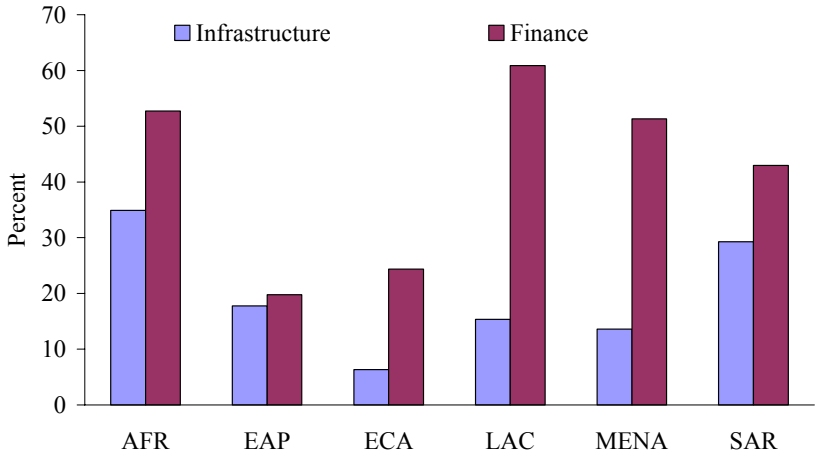
Chapter 6 Finance and infrastructure

6.1 Well-functioning markets for finance connect firms to sources of credit and equity to fund their ventures. Good infrastructure connects them to their customers and suppliers and helps them take advantage of modern production techniques. Inadequacies in finance and infrastructure create barriers to opportunities and increase the costs for rural microentrepreneurs as well as multinational enterprises. By impeding new entry into markets, inadequate finance and infrastructure can also subdue the competitive discipline facing incumbent firms, dulling their incentives to improve their productivity. And the inadequacies are large in developing countries (figure 6.1).

Figure 6.1 Share of firms rating finance and infrastructure as a "major" or "severe" constraint



Source: World Bank Productivity and Investment Climate Database.

6.2 The underlying problem with finance and infrastructure can be traced to a specific market failure—for finance, information asymmetries, and for infrastructure, market power. But they also share a history of having been plagued by problems of political economy that lead governments to intervene in ways that too often make the underlying problems worse. Financial markets have been repressed and distorted by state ownership, monopolies, directed or subsidized credit, and other policies appealing to the short-term interests of politicians and favored groups. Those measures undermine financial sector development, firm-level productivity, and economic growth.[1] Infrastructure has too often been undermined by governments using state ownership or regulation to pursue objectives unrelated to efficient service provision, typically favoring some groups over broader interests and introducing new sources of inefficiency.[2]

6.3 Governments are grappling with these issues, but progress remains slow and uneven. New approaches require them to be less hands-on in delivering services and to focus instead on creating a sound investment climate for commercial providers of financial, telecommunications, electricity, port, and (where feasible) road services. Finance and infrastructure thus have two relationships with the investment climate: they affect the investment climate for firms in general; and they are affected by the investment climate for

finance and infrastructure providers. This chapter reviews some promising approaches for governments to improve these aspects of their investment climates.

Financial markets

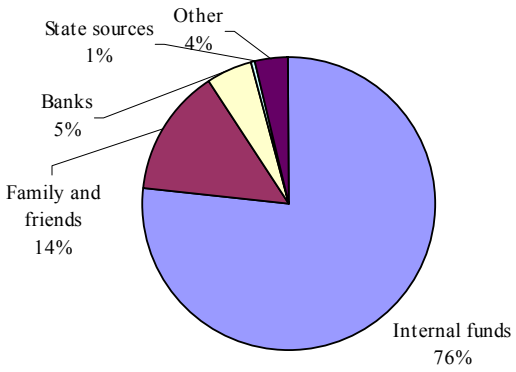
6.4 Developed financial markets improve the provision of payment services, mobilize savings, and allocate credit to firms wishing to invest. When these markets work well, they give firms the ability to seize promising investment opportunities. They reduce firms' reliance on internally generated cashflows and money from family and friends—and give them access to external equity and debt (figure 6.2). They allow poor entrepreneurs to grow their businesses. Well functioning financial markets also impose discipline on firms to perform, driving efficiency, both directly and by facilitating new entry into product markets. Competition between providers of finance encourages them to improve their capabilities in assessing risks and to be responsive to firms.

6.5 More developed markets attract greater savings, promote more efficient allocations of funds, and reduce financial risk.[3] For instance, secure savings accounts help people manage risks during crises. As a result, financial market development leads to faster growth in productivity and in output.[4] More developed markets are associated with more credit; doubling private credit as a share of GDP is associated with an increase in average long-term growth of almost two percentage points.[5]

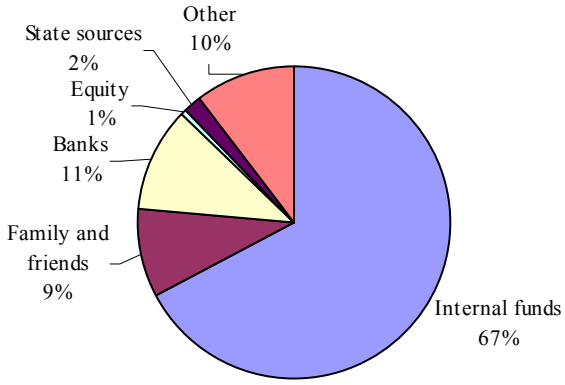
6.6 Developed financial markets also reduce poverty—directly and through their role in economic growth. They reduce income inequality by alleviating credit constraints and increasing access to investment opportunities for poor households.[6] By facilitating competition between firms that purchase goods produced by poor households, they can help poor households escape exploitation by those firms.[7] They can also stabilize the economy by reducing volatility: doubling private credit as a share of GDP can reduce the volatility of growth from four percentage points annually to three.[8] There is also evidence that child labor is lower in countries with greater access to financing, after controlling for other explanations.[9]

Figure 6.2 Sources of fixed investment financing differ for small and large firms

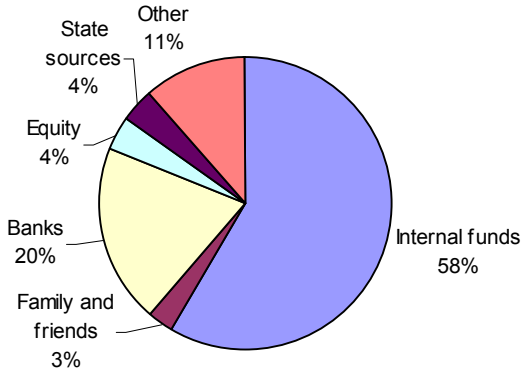
Small Informal



Small Formal



Large Formal



Source: Investment Climate Surveys, WDR Informal Enterprise Surveys.

Building good financial markets

6.7 Getting financial markets to work well runs into market failures and problems of political economy.

6.8 The market failure arises from asymmetries of information. Firms seeking to borrow promise to repay loans, but there is always a chance they will not. If lenders could accurately estimate the likelihood of default, they could protect themselves by calibrating interest rates to the risk of default. Lenders do charge more for riskier loans, but the fact that their knowledge of risk is imperfect, and poorer than that of borrowers, means that increasing interest rates cannot fully protect them: when lenders charge higher interest rates, they discourage borrowers with low-risk, low-return ventures, leaving them mainly with borrowers for high-risk projects. By its nature, then, raising interest rates increases the risks lenders are exposed to. The problem is heightened by the possibility of dishonesty and weak contract enforcement: only honest borrowers are discouraged by high interest rates.

6.9 Providers of debt and equity also have imperfect information about what the recipients are doing with the capital. Lenders cannot be sure that borrowers are steering clear of risks that increase the chance of default. Shareholders cannot be sure whether managers are investing wisely or merely enriching themselves.

6.10 These problems can make it hard for firms to obtain finance unless they have collateral to secure a loan—or good connections. They also make it hard for people with savings to find attractive opportunities to invest or lend. The severity of the problems depends partly on factors outside government's immediate control, such as the effect of technology on the costs of getting better information. But it also depends on government policy.

6.11 Financial markets are also affected by political economy. Government policies toward financial markets are influenced by the wishes of powerful groups and the self-interest of politicians. Competition often suffers. In the United States until the mid 1990s, state banks persuaded governments to shelter them from competition by maintaining unwarranted restrictions on interstate banking.[10] In Japan until the mid-1980s established banks persuaded the government to protect them from competition from bond markets by maintaining a rule that required would-be bond issuers to first get approval from a committee that the banks controlled.[11] Financial markets have a long history of similar problems (box 6.1). Overcoming such problems presents policymakers with a challenge at least as difficult as that created by information problems.

Box 6.1 Governments and finance markets: A long and difficult history

Throughout history, governments in need of funds have found it convenient to expropriate the financial assets of their citizens, often through repudiating debt. In England the cycle of expropriation was broken only when the monarchy recognized that the sums from taxing production on private property outweighed those from periodic expropriation. The crown first seized and sold vast lands owned by its rivals—the church and the nobles—thus creating a market for land. As a result, land was held by those best able to exploit it, such as the politically connected. A dispersed landholding gentry thus emerged, using parliament as a coordinating mechanism to protect their economic interests.

Over time, the economic might of the gentry grew so much that they could openly defy the crown and the nobles in parliament, in part because their wealth ensured that they could hire their own army if necessary. The gentry thus used the parliament to ensure that the crown honored its commitment to respect property rights, the basis for their economic prosperity, despite occasional attempts to renege. A credible commitment to respect and enforce property rights helped the government borrow vast sums to finance the British Empire.

Not all governments solved their financial difficulties through taxation and widespread protection of property rights. In Mexico in 1876 President Porfirio Díaz was confronted with the twin problems of political disorder and economic stagnation, a situation not uncommon in developing countries. He needed resources to combat his political opponents immediately, but Mexico's long history of government defaults made borrowing from the private sector impossible. Predation through forced loans and confiscation of property was possible, but that would have adverse effects on long-run productivity.

Díaz opted instead to protect the rights of a select group of asset holders and use the rents generated to combat his political opponents. The largest bank, Banamex, the government's primary financier, enjoyed special protections, including reserve requirements half those of other banks, exemptions from taxes, and the sole right to open branches. While these arrangements might have suited Díaz, the lack of contestability in financial markets would have a dampening effect on growth throughout the twentieth century.

Sources: Rajan and Zingales (2003); Haber, Razo, and Maurer (2003).

Pitfalls of traditional government interventions

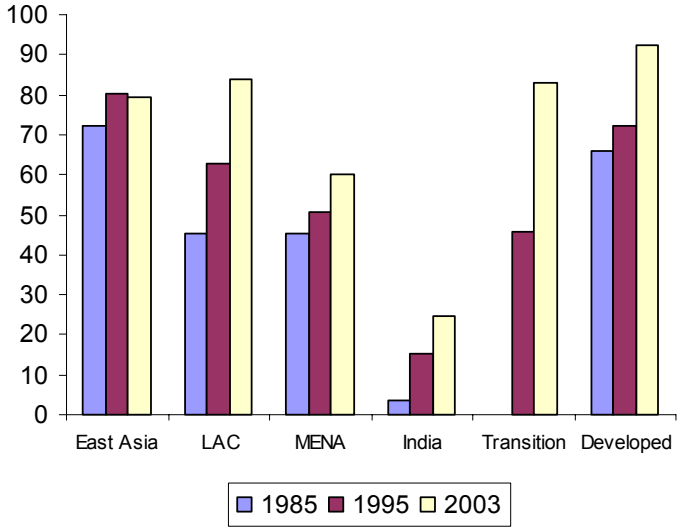
6.12 Responding to market failures and political pressures, governments in the postwar period intervened heavily in financial markets—providing many financial services themselves, guaranteeing loans by private banks, and directing credit to favored groups. They also restricted competition from foreign banks and other financial institutions to protect domestic banks. They often justified state ownership and other interventions in the financial sector as ways of ensuring that small and rural borrowers had access to funding. Overall, the record of the interventions has been discouraging.

6.13 *State ownership of banks*. State-owned banks can be given broad mandates or the task of developing a specific industry, sector, or region—often making loans at subsidized rates.[12] Their track record in the developing world is generally poor. A large proportion of state ownership in the banking sector has been found to reduce overall access to financing, reduce competition, worsen the allocation of credit, and increase the likelihood of financial crises.[13] Studies of privatization in countries as diverse as Brazil, Nigeria, and Egypt find that greater private and reduced government ownership is associated with better bank performance.[14] State-owned banks are frequently associated with weak governance, corruption, and poor collection procedures. As shown in cross-country studies, state ownership of banks, by impeding private competition, can also impede the development of

the financial system and so hurt small and medium firms particularly.[15] Although their importance has been diminishing, state-owned banks remain important in most parts of the developing world (figure 6.3).

Figure 6.3 State-owned banks are holding on in India and the Middle East and North Africa

Percentage of bank assets at private commercial banks



Source: Data for 2003 are from Clarke, Cull, and Shirley (2003), and those for 1985 and 1995 and from La Porta, Lopez-de Silanes, and Shleifer (2002). "East Asia" includes Korea, Malaysia, Philippines, and Thailand. "Transition" includes Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, and Slovenia. "LAC" countries include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela. "MENA" countries include Algeria, Egypt, Jordan, Lebanon, Morocco, and Tunisia. "Developed" includes Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Greece, Italy, and Japan.

6.14 *Development finance institutions*. Subsidizing credit to customers unable to borrow from traditional banks, development finance institutions (DFIs) can be justified if they overcome a market failure cost-effectively. A few have been able to lend profitably and maintain high repayment rates without the use of traditional collateral.[16] More often, they have been tools to support political projects with little economic value, or to benefit favored constituencies. They usually lack disciplining tools, such as active profit-motivated shareholders. Because the funds are raised by the tax system, not through deposits, there is a weak sense of the cost of capital.

6.15 The performance of DFIs has benefited from improvements in their governance. For example, the Thai Bank for Agriculture and Agricultural Cooperatives is an unusual case of a development bank with mandated lending objectives that does not depend on subsidies, but succeeds in providing credit to farmers. In 1998 it extended loans to more than 80 percent of Thailand's farming households.[17] Its governance arrangements hold local managers accountable for their branch's performance and requires managers to meet profit targets.

6.16 More often, however, DFIs make poor quality loans and fail to discipline repayment. A study of 18 industrial DFIs found that almost 50 percent of their loans were in arrears.[18]

Nor does credit often reach disadvantaged borrowers. In Brazil the rural finance credit program provides more than 57 percent of its loans to the largest 2 percent of borrowers, only 6 percent to the smallest 75 percent of borrowers. Interest rate subsidies and low repayment rates also strain government budgets. Mexico injected almost $23 billion into agricultural DFIs between 1983 and 1992.[19]

6.17 *Directed lending*. Other interventions include state-directed lending, which requires banks to make a proportion of loans to specific geographic areas and sectors. Directed lending is often aimed at rural areas, where poverty, sparse populations, seasonal variations in income, and a lack of traditional collateral increase the risks and transaction costs for financial intermediaries. But cheap publicly financed credit has led to a diversion of credit away from the poor, low lender revenues, and political intrusions.[20] Where authorities have increased long-term finance, there has been less emphasis on institutional sustainability, loan recovery, and strengthening intermediation by mobilizing rural savings.[21]

6.18 Although Japan, Korea, and Singapore appear to have had some success with directed (or priority) lending, most countries' experience has been poor (box 6.2). The programs have often misused funds, increased the cost of funds to non-favored borrowers, and been associated with weaker fiscal discipline and lower repayment rates.[22] In Brazil, Colombia, India, Kenya, and Mexico government interventions had high costs because they crowded out private intermediaries and funded inefficient borrowers. Directed credit can also fail to elicit the intended result if other constraints in the investment climate deter even firms with access to credit from investing.[23]

Box 6.2 Directed credit gone awry

In India, despite a policy requiring directed lending to priority sectors, commercial bank lending to priority sectors during 2001-02 was lower than the mandated amount of 40 percent of total outstanding credit—it stood at 36 percent for public sector banks, 22 percent for private sector banks, and 27.5 percent for foreign banks. Since the early 1990s, despite policy mandates, commercial banks have generally failed to meet various targets to promote finance to rural areas. Commercial banks prefer to meet their deficiency in the mandated direct lending for agriculture (13.5 percent) by depositing equivalent amounts in the state-owned National Bank of Agriculture and Rural Development (NABARD) maintained Rural Infrastructure Development Fund (RIDF), essentially transferring private savings for lending to the public sector, mostly state governments, mainly for financing rural infrastructure investments. These deposits are preferred investments with safety and attractive returns (in excess of 100 basis points over comparable fixed deposit rates of commercial banks), which further distorts the rural lending market.

In Colombia between 1984 and 1987 directed credit accounted for nearly 62 percent of total credit from commercial banks and financial corporations. To qualify for subsidized credit, firms had to show that capacity constraints were binding on output, so credit was directed only toward new capacity—not to improving efficiency in the sectors that had enough capacity. A bias toward large firms excluded a large proportion of small firms from the subsidized loans. Because the interest rate margins for commercial banks were restricted, they preferred less risky clients and demanded high collateral.

In the 1970s commercial banks in Malawi were required to increase lending to agriculture to 50 percent of total lending, and the lending to agriculture increased from K2 million in 1970 to K93 million in 1980, rising to 54 percent of bank advances. But most of this was channeled to the estates not to poor farmers. By 1980 most of the lending was covering losses caused by the rapid overexpansion, and commercial banks began to suffer.

Sources: World Bank (1990b), World Bank (1990a); Harvey (1991).

6.19 *Guarantees*. Credit guarantees can encourage more lending, but they may also encourage banks not to worry about credit risk and not to monitor borrowers. In Nigeria 15 percent of guaranteed loans were reported to be in default.[24] And because credit guarantees have high administrative and financial costs, they are often unsustainable and require high rates of subsidy. A study of Fondo Nacional de Garantía in Colombia found an implicit interest rate subsidy of 8 percent a year between 1982 and 1994.[25] The evidence on the impact of guarantees in expanding access to financing is also mixed. Although banks may extend credit to borrowers who would not have otherwise qualified, participation by smaller borrowers can be hampered by the transaction costs.[26]

6.20 Governments are learning from the problems of past approaches and turning to new approaches. As elsewhere in the investment climate, macroeconomic stability is fundamental (box 6.3). But other key elements involve fostering competition, securing rights of borrowers, creditors and shareholders, facilitating the flow of information, and ensuring that banks do not take excessive risks.

Box 6.3 Macroeconomic stability and access to finance

Financial markets depend on good macroeconomic policy, such as government commitments to low inflation and sustainable deficits. The flipside is that macroeconomic instability increases the volatility of interest rates, exchange rates, and relative prices, imposing additional costs and risks on the financial institutions and their clients.

- High inflation erodes the capital of financial institutions and makes it difficult to mobilize savings or to expand services.
- High fiscal deficits and government borrowing increase interest rates and spreads.
- The increase in holdings of government paper by banks, mutual and investment funds crowds out credit to the private sector, since banks find it more profitable to hold government securities than to make loans.

For example, in Brazil, the expansion of government borrowing between 1995 and 2003 has been associated with a slowdown in expansion of private sector credit.

Source: Fernando (2003).

Fostering competition

6.21 Removing barriers to entry by domestic and foreign financial intermediaries promotes financial development. Greater bank competition can improve banking stability, reduce interest margins, and improve access to finance.[27] Restrictions on competition are associated with slower economic growth, reduced employment growth, and slower exit of mature firms in concentrated bank markets.[28] Policies that impede competition, such as entry restrictions, restrictions on foreign banks, and state ownership of banks, hurt the financial system and economic performance.[29]

6.22 One way to foster competition is to (prudently) issue new domestic banking licenses. In the United States the wave of mergers and acquisitions in the 1980s and 1990s created large banks, which reduced their lending to new and small firms. Yet relatively liberal bank licensing policies allowed new banks to form to help offset the lack of supply and keep

interest margins low.[30] Competition is also benefiting from technological innovation, as in India's rural areas (box 6.4). Allowing foreign banks to enter the market can also enhance competition.

Box 6.4 Expanding access to finance in rural areas—New approaches in India

Firms operating in rural areas often have a hard time getting finance. But financial innovations are making a difference, as India shows.

The "agricultural agency" model uses a third-party intermediary to coordinate the financing of inputs, the delivery of produce to the end buyer, and the repayment to the bank before the farmer receives the proceeds. The intermediary improves information by advising farmers on crop decisions that affect the quantity and quality of the produce. The intermediary can also negotiate better prices on final goods than individual farmers can.

The Kisan Credit Card (KCC), offered by commercial, rural, and cooperative banks, is a technological innovation in providing credit to the agriculture sector in India, including small farmers. Since its introduction in 1998-99, some 31.6 million KCCs had been issued by March 31, 2003. Though not truly credit cards, the KCCs present advantages for the borrowers and lenders. They make it easier to get credit and renew loans, once the initial screening has been done. They reduce the number of visits to branches. And they increase the operation of accounts at designated supply branches.

Lastly, the increasing sophistication of financial markets is helping farmers smooth their incomes in the face of fluctuating prices and harvests. Developing futures markets allow them to fix the prices they will receive in advance. And innovations in insurance are allowing them to protect themselves from losses caused by poor weather: the payouts are based on the level of an index measuring local weather, which allows an objective determination of the payout and maintains farmers' incentives to maximize their output despite poor weather.

Source: Hess and Klapper (2003), World Bank (2004a).

6.23 Policymakers are sometimes concerned that the competition from foreign banks will weaken the banking system. But evidence suggests that foreign banks improve the efficiency and performance of domestic banks and reduce interest rate margins.[31] This is exactly what happened when the Philippines allowed more foreign bank competition—interest rate spreads fell and the efficiency of domestic banks increased.[32] Foreign banks can also use their cross-border experience to introduce innovations. Citibank, for example, responded to the scarcity of good credit information on individual firms in many developing countries by finding other ways to assess creditworthiness. It identifies industry segments with the potential to grow quickly and then seeks out borrowers in those segments. In India it has about 500 customers in 15 selected industrial segments.

6.24 A second possible concern is that foreign entry might reduce access to financing by small and medium firms. But again, foreign banks seem to improve access to credit for small firms. In Chile and Peru foreign banks lent more to small firms than domestic banks did, and in Argentina and Chile real growth in lending to small firms was higher for foreign firms.[33]

6.25 While bank-to-bank competition is important, other sources of finance can also strengthen competition. For example, firms with access to public bond financing have 35 percent more debt (after controlling for other firm characteristics).[34] Securities can be used to raise new financing and to improve risk management and price discovery. Non-bank financial intermediaries can also broaden financial markets. For example, leasing companies and finance companies often finance start-up firms unable to raise funds from banks. And as

non-banks develop, they often securitize lease receivables, deepening the securities market.[35] Pension funds and contractual savings can also compete for the supply of funds, increasing banking efficiency and lowering the cost of capital.[36] Commercial microfinance is beginning to have an impact on financial services for the poor (box 6.5).

Box 6.5 Commercial microfinanciers enter the market

Microfinanciers provide thrift, credit, and other financial services of very small amounts, mainly to the poor, in both rural and urban areas. They offer an alternative to banks, which in most developing countries serve only 5–20 percent of the population, and to moneylenders. They use non-collateralized loans to deliver short-term working capital loans to microentrepreneurs and households.

One of the key characteristics of microfinance is substituting joint liability, access to future loans, and more frequent repayment periods, for traditional collateral. For example, the now internationally replicated Grameen Bank in Bangladesh uses joint liability to help overcome the information problems that afflict financial markets, because borrowers know who in their community is a credit risk and can monitor each other. Joint liability also helps to enforce auditing (by ensuring borrowers are honest in the case of default) and repayment (borrowers can impose social sanctions on defaulters). These alternatives to collateral are especially important for borrowers who do not have assets to pledge—and for lenders who operate in countries with weak secured lending laws and enforcement.

Microfinance has demonstrated its success in reducing poverty. By 2002 more than 1,000 microfinance programs around the world had reached approximately 30 million borrowers, lending about $ 3.5 billion, with an average loan size of $280. Microfinance has helped the poor to increase household income, build viable businesses, and reduce their vulnerability to external shocks. It can also be a powerful instrument for self-empowerment of the poor, especially women. But subsidized microfinance relying on donors is unlikely to be big enough to reach all potential borrowers. That is likely to require commercial microfinance mobilizing the savings of the general public, which raises questions about government participation and regulation.

Governments are sometimes tempted to mandate below-market interest rates, but this usually causes more problems than it solves. The removal of interest rate controls in Indonesia in June 1983 allowed Bank Rakyat Indonesia (BRI) to experiment with new financial products, most notably market-priced working capital and investment capital loans. By 1986 its microfinance business had turned from a chronic loss-maker to a profitable department.

Governments can also eliminate unfair competition from public institutions and change regulations to facilitate competition on a level playing field. In particular, they can allow microfinance institutions to transform themselves into licensed financial institutions and facilitate the provision of microfinance by commercial banks. In 1992 ProDem, a microfinance NGO, became BancoSol, the first commercial bank in Latin America dedicated to the provision of microfinance. The transformation enabled the expansion from 14,300 clients to 70,000 within five years of commercialization, and by 1998 BancoSol was the most profitable licensed bank in Bolivia.

As in other segments of the credit market, allowing the sharing of credit information among microlenders can foster microfinance lending, especially by commercial lenders that may not have preexisting relationships with borrowers in rural areas. South Africa has two private credit bureaus operating in the microfinance sector. Information can be obtained by touch-tone phone, and the bureaus charge much lower fees than larger bureaus—making it affordable even for small microlenders.

Sources: Gallardo and others (2003); De Rus and Estache (2003); Ghatak and Guinnane (1999); Goronja (2003); Cohen and Sebstad (1999), Cohen and Burjorjee (2003), and Morduch (1997); Morduch, Littlefield, and Hashemi (2003); Mukherjee (1997); Hubka and Zaide (2002) and CGAP (1997); Klapper and Kraus (2002); and mixmarket.org.

6.26 How, then, to encourage the development of non-bank lenders? By not overregulating lenders that don't take deposits, and by harmonizing the tax treatment of

financial products. In Turkey factoring companies pay a 5 percent transaction tax while banks pay only 1 percent.[37] Pension rules can also be liberalized as capital markets mature and regulatory systems develop. For instance, investment could be allowed in more asset classes, such as equities.[38] Insurance regulations can also encourage insurance providers to innovate and operate efficiently—and to create a competitive market open to new firms and the exit of insolvent firms.[39] Mutual funds can be developed under strong accounting and auditing rules and strict disclosure requirements.[40]

Securing rights of borrowers, creditors, and shareholders

6.27 Governments can mitigate the problems for creditors and shareholders—and increase their willingness to provide finance—by ensuring that the parties have clearly defined rights and can enforce them. A strong legal environment and enforcement are important for access to external finance and the development of financial markets.[41] When creditor rights are weak, financial institutions will be less willing to extend credit to firms that have a high risk of default. When shareholders rights are weak, investors will be less willing to provide firms with equity.[42]

6.28 *Borrowers' property rights*. Collateral can ease borrowing constraints for firms, because lenders are usually more willing to lend when collateral is offered. Secure property rights (including title to land) can increase the access to financing and investment (chapter 4). They also promote the creation of firms and lengthen the maturity of corporate debt structure, as well as encourage more foreign lending.[43] The cost of external financing is also lower in countries with stronger property rights protection and less corruption.[44] For example, a study of 37 countries found that if a country improved its property rights protection from the 25th to the 75th percentile, loan spreads would decline by 87 basis points.[45]

6.29 *Creditors' rights*. Secured transaction laws are important in ensuring that secured lenders receive priority in the case of default. Strong creditor rights—stemming, say, from laws guaranteeing secured creditors' priority in the case of default—allow lenders to reduce their risk of future losses and therefore encourage them to make more loans. For example, one explanation offered for the low level of private credit in Mexico is that many social constituencies must be repaid before secured creditors, often leaving them with few assets to back their claims.[46] Studies in the United States show that small firms are 25 percent more likely to be denied credit if they are in states that provide creditors with less protection when the borrower is bankrupt.[47] The effectiveness of creditor rights also depends on strong enforcement of the laws. For example, Russia has "imported" strong laws protecting shareholder and creditor rights, but the lack of an effective legal system to enforce these laws has been a key impediment.[48] Stronger creditor rights protection, such as laws and registries permitting the collateralization of movable property, may offer even greater benefits to small and unlisted firms, which are less likely to have fixed assets (box 6.6).

Box 6.6 Establishing a movable collateral registry in Romania

In Romania legal impediments previously restricted the use of movable property as collateral and thereby limited the access to credit. First, the system did not allow lenders to access information on whether other creditors or lenders had claims on the same goods used for collateral. Second, the enforcement of agreements and repossession of collateralized goods was a long process (often exceeding the economic life of the movable good!).

A new law, adopted in 1999, introduced a system for registering security interests. The registration is valid for five years, and is required to secure new collateral. The law provides for both stronger enforcement and a new electronic archive of outstanding liens. This online collateral registry, operated by appointees of the Ministry of Justice, includes all registered security interests. Ten operators and 366 agents are licensed to register collateral in the electronic archive. The supervisory authority provides guidelines on operation and clarifies rules and regulations.

The archive functions efficiently, allowing access to financial intermediaries on information about creditors, debtors, or assets securing a commercial or civil transaction in the country. This information, accessible by people all over the world, presents huge cost-saving and timesaving opportunities—improving the investment climate.

Source: Fleisig (1998) and Stoica, Stoico, and Stoica and Associates (2002).

6.30 *Shareholder rights and corporate governance*. Structural changes in most developing countries—such as privatization and the widespread listing of previously unlisted firms—underscore the need for good corporate governance.[49] In countries where laws do not guarantee strong protection of shareholders, firms may be able to improve their access to external equity financing by voluntarily improving their governance through greater transparency, preparing financial reports according to international accounting standards, and appointing independent directors.

6.31 Improvements in corporate governance are associated with higher operational performance of firms, through better management, better allocation of resources, or other efficiency improvements.[50] The effect seems to matter more in countries with weak legal rules, since firm-level improvements in investor protection are valued by investors. Governance is particularly important for foreign investors, who may have informational disadvantages. A global investor opinion survey by McKinsey revealed that good governance matters most to investors (ranking higher than firm performance or growth prospects) and that institutional investors prefer to invest in countries where legal rules and enforcement are both strong.[51]

6.32 Governance standards therefore need not be legislated for all corporations. But governments can facilitate shareholder monitoring by requiring disclosure of financial and ownership information for all large and listed firms. Stricter regulation (in the form of high disclosure requirements set by the exchange or government) and strong enforcement are associated with greater market liquidity, lower costs of capital, and higher valuations of firms (box 6.7).[52]

Box 6.7 The changing faces of corporate governance in Brazil and Korea

South Korea is leading corporate governance reforms in East Asia. Ceilings have been removed on foreign ownership. Changes in the laws have reduced the minimum shareholding required to undertake class actions, prompting many instances of shareholder activism (for instance, People's Solidarity Participatory Democracy challenged Samsung Electronics and SK Telecom) and requiring the appointment of outside directors on the boards of financial institutions and major conglomerates. Some exchange listing requirements were also added, which apply only to firms with an asset size greater than 2 trillion won, or the top 30 chaebol companies. These firms must have an audit committee with at least two-thirds of directors from outside the firm and an outside director as chairman. Such changes promise to help in attracting more foreign capital.

In 2001 BOVESPA (the Sao Paulo Stock Exchange) established a new market segment, Novo Mercado, modeled on the Neuer Market in Germany. To attract smaller enterprises, new market segments in other bourses usually loosen listing requirements. But Novo Mercado goes against this trend, requiring corporate governance requirements far stricter than in the old segment. At least 25 percent of the capital stock must be floating in the market and listed companies must adopt US generally accepted accounting principles or International Financial Reporting Standards. In the case of a merger, both controlling and minority shareholders must be treated equally. The companies can issue only common shares. The prohibition of issuing different class of stocks is particularly important in Latin America where the use of nonvoting preferred stock is very common (nonvoting shares allow owners to obtain greater control over companies than their actual degree of ownership). The migration to the Novo Mercado lifted the market value of companies around the migration date.

Sources: Mckinsey & Company (2002); Dyer (2001b), Dyer (2001a), Ricardo (2002), BOVESPA website, Nova Mercado regulations 10.303 and de Carvalho (2003).

6.33 Transparency and disclosure requirements for listed firms are generally set and supervised by the local exchange, but the government may need to enforce exchange standards.[53] It has been argued that differences in enforcement help explain why the Czech Republic, whose government took a relatively hands-off approach to regulation of the capital markets, had an inactive equity market—while Poland, which had stricter enforcement of regulation and disclosure, witnessed strong growth in its capital market.[54] In countries with developed financial intermediaries—such as brokers, accounting firms, and investment advisors—exchanges may be able to delegate some disclosure enforcement to these intermediaries and reduce the cost of enforcement. But in emerging markets, government prosecution may be necessary to protect investors and promote market development. Internationally agreed principles for corporate governance create opportunities for governments to signal the quality of their regulatory systems in this area (chapter 9).

Using credit bureaus to facilitate the flow of information

6.34 One way lenders can address their information disadvantage is to collect information about their customers directly through costly screening and monitoring. Lenders in most developed countries—and more in developing countries—can also rely on reports from credit information bureaus. These reports include loan payment histories that allow lenders to use information on how borrowers met past loan obligations to better predict future loan performance. Credit reporting also improves borrowers' incentives to repay loans promptly, since late payment with one lender can result in sanctions by many institutions.[55]

6.35 Credit information bureaus can increase bank lending and reduce default rates, regardless of whether the bureau is private or public. They can also offer benefits to small

and new firms, by alleviating credit rationing based on the lack of a credit history.[56] In one survey more than half the credit bureaus indicated that credit history information reduced the processing time, costs, and default rates in their country by more than 25 percent.[57] On average, countries without credit registries have a private-credit-to-GDP ratio of about 16 percent, those with publicly owned credit registries, about 40 percent, and those with private bureaus, about 67 percent.[58]

6.36 Governments can promote a supportive environment for credit bureaus by enacting and enforcing data protection and credit reporting laws that allow the sharing of credit information, while taking account of privacy concerns. The laws can safeguard consumer rights by allowing consumers to get data about them held by credit bureaus, requiring disclosure of information on who gets the credit report, and providing mechanisms for resolving disputes and correcting erroneous information. Laws that allow the sharing of positive and negative information do more to improve lenders' information and thus do more to facilitate lending. Credit reports that contain only negative information (such as cases of late payment) have less predictive power than reports that contain both positive and negative information.[59] Because credit reports are more important for borrowers with little information, limits on data collection disproportionately harm small borrowers.

Limiting risk-taking

6.37 Governments regulate risk-taking by banks and other financial institutions for various reasons. Limited liability can cause banks to take excessive risks, and unlike in other industries, such problems can lead to systemic crises, since the failure of one bank can lead to a run on all banks, undermining the payments and credit system. Deposit insurance can reduce the risk of bank runs, but the expectations of government bailouts, from explicit or implicit deposit insurance, can also make the problem worse, by causing depositors and others to monitor banks less carefully. Governments need to address these issues with care.

6.38 *Prudential supervision.* Banking regulations are intended to reduce the risk of systemic banking crisis and fiscal bailouts. In many countries, supervisors oversee the operations of the financial institutions and monitor on behalf of depositors to assess and take necessary steps if there are any problems. Prudential regulation has not always achieved its goals, however.

- Greater regulatory restrictions are associated with weaker bank performance, more frequent banking crises, more corruption, and less access to finance.[60]

- Low remuneration in supervisory agencies relative to the private sector and the possibility of legal action can discourage sound supervision.[61]

- Empowering regulators can allow supervisors to extract rents from institutions and impair financial market development, in part because depositors do not generally trust the supervisors.

- Banks in developing countries dominate the financial industry and may be able to persuade supervisors to delay action against them.[62]

- Politicians may use official supervisors to direct bank finance to favored firms rather than to regulate risk-taking. Indeed, official supervision is associated with financing constraints and the need for political connections to access finance.[63] Further, official supervisory indicators—such as loan classification and provisioning stringency, supervisory power, and longer tenure of supervisors—are not strongly linked to bank performance and stability.[64]

6.39 *Facilitating market monitoring*. An alternative or complement to relying on prudential regulation is to facilitate the monitoring of banks by market participants. Banking systems seem to work better when market discipline is encouraged through market monitoring—and not strong supervisors.[65] Possible private monitoring agents include large depositors, subordinated debt-holders, shareholders, and rating agencies. For example, a study of banks in Argentina finds that banks with a higher share of non-performing loans (seen as a measure of risk) lose market share.[66] In addition, banks in Argentina (until the recent crisis) were required to issue subordinated debt for two percent of their deposits every year. After the introduction of subordinated debt in 1998, complying banks paid lower deposit rates and had faster growth in deposits, lower capital ratios, and lower non-performing loans; banks with the highest compliance had stronger deposit growth and banks that failed to comply were penalized by having to increase capital and liquidity.[67] Furthermore, a study shows that the equity prices of listed Thai banks predicted their difficulties in 1997—before rating agency downgrades.[68]

6.40 The effectiveness of private monitoring depends on the environment, including how well information disclosure regulations are enforced, whether rating agencies compete with each other, the proportion of state-ownership of banks, and the nature of deposit insurance.[69] Banks can be required to disclose standard financial information and governance information, such as the compensation structure of bank management (to better understand how risk-taking is rewarded). In addition, the credibility and independence of rating agencies can be augmented by requiring the disclosure of all business relationships and track records, such as the number of times a firm receiving a favorable rating subsequently developed problems.

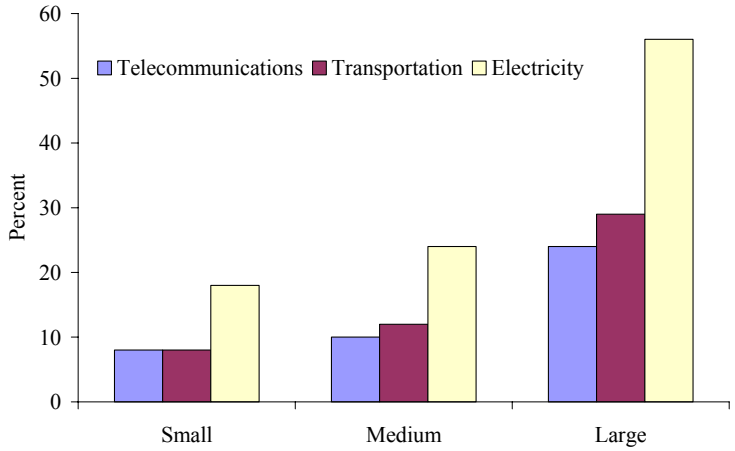
6.41 Information constraints in many developing countries raise questions about how well market monitoring can work.[70] But commercial rating companies now provide at least some form of rating for 439 banks in 50 developing countries.[71] There is also evidence that market discipline, defined more broadly as market reaction to bank risk, can work well in developing countries. Argentines pulled out their peso and dollar deposits in response to increases in an individual bank's exposure to a government default.[72] Moreover, better disclosure is associated with higher valuations of banks in emerging markets.[73]

Infrastructure—connecting firms and expanding opportunities

6.42 Firms with access to modern telecommunications services, reliable electricity supply, and efficient transport links stand out from firms without it. They invest more, and their investments are more productive. Yet in most developing countries, many firms must cope with infrastructure that fails to meet their needs. The problems, as expressed by firms, vary by region, with Africa and South Asia having poorer infrastructure than Eastern and Central

Europe (see figure 6.1). They also tend to vary by infrastructure service and firm size—electricity is typically the biggest problem, and larger firms express more concerns than smaller firms about all services (figure 6.4).

Figure 6.4 Infrastructure concerns vary by firm size and sector
Percentage of firms rating factor as major or severe constraint



Source: World Bank Investment Climate Surveys.

6.43 All types of infrastructure—including airports, railways, and the distribution of water and natural gas—matter to some firms. This Report looks at four that matter to a very wide range of them: telecommunications, electricity, ports, and roads. It focuses on the impact of infrastructure services on firms, but the improvements in the coverage and quality of these services will also benefit households.

Market power and irreversible investments in basic services

6.44 Building and maintaining roads, ports, electricity grids, and telecommunication networks is expensive. So it is no surprise that poor countries in Africa, South Asia, and elsewhere have worse infrastructure than rich countries. But the challenge of improving infrastructure is not just one of finding more money.[74]

6.45 *The problem runs deeper than money*. The problem has its roots in potential for market power that results from economies of scale. It rarely makes sense to have two competing roads between two points—or competing electricity grids. Indeed, all infrastructure activities were once thought to be "natural" monopolies, so that a particular market could be served at least cost by a single supplier. But the possible misuse of market power in services that affect many consumers pressures governments to intervene, either through intensive regulation of private suppliers or through provision by the public sector. Whether provision is public or private, governments tend to tightly control the prices that infrastructure providers charge and are often reluctant to allow prices to rise even when costs have.

6.46 This reluctance can create problems because of another feature of many infrastructure services—the large, long-lived, immobile investments. Once built, a road or hydroelectric dam, for example, cannot cost-effectively be dismantled and moved elsewhere. Investors in infrastructure are therefore vulnerable to changes in government regulation, including regulations controlling the prices they charge. Before they invest, the government may promise them prices high enough to cover the costs of investment. But afterward the government will be tempted to please customers and voters by keeping prices low. So long as prices cover their operating costs, the investors cannot credibly threaten to withdraw their services.

6.47 The underlying problem in the provision of much infrastructure is thus the combination of two concerns: customers' and governments' fear that firms will use their market power to overcharge and firms' fear that governments will use their regulatory power to prevent them covering their costs.[75] Private firms originally created much of the world's infrastructure, but the playing out of these fears, combined with a prevailing skepticism about markets and private ownership generally, led to widespread nationalization of infrastructure after the Second World War.[76]

6.48 Under public provision, however, the problems reemerged in different guises and were joined by others. Infrastructure services remained highly politicized, and governments frequently kept prices below costs. The low prices were sometimes presented as necessary to help the poor, but the beneficiaries tended to be those who had access to services, so the poorest members of the community missed out. To take just one example, a study of the incidence of "lifeline" electricity tariffs in Honduras, under which the government subsidized the first block of electricity consumed, found that about 80 percent of the subsidies went to households that were not poor.[77]

6.49 Governments also used their infrastructure agencies to pursue objectives unrelated to efficient service provision, such as employment creation and regional development, making it difficult to hold the agencies accountable for service delivery. Public infrastructure agencies were often overstaffed and inefficient, and the combination of low prices and high costs meant they couldn't finance investment from their own cashflows or borrow on their own credit (box 6.8).

Box 6.8 The political economy of electricity in India

Indian electricity utilities generally provide unsatisfactory service to their customers, whether firms or households. In a recent budget document, the central government notes that electricity shortages routinely lead to outages and voltage fluctuations that cause disruptions in all aspects of economic life—and require substantial investments in voltage stabilizers, inverters, generators, and replacing burnt-out motors. The investment climate surveys have found that two-thirds of surveyed firms have their own generators.

Most electricity is generated and supplied by state-owned electricity boards, which are experiencing severe financial difficulties and draining state budgets. Before privatizing its electricity utility in 2002, for example, the Delhi government provided it with implicit subsidies of $200 to $300 million a year, in loans unlikely to be repaid. Even so, the company still faced financial problems and provided poor service: power cuts were common in summer and winter.

The problems in Delhi, in other parts of India, and indeed in much of developing world: political. Under pressure from well organized groups of voters, governments have kept average prices below average costs,

allowing politically influential customers to pay especially low prices. Farmers often receive electricity for irrigation pumps at prices well below costs.

According to one report, the subsidies became popular in the late 1970s. In Andra Pradesh, the government offered flat-rate tariffs to farmers as an election promise. Soon after, in Tamil Nadu, demonstrations by the Agriculturalists Association led to the provision of free electricity to some farmers. Other states then followed with their own agricultural subsidy programs. Many of the recipients are fairly well-off land-owning farmers.

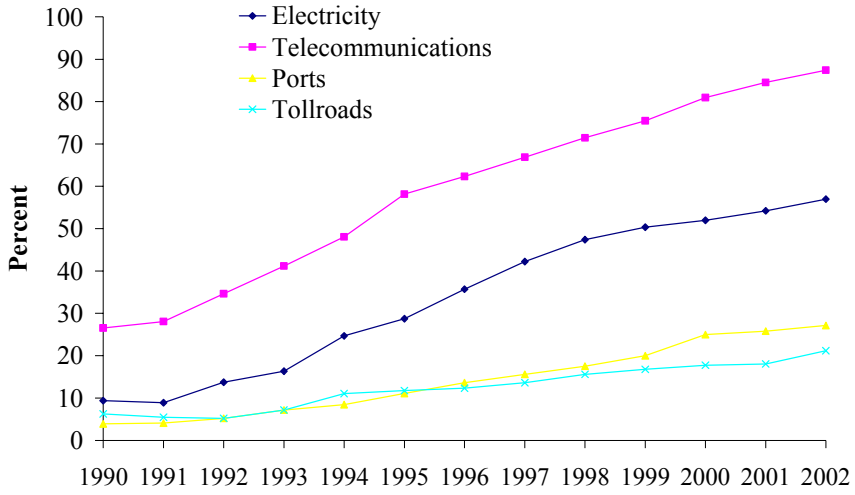
Farmers are not only the beneficiaries: many customers steal their electricity, costing suppliers an estimated $4 billion a year. And according to one report utility employees who conspire in the theft of electricity can receive many times their annual salary in bribes.

Although some farmers, employees, and politicians benefit, low prices discourage both the conservation of power and further investment in increasing supply and improving its reliability. That is why other users, including many small and medium-sized firms, have to pay more.

Sources: Argawal, Alexander, and Tenenbaum (2003), Dubash and Rajan (2001), Government of India (2003), and Lal (2004).

6.50 *A return to private participation*. As long as governments were willing and able to subsidize public infrastructure agencies, they could still operate and expand. But fiscal pressures and mounting dissatisfaction with public provision made governments more reluctant to go on providing large subsidies. That—combined with a change in the prevailing views about markets and private ownership—led many governments to turn again to the private sector for at least some infrastructure services. While public provision remains very important in infrastructure, private participation has spread rapidly throughout the developing world since 1990 (figure 6.5).[78]

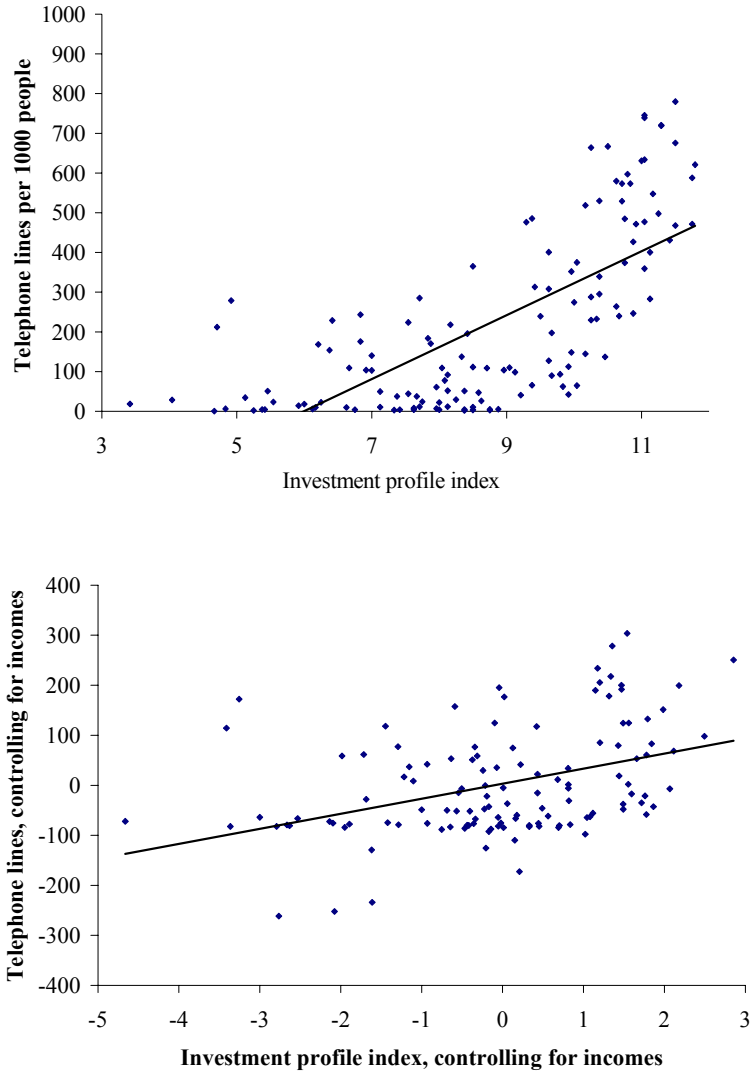
Figure 6.5 More developing countries are involving the private sector



Note: The number of countries in the database varies over the period, rising from 128 in 1990 to 153 in 1992, peaking at 155 in 1999 and 2001, and falling to 151 in 2002. Private participation includes management contracts, concessions, and divestitures.
Source: World Bank Private Participation in Infrastructure Project database.

6.51 The main value of private participation lies not in providing a new source of financing, but in addressing the problems of political economy that often undermine public provision. To attract private investment, a government needs to make a credible commitment to allow prices to cover costs and not interfere in commercial operations—something it cannot make under public provision, because it can renege on commitments to public agencies with impunity. If a government can credibly commit to investors and simultaneously convince customers that their interests are being met, despite the market power of providers, it will have gone much of the way to creating a good investment climate for infrastructure firms and thereby done much to provide good infrastructure services to all firms. Good infrastructure improves the investment climate, that is, but a good investment climate also helps improve infrastructure (figure 6.6).[79]

Figure 6.6 Teledensity increases with the quality of the investment climate, even controlling for incomes



Source: International Country Risk Guide and the International Telecommunications Union.

Improving infrastructure by improving the climate for investment in infrastructure

6.52 In some respects, the concerns of infrastructure investors—whether they are private or publicly owned but commercially run—are no different from those of other investors. They worry about the burdens imposed by regulation, taxation, and corruption. They want to be able to hire good workers without having to keep them if business turns down. And they want access to finance.[80]

6.53 *Securing infrastructure investors' property rights*. But the problem just discussed of market power and immobile investments is in essence the insecurity of property rights. Infrastructure firms are concerned not only about outright expropriation, but also about whether governments will progressively undermine their profitability by imposing ever more severe regulation. The problems affect small providers as much as multinationals (box 6.9). Governments must therefore take care to craft rules and institutions that constrain market power without unduly weakening protect property rights.

Box 6.9 Improving the climate for small private providers of infrastructure

Much private investment in infrastructure comes from multinationals from rich countries in Asia, Europe, and North America. When concerns are expressed about the investment climate for infrastructure providers it is these multinationals that most naturally come to mind. But small (often informal) infrastructure providers are also important for electricity and telecommunications, especially in rural areas, and the investment climate for them matters too.

Phone operations in Bangladesh

In many countries, small entrepreneurs buy a cell phone and then run a small business charging others to use the phone. In Bangladesh, with one of the world's lowest telephone densities and waiting times for a fixed connection of many years, village phone operators, most of them are women, provide mobile phone access to their rural neighbors. Benefiting in many cases from loans from the Grameen Bank, village phone operators are present in thousands of villages. At fairly low cost, they enable villagers to communicate with people in markets in neighboring towns—avoiding the need to walk there to find out the price of commodities. This valuable service has been hampered by the state-owned company, BTTB, which has used its monopoly over fixed lines to restrict interconnections between mobile phones and the fixed-line network.

Small electricity suppliers in Cambodia

In Cambodia the biggest electricity supplier is the state-owned Electricité du Cambodge, which supplies Phnom Penh and a few towns. But several hundred small private providers supply electricity to more than 100,000 households and small firms in rural Cambodia, sometimes by recharging batteries and sometimes through metered connections to small electricity grids. They charge fairly high prices but supply customers who would otherwise have to supply themselves or go without.

By law, these private providers require licenses, which the government issues for a renewable term of three years. Because the capital invested in electricity grids can have a useful life of more than three years and the assets cannot be costlessly dismantled and sold elsewhere, uncertainty about license renewals creates a policy risk that can discourage investment and increase electricity prices. (It also encourages the substitution of easily moved investments for those less costly but less easily moved). The providers don't know whether their license will be renewed—or what bribe they might be asked to pay to ensure it renewal. Most of the small providers are in fact unlicensed. And they face a different policy risk: being prosecuted and closed down—or having to pay a bribe to avoid that.

All providers are also vulnerable to a change in government policy that would give either Electricité du Cambodge or new large private providers exclusive rights to provide service. And all are vulnerable to the

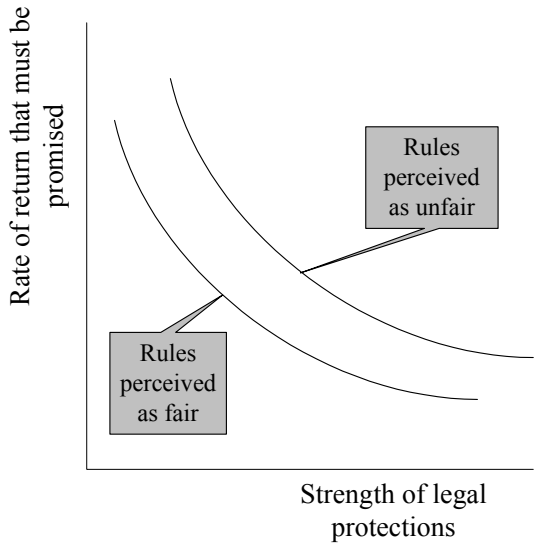
possibility that, as they grow and become better established, the government will come under pressure to regulate the prices they charge in a way that undermines their profitability.

Source: PPIAF and World Bank (2002), Burr (2000), and Cohen (2001).

6.54 *Legal protection*. With this aim in mind, governments often set out regulations and infrastructure investor rights in contracts that governments cannot change unilaterally—or in public-law concession contracts that can be changed unilaterally only with compensation. Governments often allow disputes to be settled by international arbitration when investors don't trust the independence or reliability of local courts. They often delegate decisionmaking about the implementation of rules to independent regulatory agencies more insulated than politicians from day-to-day political pressures.[81] In some cases, they delegate certain decisions to nongovernmental expert panels.[82]

6.55 *Fairness and legitimacy—political protection*. To work well, the approach taken must not only secure investors' property rights on paper but deal with the political pressures that periodically encourage governments to expropriate investors.[83] Other things equal, arrangements widely perceived as legitimate and fair are likely to work best—lowering the returns that commercial investors must be promised, and thus lowering the prices that customers must pay, for any given degree of legal protection (figure 6.7).

Figure 6.7 Perceived fairness allows a lower rates of return to be promised, for a given legal protection



6.56 The experience of the last decade suggests that many governments have not yet succeeded in creating an investment climate that effectively protects investors, in part because many arrangements have been perceived as unfair. Infrastructure reforms including privatization have often been unpopular and difficult to sustain in many countries even though they have led to improvements in efficiency and service quality. Part of the problem has been that nontransparent procedures for awarding contracts and adjusting tariffs have given rise to concerns that bribes, not the public interest, have shaped policy. Many governments are therefore seeking to improve the transparency. Countries such as Brazil, Panama, and Peru now publish many infrastructure concession contracts on the web.[84] In

2002 Mexico passed a freedom-of-information law that will require information about such contracts to be made public.

6.57 *The transformative power of competition*. Competition has the power to transform infrastructure industries, encouraging firms to become more efficient and give customers a better deal. But even more important, it can reduce or eliminate the need for the intensive regulation common to monopolies that inherently weakens the property rights of investors. And it can assure customers that they are getting a fair deal, strengthening perceptions of legitimacy and reducing political pressures for expropriation. Where competition works, it can thus help infrastructure provision escape the problems that have traditionally afflicted it under both public and private provision.

Improving public management

6.58 Although improving infrastructure is partly a matter of improving the investment climate for private investors in infrastructure, governments remain major financiers and providers of much infrastructure, especially roads. Even in sectors where much investment is private, complementary public investment in the parts of the sector owned by the government can be important. When governments do not provide infrastructure, they often subsidize it, sometimes directly, sometimes indirectly through guarantees and other instruments. Because government budgets are always more limited than the plans of project proponents, governments need ways of deciding how much to spend on infrastructure, how to allocate that spending, and how to administer it.

6.59 The questions are both technically difficult and politically charged. For example, if the government can afford to construct and maintain just one more road in the next year, should it connect a poor rural area to the capital, or should it strengthen the network around a congested and more prosperous commercial center? Answering requires the technical capability to undertake cost-benefit analyses, financial reporting that reasonably reflects the true costs of different policies (box 6.10), and decisionmaking processes that give weight to the results of those analyses while allowing a socially acceptable balancing of competing interests.

Box 6.10 Better management of public expenditure through better accounting rules

Traditional government accounting emphasizes the cash deficit as a measure of fiscal performance and the level of public debt as a measure of the fiscal position. The focus on these two indicators—at the expense of measures that incorporate noncash costs and account for assets as well as liabilities—encourages two biases in infrastructure provision.

First, it discourages profitable public investment in and maintenance of infrastructure. Even when the investment or maintenance is expected to generate future revenues for the government that outweigh the initial expenditure, their immediate effect is to increase the cash deficit and debt. Other biases, such as politicians' desire for ribbon-cutting ceremonies and big bribes, may encourage public investment projects. But there is evidence that governments sometimes invest too little in infrastructure, especially when under pressure to reduce deficits and debt.

Second, the focus on cash deficits and debt encourages governments to seek private financing for infrastructure projects, irrespective of its benefits, and to subsidize those projects in ways that don't show up in budgets and accounts. For example, it encourages a government to get a toll-road privately financed, and to ensure its creditworthiness by guaranteeing the project company's debt or providing a minimum-revenue guarantee under

which the government tops up the toll revenue if it falls below a threshold. Although the guarantees are valuable to the project company and costly to the government, they typically leave the cash deficit and public debt unchanged—unless and until the guarantee is called.

Alternatively, the focus on public debt can encourage the government to commit itself to paying a private company a certain amount each year over the life of an un-tolled road in return for the private company's financing the road. In substance, the arrangement is similar to the government's constructing the road with borrowed money and repaying the loan over the same period. Yet private financing spares the government the need to disclose new debt.

Government guarantees and long-term payment commitments can help get good projects under way. Yet, as long as a government's accounting fails to pick up their effects on the government's financial performance and financial position, doubts may reasonably remain about the government's motivation for using them. In the long run, the only way to remove the biases is for governments to adopt accounting rules that take into account the value of the assets created or enhanced by public investment and maintenance and the costs of guarantees and long-term payment commitments given to private investors.

Source: Tanzi and Davoodi (1997), Tanzi and Davoodi (1998); Easterly and Servén (2003).

6.60 When governments provide infrastructure, they need to think about the best way to organize themselves to do it. Traditionally governments provided services through ministries. But a desire to free service providers from some of the constraints of bureaucratic procedures, give them some managerial independence from ministers, and increase their accountability for results led many governments to establish legally independent, though still wholly government owned, infrastructure agencies. Some governments have taken extra steps, such as making the state-owned agency subject to company law, appointing as directors people outside the government with commercial experience, and requiring the agency to prepare audited financial reporting according to local (or international) accounting standards. In South Africa, for example, the state-owned electricity agency, Eskom, is now a company with mainly outside directors with business experience, which reports according to local generally accepted accounting principles.

6.61 Even when all these steps are taken, however, it can be difficult for governments to resist political pressures to interfere in the business decisions and keep prices below costs, which is part of the reason that many governments that have made these reforms have eventually turned to private participation.

6.62 The challenges of improving infrastructure are similar in all sectors, but there are enough differences between sectors, especially in the opportunities for competition, to make it easier to discuss them one at a time.

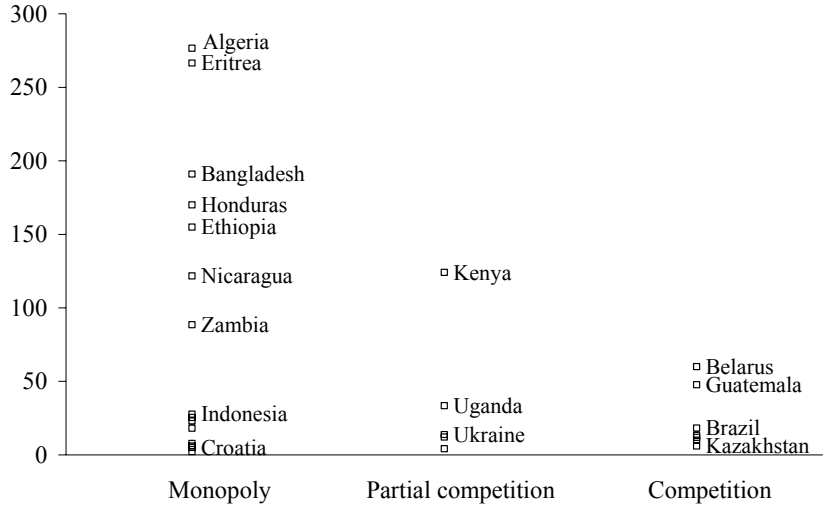
Telecommunications—using competition to overcome the traditional infrastructure problems

6.63 Modern telecommunications services have become more important to firms of all kinds—allowing them to communicate rapidly and cheaply with distant suppliers and customers. They provide access to the Internet, underpin modern financial markets, and help governments communicate with firms and citizens. They are vital in the investment climate. In Bangladesh, China, Ethiopia, and India the Investment Climate Assessments have found that garment manufacturers are more productive, pay higher wages, and grow more quickly—when telecommunications services are better.[85] Among developed countries, investments in telecommunications in the last 20 years appear not only to have followed

growth, but to have fueled it.[86] In Latin America a 10 percent increase in the number of main telephone lines per worker has been estimated to increase output per worker by about 1.5 percent.[87]

6.64 The extent to which telecommunications services meet firms' needs varies greatly from country to country, as well as within countries. A three-minute call to the United States costs 17 cents from Finland, but $9 from Chad, where the government effectively taxes international calls to subsidize local calls and other services.[88] Getting a new phone line takes only a couple of days in Lithuania, but most of year in Algeria (figure 6.8). In East Asia few firms report having to pay a bribe to get a mainline telephone connection—in Africa, 20 percent or more do.[89]

Figure 6.8 Days to get a new fixed-line telephone connection by country

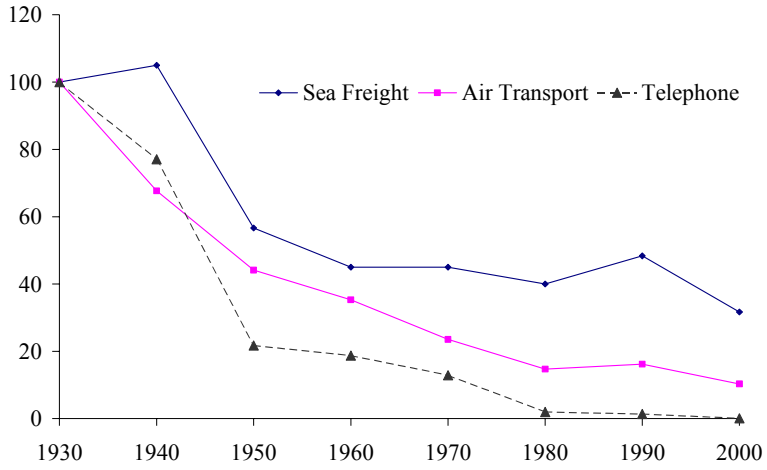


Note: Data for waiting times are for 2002 and 2003. Competition data refers to fixed-line local indicates competition status of local calls for relevant year.

Source: International Telecommunications Union and World Bank Investment Climate Surveys

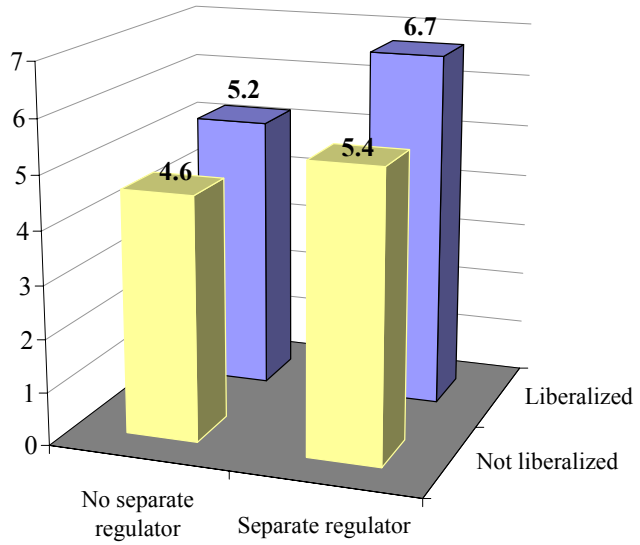
6.65 On average, however, telecommunications services have been improved dramatically. The price of international calls has plummeted since 1930 (figure 6.9). Over the last 20 years it has fallen at an average rate of 7 percent a year,[90] while the number of telephone subscribers per capita in low income countries has quintupled.[91] The changes have been driven by changes in technology and by changes in policy. Most governments have at least partly privatized their country's main telephone company and allowed at least some competition. The policy changes mean lower prices, shorter waiting times for connections, and quicker expansions of services (figure 6.10 and figure 6.11).[92]

Figure 6.9 The declining cost of transport and telecommunications



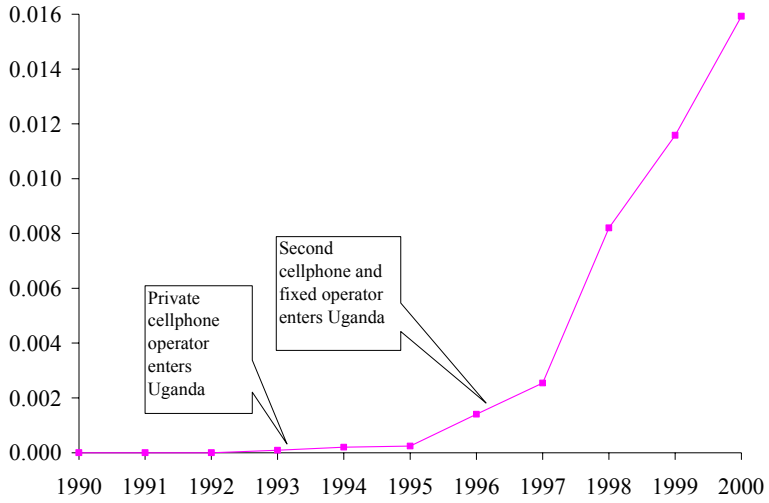
Source: Busse (2003).

Figure 6.10 Liberalization and good regulation accelerate the growth of telephone connections
Cumulative annual growth of telephone mainlines in developing countries, 1996-2001 (%)



Source: Qiang, Pitt, and Ayers (2004): 20.

Figure 6.11 Competition spurs the spread of cellphones in Uganda
Subscribers per capita



Source: International Telecommunications Union and World Bank staff.

6.66 Though challenges remain, including the extension of access in rural areas (box 6.11), the combination of technological change and liberalization has transformed telecommunications. Providers need no longer be monopolies, and with the advent of cellular telephony, investments are no longer so immobile.[93] Together, these changes greatly reduce the policy-related risks of investment in the sector and go much of the way toward solving the problems that have traditionally afflicted infrastructure.

Box 6.11 Expanding rural access to electricity and telecommunications

For many years governments in developing countries relied on state-owned monopolies to bring electricity and telecommunications services to rural areas. Typically, they required the monopolies to charge the same price in rural and urban areas, even though the costs were typically higher in the rural. Because new services in rural areas are often unprofitable, governments gave the monopolies budgetary subsidies and allowed them to benefit from cross-subsidies from low-cost, high-revenue customers. In many countries, however, the subsidies have been too small to finance rapid expansion. And even when expansion was affordable, the monopolies had a financial incentive to go slow.

An alternative that some governments have used, especially in the last decade, is to rely on a combination of liberal regulation and well-targeted, output-based subsidies. Removing legal barriers to entry by new providers of electricity and telecommunications services helps ensure that profitable opportunities to extend service in areas unserved by the incumbent are seized quickly (as illustrated by Cambodia in box 6.11).

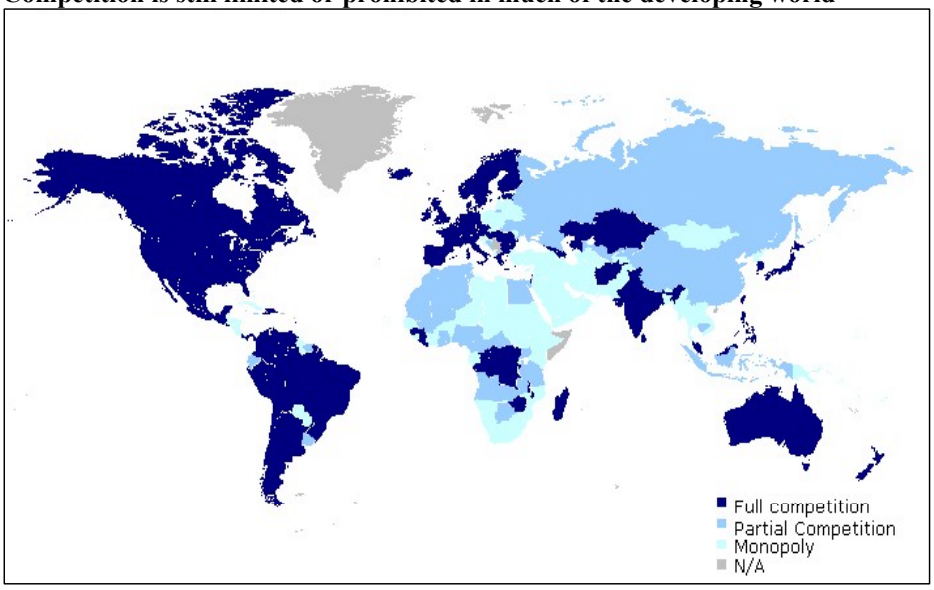
Liberal entry rules may not by themselves cause access to increase as fast as governments want. In such a case, governments may find carefully targeted direct subsidies more effective than cross-subsidies or subsidies aimed only at keeping providers afloat. Peru, for example, has used a least-subsidy approach to bringing pay phone service to targeted rural areas. Some of the subsidy is paid upfront and the rest in half-yearly installments, conditional on the operator's meeting its performance targets. Although the operators are struggling financially even with the subsidies, most results from the pilot project appear promising. Among beneficiaries of the scheme, the average distance to the nearest pay phone fell by more 90 percent. And competitive bidding led to a subsidy 41 percent lower than the government had budgeted for and 74 percent lower than the subsidy previously requested by the incumbent. Similar schemes have been used for rural electrification in such

countries as Argentina and Chile.

Source: Cannock (2001), Tomkins (2001), Wellenius (1997), and Jadresic (2000).

6.67 Many governments have yet to take full advantage of the opportunities of technological change. By 2002 all developed and most Latin America countries allowed full competition, but most other countries did not (figure 6.12).[94]

Figure 6.12 Competition is still limited or prohibited in much of the developing world

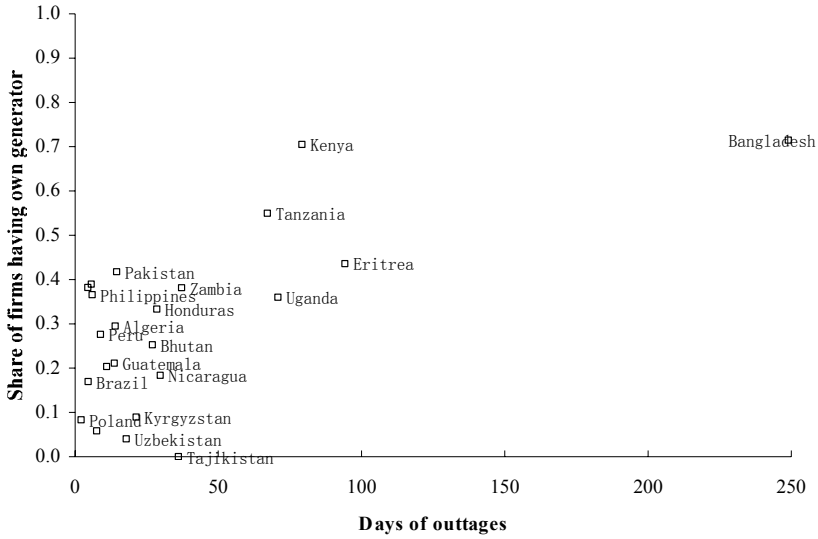


Source: Rossotto and others (2003).

Electricity—competition is difficult to exploit, but often the most promising option

6.68 Access to a reliable electricity supply at a reasonable price is vital for most firms—from small factories in rural areas to multinational investors. Most urban firms are served by utilities, but small firms in small towns and rural areas in developing countries may have to supply it themselves.[95] Firms with access to grid electricity seldom get good service. Temporary losses of supply are frequent in many countries, especially in Africa and South Asia (figure 6.13). So are fluctuations in voltage that damage machinery. Firms estimate that such outages cause them to lose on average around 5 percent of their annual sales.[96] The problems are especially severe in Nigeria (box 6.12). Elsewhere in Africa, firms report that it takes two or three months to get a new electricity connection and often requires a bribe.[97] Limited access in rural areas and poor quality in cities cause many firms to rely on self-supply, which for most is more expensive than a regular supply from a utility.

Figure 6.13 Days of power outages a year and the share of firms having their own generator



Note: The graph shows all countries for which both the days of outages and the share of firms having their own generator were available. Data are for various years between 1999 and 2003.
Source: World Bank Investment Climate Surveys.

Box 6.12 Powerless to improve productivity in Nigeria

Poor service from the government-owned National Electric Power Authority causes severe problems for Nigerian manufacturers. In a 1998 survey 93 percent of respondents reported experiencing power outages more than five times a week. On average the outages caused them to lose 88 working days in the year. The firms also reported that poor supply led to the destruction of raw materials, restart costs, and equipment damage. They ranked poor electricity supply as by far their most important obstacle in infrastructure.

Many firms invested in self-generation as a result. On average, the firms generated almost as much themselves as they bought from NEPA. The average cost of self-generation was high, however—$0.30 a kilowatt-hour, or about three times more than NEPA charges. Small firms may be particularly vulnerable because as they are less able to bear the fixed costs of self-generation. Accordingly, 16 percent of small firms relied only on NEPA service, while no medium or large firms did. In addition, small firms lost 24 percent of their output to outages, while medium firms lost 14 percent and large firms 17 percent.

Source: Adenikinju (2003).

6.69 Many firms also pay high prices for electricity, as governments direct utilities to hold down prices for (often middle-class) households and effectively tax firms to make up some of the difference. The largest industrial users sometimes have enough influence to avoid such levies, leaving small and medium firms to bear most of the burden. In the Indian state of Kerala industrial users pay twice as much per kilowatt-hour as households, but commercial users—offices and shops—pay nearly twice as much again.[98]

6.70 Poor electricity supply makes existing investments less productive and discourages new investment. In Uganda firms that experience fewer problems of supply from the (generally poorly performing) Uganda Electricity Board invest less in self-supply and more in their own productive capacity.[99] In Bangladesh, China, Ethiopia, and Pakistan the Investment Climate Assessments have found that more reliable power supply increases

garment manufacturers' total factor productivity and the growth rates of their output and employment.[100] In Latin America a 10 percent increase in electricity-generating capacity per worker has been estimated to increase GDP per worker by around 1.5 percent.[101]

6.71 As in telecommunications, changes in technology coupled with dissatisfaction with monopoly provision by public enterprises have led many governments to liberalize and introduce private participation. Economies of scale in generation declined in the 1980s, allowing more countries to have enough generating stations to make competition in the supply of electricity workable.[102] Countries that can trade electricity with their neighbors have further opportunities.

6.72 Almost all countries in the developed world and most in Latin America now allow at least some firms to choose their electricity supplier. Elsewhere, the picture is mixed. Many countries have allowed a sort of competition in generation under which a state-owned utility contracts out the financing, construction, and operation of new power stations to privately owned independent power producers. But the state-owned utility usually retains a monopoly on selling electricity to customers, limiting the benefits of such competition. In addition, such projects can create disguised government debt.

6.73 Getting competition to work in electricity is harder than in telecommunications, as high-profile problems in California show.[103] Many small countries have too few generators to allow real competition, while in larger countries individual electricity companies may still have market power if they own many generation plants. Even when electricity generators do not have market power at most times of the day, they may have it when demand peaks. And, like sellers in many markets, they may collude to increase prices. Competition is fostered by separating generation from transmission and distribution from retail supply, so that the owners of the transmission and distribution lines cannot use their monopoly in these industry segments to stifle competition in generation. But such unbundling makes it harder to coordinate investments among these segments of the industry.

6.74 Overall, the evidence suggests that competition (usually combined with commercial provision and new forms of regulation) has led to better service. Countries that early on introduced competition, private provision, and new forms of regulation—such as Argentina, Chile, and the United Kingdom—have benefited from lower prices and higher quality.[104] In Chile wholesale prices fell by 37 percent and retail prices by 17 percent between 1986 and 1996, and private companies were sufficiently confident in the market to invest in hydroelectric generation, transmission, and distribution.[105] More generally, competition in electricity has been found to increase labor productivity and generating capacity per capita.[106] Competition also tends to lower prices for small and medium firms because they need no longer buy from a utility that overcharges them.[107]

Transport—overcoming the tyranny of distance

6.75 Transport infrastructure creates opportunities for firms to buy and sell not only in neighboring markets but in the entire world. And as governments eliminate import quotas and reduce import tariffs, transport becomes more important as a source of further gains in trade.[108] For Chile and Ecuador transport costs to the United States are now 20 times larger

than U.S. tariffs.[109] If they could reduce their transport costs by 10 percent, some evidence suggests they could expect to increase their trade by 20 percent.[110] Other evidence suggests that they would also grow faster.[111]

6.76 Transport costs depend on distance, so countries far from rich markets in Europe, North America, and East Asia face a disadvantage they can do nothing about. But poor infrastructure has been found to account for 40 percent of the cost of transport in the average country and 60 percent in landlocked countries. Thus, while distance accounts for much of transport costs, shipping goods from efficient ports, such as those in Hamburg and Rotterdam—or inland cities benefiting from good infrastructure, such as Ankara and Vienna—is cheap for the distance.[112] According to one study, a country could lower its transport costs by an amount equivalent to moving several thousand kilometers closer to other countries—considerably reducing the "tyranny of distance"—if it could improve its transport (and telecommunications) infrastructure from the median to the 75th percentile.[113]

6.77 Reducing transport costs requires paying attention to particular transport modes, such as ports and roads. Yet governments should not lose sight of the linkages between different modes: ports and airports, for example, become more valuable when served by good roads and railways. Transport costs are also affected by things other than transport infrastructure, such as whether telecommunications allow companies to track their goods in transit and how quickly goods are cleared through customs (see chapter 5 and box 6.13).

Box 6.13 Logistics, supply chains, and the investment climate

Most developing countries face problems in logistics that severely affect firms. Nontariff trade barriers and inefficiencies in logistics services—including red tape, corruption, slow customs clearances, delays at ports and border crossings, and pilferage in transit—often add 30 to 50 percent to total transport costs. These inefficiencies increase direct transportation costs, and affect quality, reliability, and delivery time, adversely affecting firms exporting to competitive international markets, where just-in-time delivery is critical. They also require domestic firms to maintain large inventories. In Cambodia and Ethiopia, for instance, firms hold more raw materials and finished products than elsewhere as a buffer against supply delays, tying down scarce working capital that could be more productively used.

The impact of logistics on landlocked countries, not surprisingly, is even more important. On average it costs twice as much for land-based transportation of imports into Kigali, Rwanda, from Mombasa, Kenya (the entry port) as it does for transporting the cargo from all the way from Baltimore to Mombasa. But problems can sometimes be solved: Nepalese manufacturers successfully lobbied for access to the Jawaharlal Nehru Port (JNPT) a more efficient private Indian port than Calcutta port, which reduced their export transportation costs by almost 15 percent and transportation time by over 33 percent.

Source: Subramanian and Arnold (2001) and World Bank staff.

6.78 *Ports—many types of competition*. More than 80 percent of the trade of developing countries by weight goes through ports.[114] And the efficiency of those ports affects exporters and importers directly and almost all firms indirectly. Improving one measure of port efficiency from the 25th to the 75th percentile—achievable in part by reducing the influence of organized crime—has been found to reduce shipping costs by more than 12 percent.[115] As with improvements in other infrastructure, the reduction in costs is equivalent to moving thousands of kilometers closer to trading partners.[116]

Unlike electricity and telecommunications utilities, ports' customers are mainly firms, not households, which makes tariff-setting less politicized. But ports require immobile investments and often have market power, so they face many of the challenges common to infrastructure services. Under public ownership and restrictions on competition within and sometimes between ports, they have tended to be overstaffed, have restrictive labor practices, act as a magnet for corruption, and offer slow and expensive service to firms.[117]

6.79 To improve the efficiency of ports, governments have tried to expose them to more competition, often while introducing private participation (box 6.14). Colombia and Argentina split their national state-owned companies into several separate companies, which compete with each other for some services.[118] Governments can also create competition within a single port in services not inherently monopolistic: different terminals in a port can sometimes compete with each other, and different stevedoring companies can sometimes compete at the same terminal.[119]

6.80 The combination of private participation and increased competition appears, when it has been evaluated, to have led to better services.[120] In Colombia average vessel waiting time fell from 10 days before privatization and competition to a matter of hours afterward, throughput per hour increased, and the ports moved to all-year all-day operation.[121] In Argentina the average stay fell from 72 hours to 33, throughput per worker rose from 900 to 4,850 tons, and capacity increased fivefold.[122]

Box 6.14 Port reform in Colombia and India

Colombia and India show two ways of confronting the challenges posed by port and reform, including resistance from labor union. In Colombia port efficiency had become a major issue by the early 1990s. Early proposals involved the reorganization of Colpuertos, the state-owned company, but not private participation. President Gaviria, however, favored a bolder approach, and raised the issue in his inaugural address in 1990. His government drove the reform, with little involvement from labor groups.

Legislation to allow private participation in ports passed within 60 days with little change and with severance packages built in for workers. The overall program—liquidating the Colpuertos, establishing new policymaking and regulatory bodies, concessioning the five major ports to private firms, introducing competition in stevedoring in each port, and retrenching nearly 6,750 surplus workers—was completed within three years. The combination of competition and private participation led to impressive improvements in performance.

India approached the task differently. Each of the 12 major ports in India is administered by a Port Trust representing various interest groups. Port reform began with the issuance of a new policy framework in 1994 and guidelines for private participation in 1996. Private participation was to start with the concessioning of the container terminal at Jawaharlal Nehru Port, which had been established in 1989 as a satellite port to Mumbai.

The implementation of reforms was left to the ports themselves, and the Jawaharlal Nehru Port Trust (the majority of whose trustees represented the government or labor) chose to engage the main stakeholders in the reform process and to protect the interests of labor by keeping the existing port under public ownership. But they did allow a new private terminal to compete with it. The competition improved performance, with pre-berthing and turnaround time falling from around 11 days in 1996 to less than 3 days in 2002.

Source: Navarette 2004 and Ray 2004 [Background Papers for the World Development Report 2005].

6.81 *Roads*. Almost all goods are transported by road at some stage, making a country's road network a critical part of its infrastructure and the investment climate (box 6.15). Not

surprisingly, the extent of the network has been found in many studies to be associated with better economic performance. In Latin America a 10 percent increase in the length of roads per worker has been estimated to increase GDP per worker by nearly 2 percent.[123] Not all roads are equally valuable of course: in the United States the interstate road building of the 1950s and 1960s seems to have significantly boosted productivity, while recent spending on roads has had only modest benefits.[124] Even so, the evidence suggests that governments should pay close attention to the extent and quality of their road networks. The challenges relate to planning appropriate network expansion, executing the required investment and maintenance, and working out how best to pay for it.

Box 6.15 The benefits of rural roads in Morocco

When they are built in the right locations (and aren't "roads to nowhere"), good roads can create new opportunities for firms in rural areas and small towns, as illustrated by a Moroccan government program to pave gravel roads and dirt tracks.

Upgrading the roads meant they were usable all year round, causing less damage to the vehicles using them. The new roads allowed farms and other firms to move their goods more often and more cheaply. In some cases, the time it took for them to get to rural markets fell by half. The cost of shipping a truckload of merchandise also fell by half.

In the areas benefiting from the road upgrading, the land is more productive, and the volume and value of agricultural produce are higher. As it became easier to ship produce quickly without damaging it, farmers shifted from low-value cereals to high-value fruit. As the price of bringing goods to the farms fells, farmers used more fertilizer. Improvements in the agricultural economy spurred the growth of other business. Off-farm employment grew twice as fast as in areas not benefiting from road improvement. The estimated economic rate of return to the projects ranged from 16 to 30 percent.

As is often the case, the improvement in infrastructure didn't benefit only firms. It made it easier for children to go to school and by making the delivery of butane more affordable reduced the need for women and girls to collect firewood. After the road improvements, primary school enrolment rose from 28 to 68 percent.

Source: World Bank (1996).

6.82 All the typical challenges are more difficult because the transaction costs of imposing user fees (tolls) to fund roads are high, at least on city streets and rural roads. Even on intercity highways where the transaction costs are lower, user fees remain uncommon.[125] So, prices rarely ration demand on congested roads, cover the costs of maintenance, or signal that new capacity is needed. One avenue for tackling these problems is thus to increase the use of tolls. The advent of electronic tolls and related information technology is making direct pricing commercially feasible on more roads, and in the long term it may make the road industry much more like other utilities. In the near future, however, only a small proportion of roads will have tolls. So, many governments focus on using other sources of revenue linked to road use to pay for roads, such as use-related license fees and especially petrol taxes.

6.83 Many governments are assigning funds from petrol taxes and others sources to a road fund that operates with some autonomy from ministers. The funds are allocated to investment and maintenance projects according to a set of principles established by political authorities. Road users may be represented on the agency, and the agency may consult with road users and others on the allocation of funds. As in other areas, designing a system that

gives the managers of the road fund the information, incentives, and capability to make decisions aligned with the public interest is crucial.

6.84 Some evidence suggests that developing countries spend too little on maintenance compared with investment, perhaps because of donors' traditional preference for subsidizing capital rather than outputs, and perhaps because large investment projects offer decisionmakers opportunities to collect bigger bribes. More-corrupt countries seem to spend more on public investment in roads and other infrastructure, but less on maintenance, and seem accordingly to have poorer quality roads.[126] There is no simple answer, but an emphasis on making decisionmaking more transparent can help reduce corruption and improve decisions. Governments can consult on, publish, and explain the principles for allocating funds and the decisions implementing those principles, and they can use open and transparent processes for awarding contracts to do the work.

6.85 Road agencies that decide on the allocation of funds need not build or maintain roads themselves. More road agencies now contract out such work to private firms, under output-based contracts. In Argentina the highway authority maintains many roads by letting long-term maintenance contracts that require private firms to maintain roads to a defined standard. One review concludes that the program reduced the proportion of roads in poor condition from 25 percent to less than 5 percent, reducing road users' costs by more than 10 percent.[127]

References

The word processed describes informally reproduced works that may not be commonly available through libraries.

Adenikinju, Adeola F. 2003. "Electric Infrastructure Failures in Nigeria: A Survey-Based Analysis of the Costs and Adjustment Responses." *Energy Policy* 31(14):1519–30.

Aggarwal, Reena, Leora Klapper, and Peter D. Wywocki. 2003. "Portfolio Preferences of Foreign Institutional Investors." World Bank Policy Research Working Paper Series 3101. Washington, D.C.

Allayanis, Yiorgos, Greg Brown, and Leora Klapper. Forthcoming. "Capital Structure, Foreign Debt and Financial Risk: Evidence from East Asia." *Journal of Finance*.

Argawal, Manish, Ian Alexander, and Bernard Tenenbaum. 2003. "The Delhi Electricity Discom Privatization: Some Observations and Recommendations for Future Privatizations in India and Elsewhere." World Bank, Energy and Mining Sector Board Discussion Paper 8. Washington, D.C.

Aschauer, David Alan. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics* 23(2):177–200.

Bae, Kee-Hong, and Vidhan K. Goyal. 2003. "Property Rights Protection and Bank Loan Pricing." Korea University and Hong Kong University of Science and Technology: Seoul. Processed.

Baffes, John, and Anwar Shah. 1998. "Productivity of Public Spending, Sectoral Allocation Choices and Economic Growth." *Economic Development and Cultural Change* 46(2):291–303.

Bailey, Andre, Suzi Chun, and Jeffery Wong. 2003. "Wanted: Asian Credit Bureaus." *The McKinsey Quarterly* 2:?–?

Baltagi, Badi H, and Nat Pinnoi. 1995. "Public Capital Stock and State Productivity Growth: Further Evidence from an Error Components Model." *Empirical Economics* 20(2):351–59.

Bandiera, Oriana, Gerard Caprio, Patrick Honohan, and Fabio Schiantarelli. 2000. "Does Financial Reform Raise or Reduce Savings?" *Review of Economics and Statistics* 82(2):239–63.

Barron, John M., and Michael Staten. 2003. "The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience." In Margaret Miller, eds., *Credit Reporting Systems and the International Economy.* Cambridge MA.: MIT Press.

Barth, James, Gerard Caprio, and Ross Levine. Forthcoming. "Bank Regulation and Supervision: What Works Best?" *Journal of Financial Intermediation*.

--------. 1999. "Banking Systems Around the Globe: Do Regulation and Ownership Affect Performance and Stability?" World Bank Policy Research Working Paper Series 2325. Washington, D.C.

Barth, James, Ross Levine, and Gerard Caprio. 2001. "Banking Systems around the Globe: Do Regulation and Ownership Affect Performance and Stability?" In Frederic Meshkin, eds., *Prudential Regulation and Supervision: Why It is Important and What Are the Issues.* Cambridge MA: National Bureau of Economic Research.

Batra, Geeta, Daniel Kaufmann, and Andrew H. W. Stone. 2002. *Investment Climate Around the World: Voices of the Firms from the World Business Environment Survey*. Washington DC: World Bank.

Beck, Thorsten, Juan Miguel Crivelli, and William Summerhill. 2003. "The Transformation of State Banks in Brazil." Paper presented at the *Bank Privatization, World Bank Conference* Conference. Washington, D.C. November 20.

Beck, Thorsten, Robert Cull, and T. Jerome Afeikhena. 2003. "Bank Privatization and Performance: Empirical Evidence from Nigeria." Paper presented at the *Bank Privatization, World Bank Conference* Conference. Washington, D.C. November 20.

Beck, Thorsten, Asli Demirguc-Kunt, and Ross Levine. 2002. "The Impact of SMEs on Growth, Development, and Poverty: Cross-Country Evidence." World Bank Policy Research Working Paper ? Washington, DC.

Beck, Thorsten, Ross Levine, and Norman Loayza. 2000. "Finance and Sources of Growth." *Journal of Financial Economics* 58:261–300.

Bergara, Mario, Witold Henisz, and Pablo T. Spiller. 1997. "Political Institutions and Electric Utility Investment: a Cross-Nation Analysis." *California Management Review* 40(2):18–35.

Berger, Allen, Seth Bonime, Lawrence Goldberg, and Lawrence White. Forthcoming. "The Dynamics of Market Entry: The Effects of Merges and Acquisitions on Entry in the Banking Industry." *Journal of Business*.

Berger, Allen N., Asli Demirguc-Kunt, Ross Levine, and Joseph G. Haubrich. Forthcoming. "Bank Concentration and Competition: An Evolution in the Making." *Journal of Money, Credit and Banking*.

Berger, Allen N., Iftekhar Hasan, and Leora F. Klapper. Forthcoming. "Further Evidence on the Link between Finance and Growth: An International Analysis of Community Banking and Economic Performance." *Journal of Financial Services Research*.

Berkowitz, Jeremy, and Michelle White. 2002. "Bankruptcy and Small Firms." National Bureau of Economic Research Working Paper Series 9010. Cambridge, Mass.

Bertolini, Lorenzo. 2004. "Regulating Utilities: Contracting Out Regulatory Functions." World Bank, Public Policy for the Private Sector Note 269. Washington, D.C. Available on line at http://rru.worldbank.org/Viewpoint/index.asp.

Besant-Jones, John, and Bernard Tenenbaum. 2001. "The California Power Crisis: Lessons for Developing Countries." World Bank, Energy and Mining Sector Board Discussion Paper 1. Washington, D.C.

Black, Bernard, Hansung Jang, and Woochan Kim. 2003. "Does Corporate Governance Affect Firms' Market Values? Evidence from Korea." Stanford Law and Economics School, Olin Working Paper 237. Stanford.

Black, Sandra, and Philip E. Strahan. 2002. "Entrepaneurship and Bank Credit Availability." *Journal of Finance* 57:2807–23.

Bortolotti, Bernardo, Juliet D'Souza, William L. Megginson, and Marcella Fantini. Forthcoming. "Privatization and the Sources of Performance Improvement in the Global Telecommunications Industry." *Telecommunications Policy*.

Boylaud, Olivier, and Giuseppe Nicoletti. 2001. "Regulation, Market Structure, and Performance in Telecommunications." *OECD Economic Studies* 32:99–142.

Burr, Chandler. 2000. "Grameen Village Phone: Its Current Status and Future Prospects." Paper presented at the *Business Services for Small Enterprises in Asia: Developing Markets and Measuring Performance* Conference. Hanoi, Vietnam. March 6.

Busse, Matthias. 2003. "Tariffs, Transport Costs and the WTO Doha Round: The Case of Developing Countries." Hamburg Institute for International Economics, Department World Economy: Hamburg. Processed.

Calderón, César, and Luis Servén. 2002. "The Output cost of Latin America's Infrastructure Gap." Banco Central de Chile, Working Paper Series 186. Santiago de Chile. Available on line at http://www.bcentral.cl/eng/stdpub/studies/.

Calomiris, Charles W., and Charles P. Himmelberg. 1994a. "Directed Credit Programs for Agriculture and Industry: Arguments from Theory and Fact." Paper presented at the *World Bank, Proceedings of Annual Bank Conference on Development Economics 1993* Conference. Washington, D.C.

--------. 1994b. *Government Credit Policy and Industrial Performance: Japanese Machine Tool Producers, 1963-1991*. Washington, D.C.: World Bank, Financial Sector Development Department.

Calomiris, Charles W., and Andrew Powell. 2001. "Can Emerging Market Regulators Establish Credible Discipline? The Case of Argentina. 1992-99." In Fredric Mishkin,

eds., *Prudential Supervision: What Works and What Doesn't.* Chicago, Il: University of Chicago Press.

Cannock, Geoffrey. 2001. "Expanding Rural Telephony: Output-Based Contracts for Pay Phones in Peru." In Penelope J. Brook and Suzanne M. Smith, eds., *Contracting for Public Services: Output-based Aid and its Applications.* Washington, D.C.: World Bank.

Caprio, Gerard, and Asli Demirguc-Kunt. 1998. "The Role of Long-Term Finance: Theory and Evidence." *World Bank Research Observer* 13:171–89.

Caprio, Gerard, and Patrick Honohan. 2003. "Can the Unsophisticated Market Provide Discipline?" Paper presented at the *Market Discipline: The Evidence across Countries and Industries* Conference. Chicago, IL. October 30.

Carmichael, Jeffrey, and Michael Pomerleano. 2002. *The Development and Regulation of Non-Bank Financial Institutions*. Washington, D.C.: World Bank.

Castelar-Pinheiro, Armando, and Alkimar Moura. 2003. "Segmentation and the Use of Information in Brazilian Credit Markets." In Margaret Miller, eds., *Credit Reporting Systems and the International Economy.* Cambridge, Mass.: MIT Press.

Cetorelli, Nicola. 2003. "Life-Cycle Dynamics in Industrial Sectors: The Role of Banking Market Structure." *Reserve Bank of St.Louis Review* 85:135–47.

Cetorelli, Nicola, and Philip E. Strahan. 2002. "Banking Competition, Technology and the Structure of Industry." Federal Reserve Bank of Chicago: Chicago, IL. Processed.

CGAP. 1997. "Scaling Up in Microfinance-Evidence from Global Experience." CGAP Focus Note 6. Washington, D.C.

Chami, Ralph, Mohsin Khan, and Sunil Sharma. 2003. "Emerging Issues in Bank Regulation." IMF Working Paper 101. Washington, D.C.

Claessens, Stijn, and Luc Laeven. 2003. "Financial Development, Property Rights, and Growth." *Journal of Finance* 58(6):2401–36.

Clark, Ximena, David Dollar, and Alejandro Micco. 2001. "Maritime Transport Cost and Port Efficiency." World Bank Policy Research Working Paper Series 2781. Washington, D.C.

Clarke, George R., and Robert Cull. 2002. "Political and Economic Determinants of the Likelihood of Privatizing Argentine Public Banks." *Journal of Law and Economics* 45:165–198.

Clarke, George R., Robert Cull, Maria Soledad Martinez Peria, and Susana M. Sánchez. 2001. "Foreign Bank Entry: Experience, Implications for Developing Countries, and

Agenda for Further Research." World Bank Policy Research Working Paper Series 2698. Washington, D.C.

--------. 2002. "Bank Lending to Small Business in Latin America." World Bank Policy Research Working Paper Series 2760. Washington, D.C.

Clarke, George R., Robert Cull, and Mary Shirley. 2003. "Synthesis: Empirical Studies of Bank Privatization." Paper presented at the *World Bank Conference on Privatization* Conference. Washington, D.C. November 20.

Clarke, George R., and Scott J. Wallsten. 2003. "Universal Service: Empirical Evidence on the Provision of Infrastructure Services to Rural and Poor Urban Consumers." In Timothy C. Irwin and Penelop J. Brook, eds., *Infrastructure for Poor People: Public Policy for Private Provision.* Washington, D.C.: World Bank.

Cohen, M., and J. Sebstad. 1999. *Microfinance, Risk Management and Poverty*. USAID: Washington, D.C.

Cohen, Monique, and Deena Burjorjee. 2003. "The Impact of Microfinance." CGAP Donor Brief 13. Washington, D.C.

Cohen, Nevin. 2001. *What Works: Grameen Telecom's Village Phones*. World Resources Institute, Digital Dividend Study: Washington, D.C.

de Carvalho, Antonio Gledson. 2003. "Effects of Migration to Special Corporate Governance Levels of Bovespa." University of Sao Paulo, Economics Department: Sao Paulo. Processed.

De Rus, Gines, and Antonio Estache, eds. 2003. *Privatization and Regulation of Transport Infrastructure: Guidelines for Policymakers and Regulators.* Washington, D.C.: World Bank.

Dehejia, Rajeev H., and Roberta Gatti. 2002. "Child Labor: The Role of Income Variability and Access to Credit in a Cross Section of Countries." World Bank Policy Research Working Paper Series 2767. Washington, D.C.

Demirguc-Kunt, Asli, Thorsten Beck, and Vojislav Maksimovic. Forthcoming. "Bank Competition, Financing Obstacles and Access to Credit." *Journal of Money Credit and Banking*.

Demirguc-Kunt, Asli, and Enrica Detragiache. 2002a. "Does Deposit Insurance Increase Banking System Stability? An Empiric Investigation." *Journal of Monetary Economics* 49(7):1373–1406.

--------. 2002b. "Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation." *Journal of Monetary Economics* 49(7):1373–1406.

Demirguc-Kunt, Asli, and Harry Huizinga. Forthcoming. "Market Discipline and Deposit Insurance." *Journal of Monetary Economics*.

Demirguc-Kunt, Asli, and Edward J. Kane. 2002. "Deposit Insurance Around the World: Where Does it Work?" *Journal of Economic Perspectives* 16(2):175–96.

Demirguc-Kunt, Asli, Luc Laeven, and Ross Levine. 2003. "The Impact of Bank Regulations, Concentration and Institutions on Bank Margins." World Bank Policy Research Working Paper Series 3030. Washington, D.C.

Demirguc-Kunt, Asli, and Vojislav Maksimovic. 1998. "Law, Finance and Firm Growth." *Journal of Finance* 53:2107–37.

--------. 1999. "Institutions, Financial Markets and Firm Debt Maturity." *Journal of Financial Economics* 54:295–336.

Devarajan, Shantayanan, Vinaya Swaroop, and Heng-fu Zou. 1996. "The Composition of Public Expenditure and Economic Growth." *Journal of Monetary Economics.* 37:313–344.

Dollar, David, Mary Hallward-Driemeier, and Taye Mengistae. 2003. "Investment Climate and Firm Performance in Developing Countries." The World Bank: Washington D.C. Processed.

Dubash, Navroz K., and Sudhir Chella Rajan. 2001. "The Politics of Power Sector Reform in India." World Resources Institute: Washington, D.C. Processed.

Durnev, A., and E. H. Kim. 2003. "To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation." University of Miami and University of Michigan Business School: Michigan, WI, Miami FL. Processed.

Dyer, Geoff. 2001a. "Brazil's Pitch for Market Credibility." *Financial Times*, February 27a.

--------. 2001b. "UBS Warburg leads Brasil IPO." *Financial Times*, February 22b.

Easterly, William R., Roumeen Islam, and Joseph E. Stiglitz. 2000. "Shaken and Stirred: Explaining Growth Volatility." In Boris Pleskovic and Nicholas Stern, eds., *Annual World Bank Conference on Development Economics.* Washington, D.C.: World Bank.

Easterly, William R., and Luis Servén, eds. 2003. *The Limits of Stabilization: Infrastructure, Public Deficits, and Growth in Latin America.* Washington, D.C.: World Bank.

Ekmekcioglu, Rengin. 2003. "Development of Factoring Market in Turkey." Paper presented at the *World Bank Factoring* Conference. Warsaw. October 23.

Escude, Guillermo, Tamara Burdisso, Marcelo Catena, Laudra D'Amato, George McCandless, and Thomas E. Murphy. 2001. "Las MIP y MES y el Mercado de

Credito en la Argentina." Banco Central de la Republica Argentina, Documento de Trabajo 15. Buenos Aires.

Estache, Antonio, and José Carbajo. 1996. "Competing Private Ports—Lessons from Argentina." World Bank, Public Policy for the Private Sector Note 100. Washington, D.C.

Estache, Antonio, Vivien Foster, and Quentin Wodon. 2002. *Accounting for Poverty in Infrastructure Reforms: Learning from Latin America's Experience*. World Bank: Washington, D.C.

Estache, Antonio, Marianela Gonzales, and Loujillo Trujillo. 2002. "Efficiency Gains from Port Reform and the Potential for Yardstick Competition: Lessons from Mexico." *World Development* 30(4):545–560.

Etsy, Benjamin C., and William L. Megginson. 2003. "Creditor Rights, Enforcement, and Debt Ownership Structure: Evidence from the Global Syndicated Loan Market." *Journal of Financial and Quantitative Analysis* 38(1):37–59.

Evans, Paul, and Geogios Karras. 1994. "Are Government Activities Productive? Evidence from a Panel of U.S. States." *The Review of Economics and Statistics* 76(1):1–11.

Faulkender, Michael, and Mitchell A. Petersen. 2003. "Does the Source of Capital Affect Capital Structure?" National Bureau of Economic Research Working Paper 9930. Cambridge, Mass.

Fernald, John G. 1999. "Roads to Prosperity? Assessing the Link Between Public Capital and Productivity." *American Economic Review* 89(3):619–38.

Fernando, Nimal A. 2003. "Do Governments in Asia Have a Role in Development of Sustainable Microfinance Services? Some Views." Asian Development Bank: Manila. Processed.

Fink, Carsten, Aaditya Mattoo, and Cristina Neagua. 2000. "Trade in International Maritime Services: How Much Does Policy Matter?" World Bank Policy Research Working Paper Series 2522. Washington, D.C.

Fink, Carsten, Aaditya Mattoo, and Randeep Rathindran. 2002. "Liberalizing Basic Telecommunications: The Asian Experience." HWWA Discussion Paper 163. HWWA-Institut fûr Wirtschaftsforschung-Hamburg.

Fleisig, Heywood W. 1998. *How Problems in the Framework for Secured Transactions Limit Access to Credit*. Center for the Economic Analysis of Law: Washington, D.C.

Frost, Carol, Elizabeth Gordon, and Andrew Hayes. 2002. "Stock Exchange Disclosure and Market Liquidity: An Analysis of 50 International Exchanges." Paper presented at the *13th Annual Conference on Financial Economics and Accounting joint with The 5th Maryland Finance Symposium* Conference. College Park, MD. November 15.

Galal, Ahmed, Leroy Jones, Pankaj Tandon, and Ingo Vogelsang. 1994. *Welfare Consequences of Selling Public Enterprises: An Empirical Analysis*. New York: Oxford University Press.

Galindo, Arturo, and Margaret J. Miller. 2001. "Can Credit Registries Reduce Credit Constraints? Empirical Evidence on the Role of Credit Registries in Firm Investment Decisions." Paper presented at the *Annual meetings of the InterAmerican Development Bank* Conference. Santiago, Chile. March 16.

Gallardo, Joselito, Korotoumou Outtara, Bikki Randhawa, and William F. Steel. 2003. *Comparative Review of Microfinance Regulatory Framework Issues in Benin, Ghana, and Tanzania*. World Bank: Washington, D.C.

Garcia-Mila, Teresa, Therese J. McGuire, and Robert Porter. 1996. "The Effect of Public Capital in State-Level Production Functions Reconsidered." *The Review of Economics and Statistics* 78(1):177–80.

Gaviria, Juan. 1998. "Port Privatization and Competition in Colombia." World Bank, Public Policy for the Private Sector, Note 167. Washington, D.C.

Gerchenkron, Alexander. 1962. *Economic Backwardness in Historical Perspective: A Book of Essays*. Cambridge, Mass.: Belknap Press of Harvard University Press.

Ghatak, M., and T. Guinnane. 1999. "The Economics of Lending With Joint Liability: Theory and Practice." *Journal of Development Economics* 60:195–228.

Giannetti, Mriassunta. 2003. "Do better Institutions Mitigate Agency Problems? Evidence from Corporate Finance Choices." *Journal of Financial and Quantitative Analysis* 38(1):185–212.

Gilbert, Richard J., and Edward P. Kahn, eds. 1996. *International Comparisons of Electricity Regulation.* Cambridge: Cambridge University Press.

Glaesser, Edward, Simon Johnson, and Andrei Shleifer. 2001. "Coase Versus the Coasians." *The Quarterly Journal of Economics* 116(3):853–99.

Gómez-Ibáñez, José A. 2003. *Regulating Infrastructure: Monopoly, Contracts, and Discretion.* Cambridge, Mass.: Harvard University Press.

Gómez-Ibáñez, José A, and J. Meyer. 1993. *Going Private, The International Experience with Transport Privatization*. Brookings Institution: Washington. D.C.

Gompers, Paul, Joy Ishi, and Andrew Metrick. 2001. "Institutional Investors and Equity Prices." *Quarterly Journal of Economics* 116(1):229–59.

Goronja, Natasa. 2003. "Microfinance Means Financial Services for the Poor." CGAP Donor Brief 11. Washington, D.C.

Government of India. 2003. *Economic Survey 2002-2003*. Government of India: New Delhi.

Gramlich, Edward M. 1994. "Infrastructure Investment: A Review Essay." *Journal of Economic Literature* 32(3):1176–96.

Gudger, Michael. 1993. *Agricultural Insurance and Credit Guarantee Schemes*. Consulting Report: Washington, D.C.

Haber, Stephen, Armando Razo, and Noel Maurer. 2003. *The Politics of Property Rights: Political Instability, Credible Commitments, and Economic Growth in Mexico, 1876-1929*. Cambridge, New York, and Melbourne: Cambridge University Press.

Hail, Luzi, and Christian Luez. 2003. "International Differences in Cost of Capital: Do Legal Institutions and Securities Regulation Matter?" European Corporate Governance Institute (ECGI) - Law Working Paper 15. Brussels.

Harris, Clive. 2003. "Private Participation in the Infrastructure of Developing Countries: Trends, Impacts, and Policy Lessons." World Bank Working Paper 5. Washington, D.C.

Harvey, C. 1991. "On the Perverse Effects of Financial Sector Reform in Anglophone Africa." *South African Journal of Economics* 59:258–286.

Henisz, Witold J. 2002. "The Institutional Environment for Infrastructure Investment." *Industrial and Corporate Change* 11(2):355–89.

Henisz, Witold J., and Bennet A. Zelner. 2001. "The Institutional Environment for Telecommunications Investment." *Journal of Economics & Management Strategy* 10(1):123–47.

Hess, Ulrich, and Leora Klapper. 2003. "The Use of New Products, Processes and Technology for the Delivery of Rural and Microfinance Loans in India." World Bank: Washington, D.C. Processed.

Holtz-Eakin, Douglas. 1994. "Public Sector Capital and the Productivity Puzzle." *The Review of Economics and Statistics* 76(1):12–21.

Hunt, Sally, and Graham Shuttleworth. 1996. *Competition and Choice in Electricity*. Chichester: John Wiley & Sons.

Impavido, Gregorio. 2001. *Assessment of Implementation of the IAIS Insurance Supervisory Principles*. World Bank: Washington, D.C.

Impavido, Gregorio, Alberto R. Musalem, and Thierry Tressel. 2003. "The Impact of Contractual Savings Institutions on Security Markets." World Bank Policy Research Working Papers Series 2948. Washington, D.C.

Inter-American Development Bank. 2001. *Economic and Social Progress in Latin America 2001 Report*. Inter-American Development Bank: Washington, D.C.

Jadresic, Alejandro. 2000. "Promoting Private Investment in Rural Electrification: The Case of Chile." World Bank Viewpoint 127. Washington, D.C.

Joh, S. W. 2003. "Corporate Governance and Firm Profitability: Evidence from Korea before the Economic Crisis." *Journal of Financial Economics* 68(2):287–322.

Johnson, S., P. Boone, A. Breach, and E. Friedman. 2000. "Corporate Governance in the Asian Financial Crisis." *Journal of Financial Economics* 58(1-2):141–86.

King, Robert G., and Ross Levine. 1993. "Finance and Growth: Schumpeter Might be Right." *Quarterly Journal of Economics* 108(3):717–37.

Klapper, Leora, and Elke Kraus. 2002. "Credit Information Infrastructure and Political Economy Issues." World Bank: Washington, D.C. Processed.

Klapper, Leora, Luc Laeven, and Raghuram G. Rajan. 2003. "Business Environment and Firm Entry: Evidence from International Data." University of Chicago, Center for Research in Security Prices Working Paper Series 551. Chicago, IL.

Klapper, Leora, Victor Sulla, and Dimitri Vittas. Forthcoming. "The Development of Mutual Funds Around the World." *?????*

Klapper, Leora F., and Inessa Love. Forthcoming. "Corporate Governance, Investor Protection, and Performance in Emerging Markets." *Journal of Corporate Finance*.

Klein, Michael U., and Bita Hadjimichael. 2003. *The Private Sector in Development: Entrepreneurship, Regulation, and Competitive Disciplines*. World Bank: Washington, D.C.

Klein, Michael U., and Neil Roger. 1994. "Back to the Future: The Potential in Infrastructure and Privatization." World Bank, Public Policy for the Private Sector Note 30. Washington, D.C.

Komives, Kristin, Dale Whittington, and Xun Wu. 2003. "Infrastructure Coverage and the Poor: A Global Perspective." In Timothy C. Irwin and Penelop J. Brook, eds., *Infrastructure for Poor People: Public Policy for Private Provision.* Washington, D.C.: World Bank.

La Porta, Rafael, Florencio Lopez-de Silanes, and Andrei Shleifer. 2002. "Government Ownership of Banks." *Journal of Finance* 57:265–301.

La Porta, Rafael, Florencio Lopez-de Silanes, Andrei Shleifer, and Robert Vishny. 1997. "Legal Determinants of External Finance." *Journal of Finance* 52(3):1131–50.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106(6):1113–1155.

Ladman, Jerry R. 1984. "Loan-Transactions Costs, Credit Rationing and Market Structure: The Case of Bolivia." In Dale W. Adams, Douglas H. Graham, and J. D. Von Pischke, eds., *Undermining Rural Development with Cheap Credit.* Boulder, CO: West View.

Laeven, Luc. 2000. "Banking Risks Around the World: The Implicit Net Subsidy Approach." World Bank Policy Research Working Paper Series 2473. Washington, D.C.

--------. 2002. "International Evidence on the Value of Deposit Insurance." *The Quarterly Review of Economics and Finance* 42:721–732.

Lal, Sumir. 2004. "Can Good Economics Ever Be Good Politics? Case Study of the Power Sector in India." World Bank: Wasington, D.C. Processed.

Lamech, Ranjit, and Kazim Saeed. 2003. "What International Investors Look for When Investing Developing Countries: Results from a Survey of International Investors in the Power Sector." World Bank Energy and Mining Sector Board Paper 6. Washington, D.C.

Lee, Charles, and David Ng. 2002. "Corruption and International Valuation: Does Virtue Pay?" Cornell University: Cornell. Processed.

Levine, Ross. 1997. "Financial Development and Economic Growth: Views and Agenda." *Journal of Economic Literature* 35(2):688–726.

Levine, Ross, Norman Loayza, and Thorsten Beck. 2000. "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46:31–77.

Levitt, Arthur. 1998. "The Importance of High Quality Accounting Standards." *Accounting Horizons* 12:79–82.

Levy, Brian, and Pablo T. Spiller. 1994. "The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation." *Journal of Law, Economics, and Organization* 10(2):201–46.

--------, eds. 1996. *Regulations, Institutions, and Commitment: Comparative Studies of Telecommunications.* New York: Cambridge University Press.

Levy-Yeyati, Eduardo, Maria Soledad Martinez Peria, and Sergio L. Schmukler. Forthcoming. "Market Discipline in Emerging Economies: Beyond Bank Fundamentals." In William C. Hunter, George G. Kaufman, Claudio Borio, and Kostas Tsatsaronis (eds.) *Market Discipline across Countries and Industries*. Boston, Mass.: MIT Press.

Li, Hongyi, Lyn Squire, and Heng-fu Zou. 1998. "Explaining International and Intertemporal Variations in Income Inequality." *Economic Journal* 108:26–43.

Liautaud, Gerard. 2001. "Maintaining Roads: Experience with Output-Based Contracts in Argentina." In Penelope J. Brook and Suzanne M. Smith, eds., *Contracting for Public Services: Output-based Aid and Its Applications.* Washington, D.C.: World Bank.

Limão, Nuno, and Anthony J. Venables. 2001. "Infrastructure, Geographical Diadvantage, Tansport Costs, and Trade." *World Bank Economic Review* 15(3):451–79.

Love, Inessa, and Nataliya Mylenko. 2003. "Credit Reporting and Financing Constraints." World Bank Policy Research Working Paper Series 3142. Washington, D.C.

Magno, Marife T., and Richard L. Meyer. 1988. "Guarantee Schemes: An Alternative to the Supervised Credit Program." Paper presented at the *Financial Intermediation in the Rural Sector: Research Results and Policy Issues* Conference. Manila, Philippines. September 26.

Management Systems International. 1996. *Case Study of Impact on Sub-Borrower Enterprises in Tow PRE Projects, Philippines*. Office of Program Review, Bureau of Private Enterprise, USAID: Washington, D.C.

Martinez Peria, Maria Soledad, and Sergio Schmukler. 2001. "Do Depositors Punish Banks for "Bad" Behaviour?: Market Discipline, Deposit Insurance, and Banking Crisis?" *Journal of Finance* 56(3):1029–51.

Mckinsey & Company. 2002. *McKinsey Global Investor Report Survey on Corporate Governance*. McKinsey&Company: Wshington, D.C.

McMillan, John, and Christopher Woodruff. 2002. "The Central Role of Entrepreneurs in Transition Economies." *Journal of Economic Perspectives* 16:153–170.

Merton, Robert C., and Zvi Bodie. 2000. *Finance*. Upper Saddle River, N.J.: Prentice-Hall.

Miller, Margaret. 2003. "Credit Reporting Systems around the Globe: The State of the Art in Public Credit Registries and Private Credit Reporting Firms." In Margaret Miller, eds., *Credit Reporting Systems and the International Economy.* Cambridge, Mass.: MIT Press.

Morduch, J. 1997. "The Microfinance Revolution." Harvard University: Cambridge, Mass. Processed.

Morduch, J., Elizabeth Littlefield, and Syed Hashemi. 2003. "Is Microfinance an Effective Strategy to Reach the Millennium Development Goals?" CGAP Focus Note 24. Washington, D.C.

Mukherjee, Joyita. 1997. "State-Owned Development Banks in Microfinance." CGAP Focus Note 10. Washington, D.C.

Newbery, David, and Michael Pollitt. 1997. "The Restructuring and Privatization of Britain's Central Electricity Generating Board (CEGB)-Was it Worth it?" *Journal of Industrial Economics* 45:269–303.

Njoku, J. E., and P. C. Obasi. 1991. "Loan Repayment and its Determinants Under the Agricultural Credit Guarantee Scheme in Imo State, Nigeria." *Savings and Development* 2:167–80.

Omran, Mohammed. 2003. "Privatization, State-Ownership, and Bank Performance in Egypt." Paper presented at the *Bank Privatization, World Bank Conference* Conference. Washington, D.C. November 20.

Padilla, A. Jorge, and Marco Pagano. 2000. "Sharing Default Information as a Borrower Discipline Device." *European Economic Review* 44:1951–80.

Phillips, Charles F. Jr. 1993. *The Regulation of Public Utilities: Theory and Practice (third edition)*. Arlington, VA: Public Utilities Reports.

Pistor, Katherina, Martin Raiser, and Syanislav Gelfer. 2000. "Law and Finance in Transition Economies." *Economics of Transition* 8(2):325–68.

Pollitt, Michael G. 2003. "Electricity Reform in Chile and Argentina: Lessons for Developing Countries." Paper presented at the *Cambridge-MIT Institute Electricy Power Autumn Research Seminar* Conference. Cambridge, Mass. November 7.

PPIAF, and World Bank. 2002. *Private Solutions for Infrastructure in Cambodia*. World Bank: Washington, D.C.

Qiang, Christine Zhen-Wei, Alexander Pitt, and Seth Ayers. 2004. "Contribution of Information and Communication Technologies to Growth." World Bank Working Paper 24. Washington, D.C.

Radelet, Stephen, and Jeffery Sachs. 1998. "Shipping Costs, Manufactured Exports, and Economic Growth." Paper presented at the *American Economic Association Annual Meeting* Conference. Chicago, IL. January 8.

Rajan, Raghuram G., and Luigi Zingales. 2002. *Saving Capitalism from Capitalists*. New York: Crown Business.

--------. 2003. *Saving Capitalism from the Capitalists: Unleashing the Power of Financial Markets to Create Wealth and Spread Opportunity*. New York: Crown Business.

Ramamurthi, Ravi. 1996. "The New Frontier of Privatization." In Ravi Ramamurthi, eds., *Privatizing Monopolies: Lessons from the Telecommunications and Transport Sectors in Latin America.* Baltimore, MD: Johns Hopkins University Press.

Reinikka, Ritva S., and Jakob Svensson. 2002. "Coping with Poor Public Capital." *Journal of Development Economics* 69(1):51–69.

Ricardo, Weiss. 2002. "Advance in Corporate Governance in Brazil." *Institutional Investor*

Röller, Lars-Hendrik, and Leonard Waverman. 2001. "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach." *American Economic Review* 91(4):909–23.

Ros, Agustin. 1999. "Does Ownership or Competition Matter? The Effects of Telecommunications Reform on Network Expansion and Efficiency." *Journal of Regulatory Economics* 15(1):65–92.

Rossotto, Carlo Maria, Anat Lewin, Carlos Gomez, and Bjõrn Wellenius. 2003. "Competition in International Voice Communications." World Bank, Policy Paper of the Global Information and Communications Technology Department, Policy Division: Washington, D.C. Processed.

Sanchez-Robles, Blanca. 1998. "Infrastructure Investment and Growth: Some Empirical Evidence." *Contemporary Economic Policy* 16(1):98–108.

Sapienza, P. Forthcoming. "The Effect of Government Ownership on Bank Lending." *Journal of Financial Economics*.

Saunders, Anthony. 2002. "An Analysis of Bank Charter Value and Its Risk-Constraining Incentives." *Journal of Financial Services Research* 19(2):185–95.

Schreiner, Mark, and Jacob Yaron. 2001. *Development Finance Institutions: Measuring their Subsidy*. World Bank: Washington, D.C.

Shah, Hemant. 1997. "Towards Better Regulation of Private Pension Funds." World Bank Policy Research Working Paper Series 1991. Washington, D.C.

Shleifer, Andrei, and Daniel Wolfenzohn. 2002. "Investor Protection and Equity Markets." *Journal of Financial Economics* 66:3–27.

Smith, Warrick. 1997. "Covering Political and Regulatory Risks: Issues and Options for Private Infrastructure Arrangements." In Timothy Irwin, Michael Klein, Guillermo E. Perry, and Mateen Thobani, eds., *Dealing with Public Risk in Private Infrastructure.* Washington, D.C.: World Bank.

Spiller, Pablo T., and WIlliam Savedoff. 1999. "Commitment and Governance in Infrastructure." In Federico Basañes, Evamaría Uribe, and Robert Willig, eds., *Can Privatization Deliver? Infrastructure for Latin America.* Washington, D.C.: Inter-American Development Bank.

Srinivas, P. S., Edward Whitehouse, and Juan Yermo. 2000. "Regulating Private Pension Funds' Structure, Performance and Investments: Cross-country Evidence." World Bank Social Protection Discussion Paper 00/7. Washington, D.C.

Stigler, George. 1975. *The Citizens and the State: Essays on Regulation*. Chicago, IL: University of Chicago Press.

Stigler, George, and Gary S. Becker. 1977. "De Gustibus Non Est Disputandum." *American Economic Review* 67(2):76–90.

Stiglitz, Joseph E. 1999. "Bankruptcy Laws: Some Elementary Economic Principles." Paper presented at the *Annual Bank Conference on Development Economics* Conference. Paris. June 21.

Stiglitz, Joseph E., and Shahid Yusuf, eds. 2001. *Rethinking the East Asian Miracle.* Washington, D.C.: The World Bank and Oxford University Press.

Stoica, Christina I., Valeriu Stoico, and Stoica and Associates. 2002. "Romania's Legal Regime for Security Interests in Personal Property." *Law in Transition* Spring: 62–66.

Subramanian, Uma, and John Arnold. 2001. *Forging Subregional Links in Transportation and Logistic in South Asia*. Washington, D.C.: World Bank.

Tanzi, Vito, and Hamid Davoodi. 1997. "Corruption, Public Investment, and Growth." International Monetary Fund Working Paper WP/97/139. Washington, D.C.

--------. 1998. "Roads to Nowhere: How Corruption in Public Investment Hurts Growth." International Monetary Fund Economic Issues 12. Washington, D.C.

Tomkins, Ray. 2001. "Extending Rural Electrification: A Survey of Innovative Schemes." In Penelope J. Brook and Suzanne M. Smith, eds., *Contracting for Public Services: Output-based Aid and Its Applications.* Washington, D.C.: World Bank.

Townsend, Robert M., and Jacob Yaron. 2001. "The Credit Risk-Contingency System of an Asian Development Bank." *Federal Reserve Bank of Chicago Economic Perspectives* 25(3):31–48.

Trujillo, Lourdes, and Tomas Serebrisky. 2003. "Market Power: Ports: A Case Study of Postprivatization Mergers." World Bank Public Policy for the Private Sector Note 260. Washington, D.C.

Unite, Angelo A., and J. Sullivan. 2001. *The Effect of Foreign Entry and Ownership Structure on the Philippine Domestic Banking Sector*. Manila, Philippines: De La Salle University, Economic Department.

Vernon, Raymond. 1971. *Sovereignty at Bay: The Multinational Spread of U.S. Enterprise at Bay*. New York: Basic Books.

Vishny, Robert, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Vish. 1998. "Law and Finance." *Journal of Political Economy* 106(6):1113–55.

Vittas, Dimitri, and Yoon Je Cho. 1995. "Credit Policies: Lesson from East Asia." World Bank Policy Research Working Paper Series 1458. Washington, D.C.

Wallsten, Scott. 2001. "An Econometric Analysis of Telecom Competition, Privatization, and Regulation in Africa and Latin America." *Journal of Industrial Economics* 49(1):1–19.

--------. 2003. "Privatizing Monopolies in Developing Countries: The Real Effects of Exclusivity Periods." AEI-Brookings Joint Center for Regulatory Studies 03-17. Washington, D.C.

Weder, Beatrice, and Mirjam Schiffer. 2000. "Catastrophic Political Risk versus Creeping Expropriation: A Cross-Country Analysis of Risks in Private Infrastructure Financing in Emerging Markets." University of Basel: Basel, Switzerland. Processed.

Wellenius, Bjõrn. 1997. "Extending Telecommunications Service to Rural Areas-The Chilean Experience: Awarding Subsidies Through Competitive Bidding." World Bank Public Policy for the Private Sector Note 105. Washington, D.C.

--------. 1997. "Telecommunications Reform-How to Succeed." Background note for the World Development Report 2005.

Willig, Robert. 1999. "Economic Principles to Guide Post-Privatization Governance." In Federico Basañes, Evamaría Uribe, and Robert Willig, eds., *Can Privatization Deliver? Infrastructure for Latin America.* Washington, D.C.: Inter-American Development Bank.

Winston, Clifford. 1993. "Economic Deregulation: Days of Reckoning for Microeconomists." *Journal of Economic Literature* 31:1263–89.

Wodon, Quentin, and Mohamed Ihsan Ajwad. 2003. "Lifeline or Means-testing? Electric Utility Subsidies in Honduras." In Penelop J. Brook and Timothy C. Irwin, eds., *Infrastructure for Poor People: Public Policy for Private Provision.* Washington, D.C.: World Bank.

World Bank. 1990a. *Colombia Industrial Competition and Performance. Report 7921-Co.* World Bank: Washington, D.C.

--------. 1990b. *Staff Appraisal Report, Colombia Industrial Restructuring and Development Project*. World Bank: Washington, D.C.

--------. 1994a. *Mexico: Agricultural Sector Memorandum*. World Bank, Natural Resources and Poverty Division, Latin America and Caribbean Regional Office, Country Department II: Washington, D.C.

--------. 1994b. *World Development Report 1994: Infrastructure for Development*. Oxford University Press: New York.

--------. 1996. *Morocco-Socioeconomic Influence of Rural Roads: Fourth Highway Project*. World Bank, Operations Evaluation Department: Washington, D.C.

--------. 2001. *Policy Research Report 2001. Finance and Growth: Policy Choices in a Volatile World*. New York: Oxford University Press.

--------. 2003a. *Doing business in 2004 - Understanding Regulation*. World Bank: Washington, D.C.

--------. 2003b. *World Development Report 2003: Sustainable Development in a Dynamic World*. Oxford University Press: New York.

--------. 2004a. *Policy Research Report 2004. Infrastructure Regulations. Promises Perils and Principles*. Oxford University Press: New York.

--------. 2004b. *World Development Report 2004: Making Services Work for Poor People*. Oxford University Press: New York.

World Energy Council. 2001. *Pricing Energy in Developing Countries*. World Energy Council: London, UK. Available on line at http://www.worldenergy.org.

Zhang, Yin-Fang, David Parker, and Colin Kirkpatrick. 2002. "Electricity Sector Reform in Developing Countries: An Econometric Assessment of the Effects of Privatization, Competition, and Regulation." Centre on Regulation and Competition, Institute for Development Policy and Management, University of Manchester and Aston Business School Research Institute, Aston Business School, Aston University RP0216. Manchester and Birminghan.

Endnotes

1 See Rajan and Zingales (2002).
2 See Harris (2003) and sources cited therein. See also World Bank (2004b).
3 See Levine (1997), Merton and Bodie (2000).
4 See King and Levine (1993) and Levine, Loayza, and Beck (2000), Beck, Levine, and Loayza (2000), Bandiera and others (2000), Demirguc-Kunt and Maksimovic (1998).
5 See Caprio and Honohan (2003).
6 See Li, Squire, and Zou (1998)
7 See Rajan and Zingales (2003).
8 See Easterly, Islam, and Stiglitz (2000).
9 See Dehejia and Gatti (2002).
10 Rajan and Zingales (2002), page 14.
11 Rajan and Zingales (2002), page 14.
12 See Gerchenkron (1962).
13 See Barth, Caprio, and Levine (1999), Clarke and Cull (2002), La Porta, Lopez-de Silanes, and Shleifer (2002), Sapienza (forthcoming).
14 See Beck, Cull, and Afeikhena (2003), Beck, Crivelli, and Summerhill (2003), Omran (2003).
15 Berger and others (forthcoming), Demirguc-Kunt, Beck, and Maksimovic (forthcoming), Berger, Hasan, and Klapper (forthcoming).
16 See Schreiner and Yaron (2001).
17 Townsend and Yaron (2001).
18 See Harvey (1991) and World Bank (2001).
19 World Bank (1994a).
20 See Calomiris and Himmelberg (1994a), Calomiris and Himmelberg (1994b), Ladman (1984), Vittas and Je Cho (1995).
21 Caprio and Demirguc-Kunt (1998).
22 Vittas and Je Cho (1995).
23 See McMillan and Woodruff (2002), plus MALONEY (2003) RE CREDIT "PUSHING ON A STRING".
24 See Njoku and Obasi (1991).
25 See Gudger (1993).
26 See Management Systems International (1996) and Magno and Meyer (1988).
27 See Beck, Demirguc-Kunt, and Levine (2002), Demirguc-Kunt, Laeven, and Levine (2003).
28 See Black and Strahan (2002), Cetorelli and Strahan (2002), Beck, Demirguc-Kunt, and Levine (2002), Cetorelli (2003), Berger, Hasan, and Klapper (forthcoming).
29 See Berger and others (forthcoming).
30 See Berger and others (forthcoming).
31 See Barth, Caprio, and Levine (forthcoming) and Demirguc-Kunt, Laeven, and Levine (2003), respectively.
32 See Unite and Sullivan (2001).
33 See Clarke and others (2001), Clarke and others (2002), Escude and others (2001).
34 Faulkender and Petersen (2003).
35 See Carmichael and Pomerleano (2002).
36 See Impavido (2001) and Impavido, Musalem, and Tressel (2003).
37 See Ekmekcioglu (2003).
38 See Shah (1997), Srinivas, Whitehouse, and Yermo (2000).
39 See Impavido (2001).
40 See Klapper, Sulla, and Vittas (forthcoming).
41 See Black, Jang, and Kim (2003), Johnson and others (2000), La Porta and others (1997), Vishny and others (1998), Stiglitz (1999).
42 See Shleifer and Wolfenzohn (2002).
43 See Demirguc-Kunt and Maksimovic (1998), Demirguc-Kunt and Maksimovic (1999), Giannetti (2003), Claessens and Laeven (2003), Allayanis, Brown, and Klapper (forthcoming), Etsy and Megginson (2003), Klapper, Laeven, and Rajan (2003).
44 See Bae and Goyal (2003).

45 Bae and Goyal (2003).
46 For example, in Mexico domestic credit to the private sector as a percentage of GDP was only 12.6% in 2002, as compared to 35% in Brazil and 141% in the U.S. (IMF-IFS statistics).
47 See Berkowitz and White (2002).
48 See Pistor, Raiser, and Gelfer (2000).
49 See Claessens and Laeven (2003).
50 See Durnev and Kim (2003), Gompers, Ishi, and Metrick (2001), Joh (2003), Klapper and Love (forthcoming), La Porta and others (1998).
51 See Mckinsey & Company (2002) and Aggarwal, Klapper, and Wywocki (2003).
52 See Levitt (1998), Frost, Gordon, and Hayes (2002), Hail and Luez (2003), Lee and Ng (2002).
53 Rajan and Zingales (2003).
54 See Glaesser, Johnson, and Shleifer (2001).
55 See Miller (2003).
56 See Miller (2003), Galindo and Miller (2001), Love and Mylenko (2003).
57 See World Bank (2003a).
58 Furthermore, a recent cross-country study finds that about 50% of small firms report financing constraints in countries without a credit bureau as compared to 27 % in countries with a bureau and that 28% of firms are able to obtain a bank loan in countries without a bureau versus 40% of firms in countries with a bureau. See Love and Mylenko (2003).
59 See Barron and Staten (2003), Bailey, Chun, and Wong (2003), Padilla and Pagano (2000), Castelar-Pinheiro and Moura (2003).
60 See Caprio and Honohan (2003), Barth, Caprio, and Levine (forthcoming),Beck, Demirguc-Kunt, and Levine (2002).
61 See Caprio and Honohan (2003).
62 See Chami, Khan, and Sharma (2003).
63 See Stigler and Becker (1977), Stigler (1975), Rajan and Zingales (2003), Beck, Demirguc-Kunt, and Levine (2002).
64 See Barth, Caprio, and Levine (forthcoming), Beck, Demirguc-Kunt, and Levine (2002).
65 See Barth, Levine, and Caprio (2001), Barth, Caprio, and Levine (forthcoming).
66 See Martinez Peria and Schmukler (2001).
67 See Calomiris and Powell (2001).
68 See Saunders (2002).
69 See Caprio and Honohan (2003).
70 See Stiglitz and Yusuf (2001).
71 Caprio and Honohan (2003).
72 See Levy-Yeyati and others (forthcoming).
73 See Barth, Caprio, and Levine (forthcoming), Beck, Demirguc-Kunt, and Levine (2002).
74 Tanzi and Davoodi (1997); Tanzi and Davoodi (1998); and Devarajan, Swaroop, and Zou (1996).
75 See Gómez-Ibáñez (2003), Levy and Spiller (1994), Levy and Spiller (1996), Spiller and Savedoff (1999), Vernon (1971), and Willig (1999). The problems are greatest when investors are asked to make large once-off investments and smaller when a series of small investments creates a "repeated game" that encourages the government not to expropriate the investor.
76 Gómez-Ibáñez (2003), Gómez-Ibáñez and Meyer (1993), Klein and Roger (1994), World Bank (2003b).
77 Wodon and Ihsan Ajwad (2003). See also Clarke and Wallsten (2003), Estache, Foster, and Wodon (2002), and World Bank (1994b).
78 While the number of developing countries with private participation in each infrastructure sector increased steadily over the period, the volume of investment has been declining since the late 1990s. Investment in these infrastructure facilities in projects with private participation grew from around $11 billion in 1990 to $67 billion in 1997, but had fallen back to $30 billion by 2002.
79 For empirical evidence of the effect of various features of the investment climate on infrastructure, see also Bergara, Henisz, and Spiller (1997), Henisz (2002), Henisz and Zelner (2001), Weder and Schiffer (2000), and Zhang, Parker, and Kirkpatrick (2002).
80 See Lamech and Saeed (2003), page 9, for selected evidence on priorities of investors in electricity in developing countries.

81 Phillips (1993), Smith (1997).
82 Bertolini (2004).
83 See, for example, Gómez-Ibáñez (2003).
84 For a collection of published contracts, see http://rru.worldbank.org/contracts/.
85 Dollar, Hallward-Driemeier, and Mengistae (2003). We interpret time to get a new telephone connection as a proxy for the quality of telecommunications services generally.
86 Röller and Waverman (2001).
87 Calderón and Servén (2002).
88 Data from SIMA for the year 2001. From ITU originally [check]
89 The investment climate assessments.
90 Rossotto and others (2003), page 1, citing Telegeography; the price is per minute.
91 ITU data from SIMA database. Total telephone subscribers per 100 habitants. Check.
92 See Wallsten (2001) and Wallsten (2003), Bortolotti and others (forthcoming), Boylaud and Nicoletti (2001), Galal and others (1994), Ramamurthi (1996), Ros (1999), Wellenius, Background note for the World Development Report 2005, Winston (1993), Fink, Mattoo, and Rathindran (2002).
93 To confirm.
94 Rossotto and others (2003).
95 We do not have good empirical data on firms' access to infrastructure services. But Komives, Whittington, and Wu (2003), page 85, found in a study of 15 developing and transition economies that 46 percent of rural (compared with 89 percent of urban) households had access to electricity and 8 percent (compared with 38 percent) had access to a telephone. In a different study based on a different sample of countries, Clarke and Wallsten (2003), pages 52–53, find that only 7 percent of rural (compared with 47 percent of urban) households in Africa had electricity and less than 1 percent (compared with 6 percent) had telephones.
96 Investment climate assessments.
97 Investment climate assessments and Batra, Kaufmann, and Stone (2002).
98 World Energy Council (2001).
99 Reinikka and Svensson (2002), page 67
100 Dollar, Hallward-Driemeier, and Mengistae (2003).
101 Calderón and Servén (2002).
102 Hunt and Shuttleworth (1996), page 2.
103 See, for example, Besant-Jones and Tenenbaum (2001).
104 See Pollitt (2003), Newbery and Pollitt (1997), and Galal and others (1994).
105 World Bank (2004a), citing Spiller in Gilbert and Kahn (1996).
106 Zhang, Parker, and Kirkpatrick (2002).
107 Zhang, Parker, and Kirkpatrick (2002).
108 Limão and Venables (2001), page 451.
109 Clark, Dollar, and Micco (2001), page 3.
110 Limão and Venables (2001), page 453.
111 Radelet and Sachs (1998).
112 Limão and Venables (2001), page 455. Infrastructure includes telecommunications as well as paved roads, unpaved roads, and railways—each having a weight of 25 percent in an index.
113 Limão and Venables (2001). See abstract and Table 9 in particular.
114 World Bank (2004a), page 73.
115 Clark, Dollar, and Micco (2001).
116 Inter-American Development Bank (2001), page 151.
117 See Estache and Carbajo (1996) and Gaviria (1998), for example.
118 See Estache and Carbajo (1996), Trujillo and Serebrisky (2003), and Gaviria (1998).
119 PPIAF and World Bank (2002) discusses these options.
120 Apart from the cases of Colombia and Argentina mentioned below, Galal and others (1994) find that partial privatization of the Kelang container terminal in Malaysia improved the efficiency of the terminal, creating welfare gains equal to more than 50 percent of pre-privatization sales, Klein and Hadjimichael (2003), page 89, that were spread among the government, consumers, and employees. Estache, Gonzales, and Trujillo (2002) find evidence of reform's having had net benefits on Mexican ports. Cross-country evidence is scarce, but Fink, Mattoo, and Neagua (2000), page 2, find that restrictions on the provision of port services significantly raise

prices, while Clark, Dollar, and Micco (2001) find that reducing restrictions increases port-efficiency up to a point, but thereafter restrictions are helpful, which they interpret to mean the some regulation is better than no regulation or extensive regulation.
121 Gaviria (1998).
122 Trujillo and Serebrisky (2003).
123 Calderón and Servén (2002).
124 Fernald (1999). Many other studies have looked at the effect of public investment in infrastructure including in particular roads. Early studies including Aschauer (1989) found very large positive effects in the United States, a result on which subsequent studies, such as Holtz-Eakin (1994) cast doubt. Gramlich (1994) reviews the evidence until the early 1990s and concludes that the evidence is mixed and that it is often more important to consider the costs and benefits of particular pieces of infrastructure (such as a particular road) that to try to estimate the benefits of infrastructure as a whole. Studies since then include Baffes and Shah (1998), Baltagi and Pinnoi (1995), Devarajan, Swaroop, and Zou (1996), Easterly and Servén (2003), Evans and Karras (1994), Garcia-Mila, McGuire, and Porter (1996), and Sanchez-Robles (1998).
125 Gómez-Ibáñez and Meyer (1993) and <http://www.worldbank.org/html/fpd/transport/roads_ss.htm>.
126 Tanzi and Davoodi (1997) and Tanzi and Davoodi (1998).
127 Liautaud (2001).