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CHAPTER 1

Understanding Global Regulatory Reform
in Telecommunications*A Paradigm Shift*

TELECOMMUNICATIONS: THE OLD REGIME

For much of the twentieth century, telephony was viewed as a natural monopoly within national borders. In most of the world, the telecommunications system was governed by a government-owned or -managed monopoly responsible for postal, telegraph, and telephone services (PTT), which was operated by a ministry or regulatory agency and protected from competition in services and equipment. The state was the main actor domestically and internationally (Krasner 1991). On the international front, states cut deals with other states in order to cross-subsidize areas of service and to collect rents on the lucrative long-distance market (Cowhey 1990). States engaged in negotiations over telecommunications issues in intergovernmental organizations, especially the International Telecommunications Union (ITU). Some issues included standards for frequency and spectrum allocation, numbering, and the like. States were key members of both the International Telecommunications Satellite Organization (INTELSAT) and the International Marine/Maritime Satellite (INMARSAT) organization, which governed the placement of satellites. In addition, telecommunications involves issues of national security within countries, and some even argued that having a national telecom firm served as the symbol of a truly modern economy. Zacher and Sutton argue that “any self-respecting nation owned and controlled its ... telecommunications ... industries” (Zacher and Sutton 1996).

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[More information](#)SIGNIFICANCE AND RELEVANCE TO GLOBAL
ECONOMIC PROCESSES

In general, globalization, defined as the integration of international trade and finance, has increased. Telecommunications is one of the most global markets, and the telecommunications sector can represent up to 5 percent of a country's gross domestic product (GDP) and 10 percent of gross domestic investment, for a world total telecom market revenue of more than US\$1.8 trillion (World Trade Organization [WTO], 1995–2010, for 2011). As of 2011, there were more than 5.9 billion mobile-cellular subscriptions, representing a global penetration of 87 percent globally, and 79 percent in the developing world. Mobile broadband subscriptions grew 45 percent from 2008 to 2011, and outnumber fixed-broadband subscriptions (International Telecommunications Union [ITU] 2011a, 2011b, 2011c). The ITU estimates that more than one-third of the world's population is online, and 45 percent of internet users are below the age of twenty-five (ITU 2011c).

Domestically, the telecom sector is one of the key drivers in the economy, the glue that binds together firms and market participants. Demand for telecommunications services and products is high, and there are vast profits to be made in the sector. Yet, there are also large vested interests within telecommunications, particularly the state-owned enterprises that operate the networks, manufacture equipment, and provide services. Other interests include the unions and employees of these large firms.

A well-developed telecommunications infrastructure is a key component of decisions to invest in a particular country, as it determines the ease with which firms can communicate with their business partners and conduct business transactions. Furthermore, access to telecommunications and information technology has been hailed as the key to an information society, which promises to either bridge or widen the so-called digital divide, as well as the democratic deficit. Further, telecom reform is touted as a key prerequisite to sustained economic growth in developing countries because it is the key to attracting other forms of private investment. Reshaping that sector through privatization or regulation has

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direct implications for economic growth and competitiveness, as well as for consumer welfare in the form of price of services and equipment, access to markets, and employment possibilities in the growing sector.

Theoretically and empirically, telecom regulatory reform provides an excellent laboratory in which to explore questions about the role of government in the economy and changing patterns of intervention and regulation, as well as to examine the diffusion of institutional practices and trends in economic policies.

As mentioned previously, one of the primary assumptions about the telecom industry is that it is a natural monopoly, a justification that is central to understanding why and how governments controlled telecommunications markets for so many years. A natural monopoly exists when the total cost of a single firm serving the whole market is lower than the total cost of two or more firms (Sharkey 1982). In this case, competition would result in cost inefficiencies.

Some of the most important characteristics of these “natural monopolies” are large economies of scale relative to the level of demand and the nature of sunk costs and high fixed capital. Traditionally, it was argued that the best way to guarantee the quality provision of equipment and supply was through a single-provider monopoly, as, for example, the Bell Telephone System in the United States or the Czechoslovak Post and Telecommunications Operator.

Some of the characteristics of telecommunications markets include a high level of vertical integration and a strict division of service provisions, with tight divisions among international telephony, long-distance, and local service. Networks traditionally were owned and operated by a state-owned incumbent, which provided all forms of telephone service. The components of these networks included the international circuits, long-distance switching, and local switching, all of which culminated in the link of copper coils that connect a customer’s home or office to the overall network. This “local loop” is considered a bottleneck facility, as it is difficult to build out the connection between the publicly provided network and the home or business. According to the natural monopoly

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justification, only one firm was best equipped to provide the most efficient and highest quality service in connecting this local loop. There were physical reasons to justify having only one provider: one set of wires, standardization of equipment, and similar arguments.

Political factors also served to reinforce some the economic assumptions of natural monopoly. In some instances, governments saw controlling communications networks as essential from the perspective of national security. In others, control had a more authoritarian domestic political intent. In still others, control was for purely fiscal reasons, as telecom sectors generated tremendous revenues for the national budget.

TECHNOLOGICAL IMPERATIVES FOR CHANGE

Sweeping technological changes during the 1980s and 1990s especially challenged some of these natural monopoly assumptions and produced an altered system of incentives and constraints for the status quo. After outlining some of these key technological changes and their specific impacts on telecom market segments in Chapters 1 and 2, I argue that technological changes are a necessary, but not sufficient, explanation for both trend and variation in telecom regulatory reform.

Some of the most important technological changes include discoveries and innovations in digital switches, microwave technology, technology for mobile phones, new advances in the broadband technology (for asymmetric digital subscriber line [ADSL], cable modems), satellite technology, and fiber-optic cable links. One of the most significant implications of advances in coaxial cable, satellites, wireless networks, and call-back technology is that it became easier to circumvent market entry barriers to providing telecoms services. Such technological changes created the possibility of substituting new services at lower prices through new companies without having to pay fees to the dominant monopoly firm. Advances in digital switching technology made it possible for several providers, not just one, to share telecommunications infrastructure. What was once technologically impossible became much cheaper and widely available (Pool and Noam 1990).

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Once introduced, increased competition chipped away at the monopoly rents the dominant incumbents were able to collect. Some of the rents associated with state ownership included price discrimination between different types of consumers, especially businesses and residential users, and also price differentials among the provision of international, long-distance, and local telephone services. Traditionally, governments used the lucrative rents of high-priced international calls to cross-subsidize the provision of local service, thus distorting the overall market yet guaranteeing rents for the state operator.

Older technology and bottleneck facilities provided justification for monopolists to block any competitive entry and to maintain the rents. New technologies enhanced the ability of new entrants into market segments, especially in the areas of value-added technology, long-distance telephony, and the local loop. Many competitors praised the advent of cellular telephony as a substitute for fixed lines, as consumers no longer had to wait years, in some cases, for the state-owned incumbent to provide a line to the home. Rather, they could purchase a mobile phone with the technology to dial around the world, thus providing access to a more global information society (Castells 2007). Yet, wireless technology has emerged as a complement to, and not merely a substitute for, fixed-line telephony, particularly in terms of access to the internet and broadband. Fixed-line service through digital subscriber lines (DSL) has proven to be one of the most pervasive access points to the internet, although mobile broadband subscriptions have grown by more than 45 percent, especially in developing countries (ITU 2011c). Many scholars debate the importance of governance in the emerging areas of the internet. Mueller, for example, provides a fascinating study of how networks and states interact to form a new global politics of internet governance (Mueller 2010). I use some of these ideas in my own theoretical framework, as outlined later in this chapter and in Chapter 2.

Technology has also altered the incentives for governments to retain the previous structures of vertically integrated firms, as governments have started to introduce competition in various segments of the telecom market and spin off separate companies to provide

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services to these segments. Finally, the technological transformation of telecommunications further undermined natural monopoly assumptions by circumventing some of the previous geographic barriers to entry into the global communications market. For example, rural villagers in Nepal are now able to use mobile phones not only to talk to people around the world, but also to check market prices of goods and commodities and make trade arrangements by both phone and internet. The mountains of the Himalayas do not constitute the same natural barriers to global communications they once did. Furthermore, communications technology and the role of electronic commerce and e-government is not value-neutral and could pose threats to privacy, cyber-security, and other undesirable attributes. Mueller, for example, uses network theory and argues that the internet requires a different governance structure, one that includes a political movement to define, defend, and institutionalize individual rights and freedoms on a transnational scale (Mueller 2010).

WAVES OF REFORM

The liberalization of telecommunications increased and accelerated over the past two decades, and can be divided into three distinct periods or “waves” of reform. In the early 1980s, during the first wave, the dominant form of governing and regulating telecommunications was the PTT monopoly. Only the United States had private ownership and a separate regulator (since 1934), although the Bell System was still a monopoly, and there were plenty of arguments about the “regulatory capture” of the Federal Communications Commission (FCC) by the Bell companies (Stigler 1971). During this same period, however, the United Kingdom and Japan embarked on paths of substantial re-regulation in telecommunications, as well as in other sectors (Vogel 1996). The United Kingdom established a separate regulator, Oftel, to enforce competition in telecommunications (Thatcher 1999), and Japan started a program of re-regulation (Noll and Rosenbluth 1995).

The second wave of reforms in telecommunications started in Latin America, especially in Argentina, Mexico, and Chile

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(Murillo 2001; Noam 1998; Petrazzini 1995; Ramamurti 1996). This wave also included countries in Eastern Europe, which began the transition from socialist economies toward market economies, and many countries began programs of large-scale economic reform, some of which involved privatizing telecommunications. In this wave of reform, the emphasis was placed mostly on privatization of the incumbent, lining state coffers and supplementing the budget, and modernizing the antiquated telecom networks. The main actors in this case were governments as they chose to corporatize state-owned monopolies, spin off a separate regulatory unit in the ministry, and prepare for privatization and eventual liberalization of the sector. In these cases, liberalization was something planned for the future – not an immediate issue. Policy-makers pursued goals of making money through selling shares of the state-owned incumbents, increasing investment in the telecom infrastructure in order to provide the capacity for modernized services, and providing more services to consumers.

The third wave included a much larger group of countries spanning even more regions of the globe. These countries included most developing countries and dynamic middle-income countries (Singapore, Hong Kong, Korea) (Fink, Mattoo, and Rathindran 2003; Singh 1999). The third wave also included countries in Europe, as well as the European Union (EU) as a whole, which started to liberalize its telecommunications sector by 1998. The main goals during later waves were to accelerate the privatization process and to continue to liberalize the sector. For example, member states of the European Union had until 1998 to fully liberalize all market segments of telecommunications, including the local loop. The year when most countries around the world established an independent regulator was 2000 (European Commission 2010a). During this time, markets were booming, and countries wanted to hop on board the investment train; however, it also became apparent that global capital was not infinite. Over the past ten years, the number of countries with competitive markets and separate regulatory institutions has increased, albeit at a slower pace.

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Some of the key challenges following the “bubble” of 2000, as well as the global financial crash of 2008, included booming demand in developing countries, the erosion of shareholder value in developed country telecom markets, and the consolidation of state ownership in both incumbents and mobile telephony. In the Czech Republic, as shown later in the book, the government regained ownership of Czech Telecom after foreign investors sold out their shares, and waited several years before re-selling the firm to Telefonica of Spain. Also, with the increased digitization of technology and the “convergence” of platforms for electronic communications, countries and regulators are devising more ways to ensure effective interconnection policy with multiple networks and to provide affordable, accessible, high-quality service for citizens. Many countries have designed new broadband access strategies based on the EU’s *Digital Europe Policy* (European Commission 2010a, 2010b, 2010c), and some of the new technologies raise questions about how to regulate and govern the internet, voice over internet protocol (VOIP) issues, and other technical advances in a way that might respond to the interests of citizens, states, and firms (Marsden 2011; Pelkmans and Renda 2011). Also, more recent literature shows how the position of telecommunications has moved in international organizations, shifting away from more traditional notions of telecommunications to that of information infrastructure, driven by larger debates about information rights and information governance (Avant, Finnemore, and Sell 2010; Cowhey, Aronson, and Abelson 2009). I engage some of these later arguments in the conclusion of this book, focusing on the historical spread of liberalism in the 1990s and early 2000s.

With this brief historical overview, we now turn to some of the specific trends in global reforms.

THE DEPENDENT VARIABLE: THE CREATION OF SIMILAR, LIBERAL INSTITUTIONAL INNOVATIONS IN TELECOMMUNICATIONS AROUND THE WORLD

Those governments that chose to enact regulatory reform in telecommunications have stated explicitly a set of goals to increase the

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accessibility, quality, and affordability of telecommunications services. The availability and affordability of modern, reliable telecommunications services are critical for all sectors in the economy, especially in order to attract foreign investment, compete in global markets, and fulfill overall development objectives. Also, telecommunications has proved to be correlated with economic growth and development, and it has come to be understood as one of the fundamental building blocks of a modern economy (Röller and Waverman 2001).

One of the biggest challenges for regulators – and for governments when devising their actual policies – is how to retain the flexibility to grapple with the challenges of rapidly changing technology but still maintain a firm set of guidelines to ensure transparent, effective, and market-enhancing rules. Given the very real costs and benefits, the entrenched interests of the incumbent firms, and the high stakes for investment, all countries around the world face these tough challenges.

Telecommunications markets have opened considerably over the past three decades. The bulk of liberalizations happened in the late 1990s, the bulk of privatizations occurred in the mid-1990s, and the highest period of activity in the establishment of separate regulators and re-regulation occurred in the late 1990s and early 2000s. By 2001, more than 120 governments had established separate regulatory agencies for telecoms, more than 100 governments had introduced private sector participation into the dominant fixed-line operator, and more than 100 governments had introduced liberalization in at least one market segment. In terms of re-regulation, more than 106 countries established interconnection frameworks, and more than 50 percent of countries around the world had established a fund for universal service (ITU 2011a). By 2011, 158 countries had established separate regulatory institutions, 126 had some form of private sector participation, and over 140 countries established a regulatory framework for dispute resolution, up from seventy in 2005 (ITU 2011a, 2011b, 2011c). In addition, more than seventy governments adopted a policy for broadband access (ITU 2011a, 2011b, 2011c).

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REGULATORY AGENCY

From 1980 to 2002, there was a tremendous global movement to adopt new, separate telecommunications regulators. In the early 1980s, most countries had a state-owned monopoly telecommunications operator, and the government ministry responsible for communications usually performed regulatory duties, as well as ownership and management duties. By 2002, more than 129 countries had created separate regulators for telecoms, and 106 countries had at least partially privatized their monopoly incumbent telecommunications operators (see Appendix A).

Appendix B illustrates the cumulative adoption of separate regulators for telecoms from 1934 (the creation of the U.S. FCC) through 2011. These figures show only nine separate regulators in 1980, but more than 158 by 2011, with an upward sloping curve starting in the 1990s.

WHAT IS A SEPARATE REGULATOR?

By late 2001, more countries had established separate regulatory bodies for telecoms than had private participation in basic infrastructure or that permitted competition in basic services. This number increased to 158 countries by 2010. Establishing a separate regulator for telecoms can be viewed as one step toward an overall paradigm shift from a state-owned, -controlled, and -regulated telecom sector to a more market-oriented competitive sector. This new institution is crucial for regulating a dynamic, global sector, especially as governments introduce competition into previously closed market segments and begin to privatize the incumbent, which usually retains a significant degree of market power. A survey from the European Bank of Reconstruction and Development (EBRD) in 1995 indicated that,

“the absence of an independent regulatory authority to establish the rules of the game, arbitrate disputes, and generally determine the public interest is a danger signal to potential investors. It has been demonstrated many times over that investors are much more