or extending service beyond those that operators are prepared to provide on a commercial basis alone, especially in order to reach high-cost rural areas and low-income urban population groups. Thus tariff rebalancing, preceding or undertaken concurrently with the advent of international competition, must be coupled to a strategy to deal with universal service. Enough progress can be achieved fairly quickly on all these fronts to enable early introduction of international competition.

At the beginning of the transition to competitive supply, retail prices are often distorted relative to costs. Under monopoly supply, telephone connections, monthly subscriptions, and local calls were typically priced below costs, resulting in deficits that were cross-subsidized by above-cost international and domestic long-distance call charges. While distorted tariffs have adverse economic effects on efficiency (by sending the wrong signals to users to consume and operators to invest), the operator’s overall financial viability can be achieved by setting aggregate tariff levels high enough, so that there is little pressure to rebalance tariffs towards costs.

Highly distorted tariffs are not sustainable under competition. The high margins of international service are quickly competed away and the incumbent is increasingly left with loss-making services. The case for tariff rebalancing thus becomes urgent not only for economic efficiency, but, primarily, for the incumbent’s financial survival; and to give the new entrants incentives to invest in a broad spectrum of networks and services, not only in the overpriced international segment. Table 5 shows distorted telephone tariffs prevailing in Latvia in 1996, compared to those in a basket of markets where prices were close to costs through a combination of effective competition and some regulation. The table illustrates the need for major increases in monthly telephone charges as the incumbent faced fierce competition from international callback operators, as it also prepared to liberalize all market segments towards accession to the EU.

Table 5. Imbalanced Telephone Tariffs Before Competition, Latvia 1996

Tariff Element	US\$	
	Average of Five Competitive Markets	Latvia
Rental/month		
Business	22	7
Residential	14	1
Local call/min	0.03	0.03
Long-distance call/min		
Near	0.38	0.36
Far	0.71	1.91

Source: Author’s compilation.

Although it is a key element in moving from monopoly to competition, tariff rebalancing cannot be left entirely to the market. In the early years of reform, and probably for a long time thereafter, the incumbent will be the sole or main provider of connections to the end customers. Tariff rebalancing involves a mix of freeing competitive international call prices while regulating fixed and local call charges (and as discussed later, interconnection prices between international and domestic operators). In the early stages of development, the regulatory authority, must equip itself to address these matters to prepare for international competition.

Tariff rebalancing has a political cost. Although rebalancing typically decreases the overall cost of communication for all users and for almost each category among these, business users benefit the most. Rebalancing may increase the cost to low-income households for which fixed charges (for example, monthly rental of phone lines) account for most of the bill.²⁹ Thus, rebalancing must be coupled with dealing with universal service, that is, maintaining or extending service to localities and customers that are not commercially viable by themselves, or that are deemed by the government to deserve services below actual cost.

Tariff rebalancing, therefore, requires addressing the consequences of ending cross-subsidies (among services, categories of users, or locations) that were implicit in the monopoly regime, or of replacing them by explicit subsidies that are sustainable in an increasingly competitive environment. Where a considerable number of low-income households have under-priced telephone service (for example, the former Soviet Union and Eastern Bloc countries, at the time of transition from centrally planned to market economies) the question is, what can be done with households that are already connected, and that cannot afford the higher cost-based prices. In Bulgaria and Latvia in the mid-1990s, it was estimated that about one-third of residential customers could not pay the market price for telephone service, and were likely to be disconnected unless given support.³⁰ In most developing countries, however, with fewer pervasive networks, and where most customers are middle-income or business users, the traditional argument against rebalancing is rather that cross-subsidies from international service are necessary to rollout networks and reach high-cost localities especially in rural areas. Since, in practice, most companies operating under monopoly status were unable to meet demand even in prime urban markets, let alone in less profitable ones, this argument carries little weight, but the challenge remains of reaching unserved high-cost areas and low-income users.

What will universal service cost? Who will pay for it? How will the revenue be collected and distributed? These are the questions that lie at the heart of all contemporary approaches to universal service (Wellenius 2000). The market can be used to determine if, and how much, of a subsidy is needed to reach a specific set of universal service targets, and who can provide them at minimal cost. The subsidies can be funded from the government's budget (as done in Chile) or, as is more common, though less economically efficient, from contributions by all or the largest telecommunications operators passed on to end customers through tariffs (as done in Peru) or from other sources (for example, proceeds of radio licenses in Guatemala). Sri Lanka recently adopted an unusual arrangement, whereby a tem-

29. Fixed and local call charges are sometimes included in the retail price index, so raising them may increase the measure of inflation, which in turn can lead through indexing to other price increases (for example, public sector wages).

30. One solution is to offer residential customers an optional package of minimal service at a low (subsidized) price, and let customers self-select the quality of service they can afford.

porary tax on incoming international calls (on foreign callers, many of them expatriate Sri Lankans) captures part of the price reduction following international competition, and channels it to rolling out networks (including broadband) in provincial towns and rural areas.

Despite the complexity of pricing, regulation, and universal service provision, rebalancing tariffs to the extent needed to introduce international competition can be done fairly quickly—typically in less than one year—once, politically, the decision is made. In the absence of reliable cost accounts, approximately appropriate levels for regulated prices can be prescribed readily from benchmarks derived from competitive markets, adjusted to reflect major country differences in factor costs (for example, labor, capital, land), or through simple network engineering models. Following tariff rebalancing and other measures to allow markets to work well, reasonable targets can be reached at a modest cost, relative to total sector revenue, to extend service beyond the market (Table 6) and new services help reach the least privileged population groups.³¹

Developing countries should consider, without delay, introducing competition in international communications. Maintaining the *status quo* in a monopoly market structure only results in protecting the interests of the incumbent operator; it constrains volumes, has an adverse affect on network development, imposes high charges on domestic consumers and enterprises, and stifles economic competitiveness.

Table 6. Net Cost of Universal Telephone Service in Selected Countries³²

Country	Net Cost as a Percent of Sector Revenue
Argentina	0.6–1.0
Australia	2.0
Chile	0.2
Colombia	4.3
France	3.0
Norway	2.0–2.4
Peru	1.0
Sweden	0.8–1.2
Switzerland	1.7–2.2
UK	0.2–0.3
US	5.0

Source: Wellenius, 2000.

31. Prepaid mobile phone service, typically available to 90 percent of the population only one or two years after competitive entry, further reduces the cost of universal service and shifts the issue from network extension to affordability of use.

32. The data are estimates or projections covering various periods from 1995 to 2004, collected in 1999. Net cost of universal phone service has further declined since then. Some countries, however, now aim at universal provision of Internet and other advanced communication and information services that cost more.

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Competition in International Voice Communications is part of the World Bank Working Paper series. These papers are published to communicate the results of the Bank's ongoing research and to stimulate public discussion.

This study presents the case that opening international voice communication to competition is key to reform of the telecommunication sector, is sustainable in developing countries, and results in major gains to consumers, businesses, and the economy.

Over the last 20 years full competition became a dominant attribute in virtually all high-income countries and in selected developing countries, especially in Latin America. Three forces were behind competition: globalization, technological change, and the emergence of international telecommunications as an enabler for integration and trade.

Now over 80 percent of voice traffic originates in fully competitive markets. Resistance to competition remains strong in several developing countries (only 26 percent of them have competition), even though countries such as Chile and El Salvador have demonstrated spectacular success in introducing and sustaining competition. Among the reasons for resistance to competition, some are telecommunications-specific, such as, lack of technical, regulatory, and business skills, and fear of bankrupting the incumbent operator; while others are systemic, for instance, the concern over fiscal losses, the lack of political influence by pressure groups favoring competition, the existing corruption, and the restrictions over information flows. Competition in international communications is also a matter of economic freedom.

This paper makes the case for quickly opening developing-country markets, and identifies regulatory matters that need to be tackled.

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