

view point

Toll Roads

Gisele F. Silva

The Private Participation in Infrastructure (PPI) Project Database tracks infrastructure projects newly owned or managed by private companies that reached financial closure in 1990–99 in energy (electricity and natural gas transmission and distribution), telecommunications, transport, and water. In the case of toll roads, the database covers only privately managed toll roads. Long-term maintenance contracts of non-tolled roadways or turnkey contracts are not included (see box 1 for more information about the database).

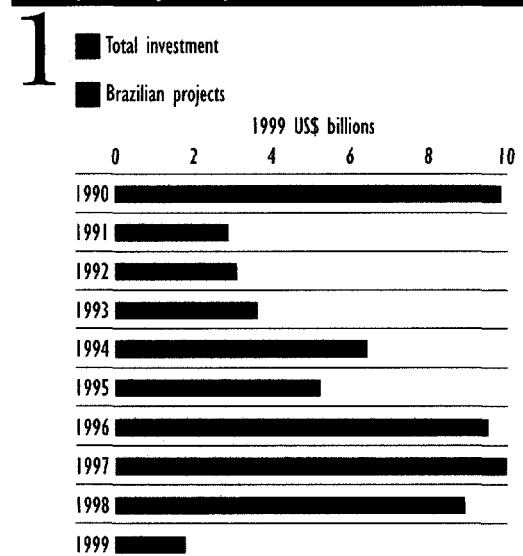
Recent Trends in Private Participation

During the 1990s developing countries increasingly turned to the private sector for construction, management, and maintenance of toll roads. Between 1990 and 1999, US\$61 billion of private investment was committed to 279 projects in 26 developing countries, comprising 34,369 kilometers of toll highways, bridges, and tunnels.¹ This Note analyzes the main trends in private participation in toll roads in developing countries using figures from the World Bank's Private Participation in Infrastructure Project Database.

Private activity in the toll road sector has been uneven over the last decade (figure 1). Activity was high in 1990 as Argentina and Mexico continued implementing comprehensive private toll road programs, but investment commitments then fell substantially until 1993. In 1994, various countries began introducing private participation in toll roads, leading to another boom in the sector's activity in the mid-1990s.

The economic crisis that affected many developing countries in the late 1990s reduced private participation in the toll road sector significantly. The number of privately managed projects that reached financial closure fell from 56 in 1997 to 12 in 1999, with a drop in investment commitments from a high of US\$10 billion to US\$1.8 billion in 1999. Since 1997, private participation in the sector has decreased steadily in almost all countries. Brazil has been

Figure 1 Total investment in toll road projects with private participation, 1990–99



Source: PPI Project Database.



Box PPI Project Database: project criteria and database terminology**I Database coverage**

- Projects that have reached financial closure and directly or indirectly serve the public.
- Projects in electricity, natural gas (transmission and distribution), telecommunications, transport, and water, but not movable assets, incinerators, stand-alone solid waste projects, and small projects such as windmills.
- Low- and middle-income developing countries in 1999, as defined and classified by the World Bank.

Definition of private participation. The private company must assume operating risk during the operating period or assume development and operating risk during the contract period. A foreign state-owned company is considered a private entity.

Definition of a project unit. A corporate entity created to operate infrastructure facilities is considered a project. When two or more physical facilities are operated by the corporate entity, all are considered as one project.

Project types

- Operations and management contract. A private entity takes over the management of a state-owned enterprise for a given period. This category includes management contracts and leases.
- Operations and management contract with major capital expenditure. A private entity takes over the management of a state-owned enterprise for a given period during which it also assumes significant investment risk. This category includes concession-type contracts such as build-transfer-operate, build-lease-operate, and build-rehabilitate-operate-transfer contracts as applied to existing facilities.
- Greenfield project. A private entity or a public-private joint venture builds and operates a new facility. This category includes build-own-transfer and build-own-operate contracts as well as merchant power plants.

- Divestiture. A private consortium buys an equity stake in a state-owned enterprise. The private stake may or may not imply private management of the company.

Definition of financial closure. For greenfield projects, and for operations and management contracts with major capital expenditure, financial closure is defined as the existence of a legally binding commitment of equity holders or debt financiers to provide or mobilize funding for the project. The funding must account for a significant part of the project cost, securing the construction of the facility. For operations and management contracts, a lease agreement or a contract authorizing the commencement of management or lease service must exist. For divestitures, the equity holders must have a legally binding commitment to acquire the assets of the facility.

Recording investments. Investments, privatization revenues, license fees, and canon commitments generally have been recorded on a commitment basis in the year of financial closure (for which data are typically readily available). Actual disbursements have not been tracked. Where privatizations and new investments are phased and data were available at financial closure, they are recorded in phases. When license fees and canon commitments were due over the concession period, their net present values were recorded in the year of financial closure.

Sources. World Wide Web, commercial databases, specialized publications, developers, sponsors, and regulatory agencies.

Web site. <http://www.worldbank.org/html/fpd/privatesector/PPIDBweb/Intro.htm>

Contact. The database is maintained by the Private Provision of Public Services Group of the World Bank. For more information, contact Shokraneh Minovi at 202 473 0012 or sminovi@worldbank.org.

the main exception, with several projects underway at the state level in 1997 and 1998.

The worst effects of the downturn have been felt in East Asia, where investment commitments in toll road projects with private participation were reduced from US\$6.6 billion in 1996 to US\$312 million in 1999. The fall in traffic levels and the financial crisis led to stalling or contract renegotiation of some projects in the region.

Types of contracts

In 1990–99 operations and management contracts with major capital expenditure (usually

referred to as concessions) accounted for about four-fifths of the total investment in privately managed toll road projects (US\$48.4 billion has been committed to 231 projects). Under a concession, the private investors build, expand, or rehabilitate the facility, and operate the toll road during the contract period, while the ownership of the assets remains with the government. The average length of such contracts at the time they were awarded was 22 years, with investment commitments fully borne by the private investors in almost two-thirds of the concession projects.

About three-quarters of the investment committed to projects undertaken as concessions has involved expansion or rehabilitation of existing roads, or “brownfield” projects. These projects entail lower construction costs per kilometer and allow more accurate traffic forecasting than projects for new roads. In addition, private investors are usually allowed to start charging tolls after some initial rehabilitation works are completed, which improves the projects’ financial viability.

The construction of new roads has been less common than brownfield projects, especially in recent years (figure 2). Successful new toll roads have usually been designed to connect, or relieve congestion in, big cities, where demand is less uncertain. For new development toll roads to be successful, network planning must be well developed, and regional investment is needed to stimulate traffic. The toll road programs in Mexico and Hungary, for example, failed to address these issues, and most projects attracted less traffic than predicted. In Mexico, flows were on average 32 percent below the estimated level, while in Hungary traffic levels 45 percent lower than forecast have recently led the government to nationalize the MI-M15 toll road.

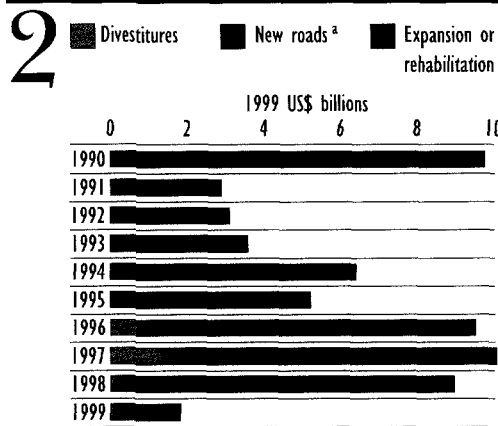
Divestitures and operations and management contracts have been rare. Operations and management projects, which involve management contracts without private investment commitments, have mainly been limited to one project in Bangladesh and four in South Africa. Partial divestitures of toll facilities, in turn, have occurred only in China, where nine state-owned toll road companies have raised US\$2.2 billion in capital by selling minority stakes through initial public offerings and have used these funds to finance road construction.

Regional spread

As in other infrastructure sectors, Latin America and East Asia have accounted for most of the investment commitments in privately managed toll roads (figure 3). Private activity has also been highly concentrated in a few countries: Argentina, Brazil, China, Malaysia, and Mexico have attracted almost three-quarters of the total investment commitments.

More than half of the private activity in toll roads has taken place in Latin America. In this

Figure 2 Total investment in toll road projects with private participation, by project type, 1990–99



a. Concessions and greenfield projects.
Source: PPI Project Database.

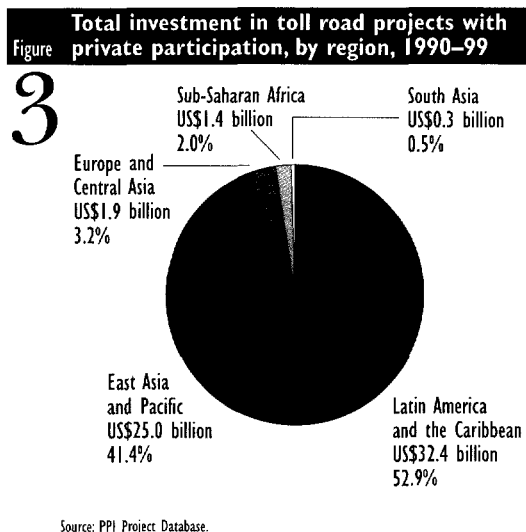
region, brownfield projects have predominated, and governments have often provided assistance to attract private capital, such as minimum revenue guarantees in Chile, Colombia, and Mexico, and bundling of competing road sections in Colombia. Nevertheless many of these projects have suffered from traffic diversion, public dislike of tolls, or cost overruns, leading to contract renegotiations in Argentina, Brazil, Colombia, Mexico, and other countries.

In East Asia, new development accounts for about two-thirds of the private participation in toll road projects. Government agencies have had a strong presence through equity participation, loans, guarantees, and subsidies.

In Sub-Saharan Africa, private participation in toll roads has been concentrated in South Africa. Most projects have involved short-term operations and management contracts to manage toll roads built or rehabilitated by the government.

Small share of the main road network

Toll road projects with private participation account for a small fraction of main national roads. Except for Argentina and Chile, the countries with the most active toll road programs have transferred less than one-tenth of their main road network to the private sector. Latin American countries have had the highest share of their national roadway operated by the private sector. For example, two-fifths of the main roads



in Chile, and about a third in Argentina, are toll roads with private participation.

So far, private participation in toll roads in developing countries has been mainly in projects connecting big cities, since the high traffic reduces financing constraints. However, innovative schemes to engage private investors in projects with greater commercial risk, but essential to promote economic integration, have become more common. Cross-subsidization and inclusion of existing roads in a concession package have been used to improve projects' cash flow and to facilitate financing: Malaysia and Thailand, for instance, have adopted cross-subsidization schemes, while Colombia has awarded projects which included existing tolled roads. Shadow tolling has facilitated private financing of road projects in some industrial countries, such as Greece, Portugal, and the United Kingdom, but has not been tried in developing countries.² Argentina has implemented performance-based maintenance contracts for low-traffic non-tolled road projects.

Conclusion

Between 1990 and 1999, four main trends have emerged:

- The economic crisis of the late 1990s has hit the toll road sector particularly hard.
- Operations and management contracts with major capital expenditures have been more common than other types of contracting.

- Latin America and East Asia have been the lead regions in promoting private sector involvement in the toll road sector.
- Toll road projects have accounted for a small portion of most countries' national road network.

Although private activity in toll roads has increased during the 1990s, some projects have had problems. Of the 279 projects awarded during the 1990s, 21 projects, in Hungary, Indonesia, Mexico, and Thailand, accounting for US\$9.5 billion in total investment, were taken over by the government. Contract renegotiations have also been common. Among the factors that have contributed to the poor performance of these toll road projects have been overestimation of traffic, inflexible contracts that limit private investors' ability to manage market and construction risks, inadequate strategic network planning, a greater interest by private investors in construction than in operation, and voters' dislike of tolls. Governments need to address these issues for toll road programs to be successful.

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Notes

1. All dollar amounts are in 1999 U.S. dollars. The database records total investment commitments, both public and private, in infrastructure projects awarded to private investors. It does not record private investment commitments alone, nor actual disbursements. Of the US\$61 billion in total investment mentioned, private investors have agreed to transfer US\$1.2 billion to governments as fees for the rights to concessions.

2. Under shadow tolling, the government remunerates the private investor according to the number and type of vehicles using the road (instead of the investor charging users directly).

Gisele F. Silva (gsilva@worldbank.org), Private Provision of Public Services Group.

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Telephone: 001 202 458 7281
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