


PART IV



Infrastructure: The Platform for Efficiency



Summary

Almost without exception, richer and more developed countries have better roads and ports, more reliable electricity systems with broader coverage, and more sophisticated telecommunications services. The relationship across countries between income levels and the quality of infrastructure is too pronounced to be the result of a simple unidirectional link from one variable to the other. Infrastructure is an important determinant of productivity and growth, as it helps reduce transportation costs, expands the scope of the market, and facilitates the transmission of information and knowledge. As more and more industries become part and parcel of the knowledge economy, greater reliance is placed on the infrastructure sectors to provide the services that make possible the increasing flow of information. Higher income levels feed back into larger demands for energy, transportation and communication, strengthening the link between economic development and infrastructure. Furthermore, and perhaps more importantly, both investments in infrastructure as well as overall economic development are sensitive to the institutional environment. Well defined property rights, a predictable regu-

latory environment and a modicum of transparency in public decisions are required for investors to commit large resources in assets that are immovable, lack secondary markets, have no alternative uses, and can only be profitable in a long horizon. To a greater or lesser extent, these elements of the institutional environment also affect other investment decisions, whether they involve physical assets, human capital, or establishing private or public organizations.

High fixed costs and the likely presence of network externalities would appear to make the provision of infrastructure services a natural monopoly. As a result, most countries have traditionally provided these services through state-owned enterprises. But burgeoning demand for infrastructure in the face of limited public financing and major inefficiencies have recently forced governments to allow private capital into these industries. Latin America has been the leading region in this process, with total investments with private participation representing more than 43 percent of the total for all developing regions (see Table 1). But privatization alone has been insufficient to assure competition and

Table 1 Private Capital Participation in Infrastructure, 1990-99

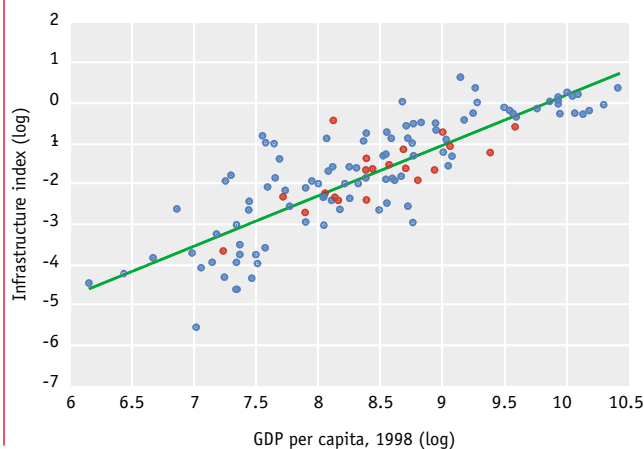
(Billions of US\$)

	Latin America	Developing countries	Latin American participation (%)
Energy (electricity and gas)	73.9	192.8	38.3
Telecommunications	116.0	249.0	46.6
Transport (ports, airports and railways)	49.2	106.1	46.4
Water and sanitation	12.9	31.4	41.1
Total	252.0	579.3	43.5

Source: World Bank (2001).

Relationship between Infrastructure Provision and GDP Per Capita

(Percent of GDP)



Source: IDB calculations based on World Bank (2000).

Note: Each dot represents a country. Latin American countries are shown in red.

efficiency. A variety of regulatory schemes have been put in place to achieve these objectives. Although progress has been remarkable, the results have been mixed and final consumers have not always benefited from these improvements.

Ports and Transport

Until the end of the 1980s, Latin American ports operated, in practice, under the economic protectionist model that prevailed in the region. But the mechanisms of import protection have since been dismantled. Average tariffs in Latin America have fallen from 26 percent at the beginning of the 1980s to a current level of about 10 percent. The spread of containerization and other technological changes in international transport services have substantially reduced the cost of trading with distant countries. With the entry into world trade of large-scale providers of cheap products, the competitiveness of many Latin American products in world markets depends now more than ever on further reducing transport costs. As it happens, ports can be an important source of such reductions: an improvement in port efficiency from the 75th to the 25th percentile in the world rankings reduces shipping costs by the equivalent of 9,000 kilometers. Although hypothetical, this calculation is painfully relevant because Latin American ports are among the most inefficient in the world, according to business leaders cited in *The Global Com-*

petitiveness Report. Efficiency of ports is only partially a matter of quickly loading and unloading ships; it also depends on administrative effectiveness, especially in completing customs procedures. In Latin America, imported goods spend an average of seven days in customs warehouses, twice as long as in the most advanced countries.

There are three types of public port management models in the region: (i) public ports for general cargo imports, where the basic infrastructure is owned by the state but operations are private; (ii) specialized ports that are completely private and serve large export sectors; and (iii) concessions of up to 30 years aimed at promoting the modernization of port facilities and services.

There is no single formula to improve the efficiency of ports. Distinct elements must be combined in proportions that vary from country to country, taking into account, among other factors, the possibilities for competition between different ports, the volume of trade, and the characteristics of the country's major exports. It is clear, however, that regulation is needed that provides for private initiative but prevents the monopolization of services, and that eliminates the juridical uncertainty so common in Latin America. Although definitive solutions are still not in place, ports have ceased to be an instrument of protectionism and have become part of the machinery of competitiveness.

Electricity

Although the process of privatization and reform of electricity sectors has not reached all countries of the region, Latin America has been the world leader in power sector reform. Generation has expanded, electricity losses have been reduced, and large industrial consumers have benefited from lower prices. Having said that, it is also clear that much remains to be done: in most countries, competition is limited and hampered by concentration, service coverage has not expanded to marginal areas or to low-income consumers, and the regulatory system has not achieved adequate levels of transparency, simplicity or certainty. Nor is there a stable or standard regulation model. Thus, while there have been major achievements, and the new regime certainly is an improvement over the old one, significant problems could threaten these advances over the long term.

Some of the difficulties are due to technological

constraints common to all electricity markets, regardless of the country. Others arise because countries lack the institutional development and human resources implicit in the models adopted. Because institutions take time to develop, sometimes it is preferable to have an evolutionary rather than a big bang approach to reform. It is critical to keep the wires business, transmission and distribution independent from supply, generation and commercialization. A constraint-free transmission system is of vital importance for the market, and its expansion should not be limited by narrow efficiency considerations. Even if competition is not feasible in the short term, care should be taken not to foreclose future options for competition (as would be the case, for example, if a regional integrated energy market were to become feasible in Central America). Consequently, any solution requires a certain level of regulatory intervention, and even then it will not completely solve the trade-off between having reliable investors and low prices. One criterion for selecting an approach to improve competitiveness may be to minimize the regulatory transaction costs in the short term in order to buy time to develop the necessary institutional capacity over the long run.

Regardless of the approach, many issues remain unsolved or are awaiting the results of ongoing pilot programs in the region. The jury is still out on how to best regulate a small system, or on the type of market arrangements that minimize the exercise of market power. How much vertical integration to allow in a constrained competitive system sometimes is more an art than a science. And how to involve the demand side in the market and realize the potential of retail competition are also subjects of debate.

Telecommunications

Because of technological innovations over the past decade, information technology has become an essential

factor in production, inducing a huge explosion in the demand for telecommunications services. In general, state-owned monopolies had neither the right incentives nor the required funds for investment to meet this new demand. In addition, new technologies in the industry do not have significant increasing returns to scale, undermining one of the reasons why some segments were considered natural monopolies.

The Latin American countries have been leaders, however, in adapting their regulatory framework to address new challenges in telecommunications. Typically, this process includes separating telecommunications services from the central government, creating incentive-oriented regulations, and separating regulatory and operational functions. The final feature of these reforms is private capital. In some cases, this capital must compete from the outset, while in others the new private incumbent is granted a period of exclusivity to compensate for required investments.

Latin America's telecommunications reforms have improved efficiency, fostering telephony penetration and improving the quality of services. But they have also increased prices. Some case studies show that privatized monopolies have high returns, which shows that improvements are not always fully transferred to final consumers. Informational rents are high, but they seem to decline when competition is introduced.

Despite improvements, Latin America still has a long way to go in advancing telecommunications. Internal and external gaps are still huge, and universal access today involves not only basic telephone services, but also more advanced customer-oriented services such as data transfers and Internet access. Regulations have to foster competition and protect consumers from potential monopolies, while also dealing with network access and inter-operability. The regulatory challenge is to develop consistent regulations that treat similar products in a coherent way, encourage innovations, and serve the best interests of all users.

