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Worldwide trends in private participation in roads

Growing activity, growing government support

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Pprivate participation in roads revived strongly in developing countries in 2005–06. The activity was concentrated in greenfield projects and in Asia and Latin America. The main reason for the revival has been the willingness of governments to provide support needed to attract the private sector. Nevertheless, governments need to be aware of the potential risks of such support. And because of the monopolistic features of road projects, they also need to ensure good governance so that the public reaps the full benefits of the private sector's involvement.

In the early 1990s a growing number of developing countries introduced schemes of private participation in roads, and by the mid-1990s the private activity had reached levels not seen before, with 50–60 projects a year reaching financial closure and annual investment commitments of \$10–12 billion (figure 1).¹ After that, private activity in roads, as in other infrastructure sectors, declined sharply as a result of the economic crises affecting many developing countries and the overall pessimism surrounding private participation in infrastructure (Harris 2003).

In 2005–06, however, private participation in roads revived strongly. Investment commitments to projects with private participation (hereafter, investment) amounted to \$10 billion in 2006, just 20 percent below the peak, while the number of road projects was 60, around the 1997 peak. Indeed, roads have been among the most active infrastructure subsectors; investment grew by more than 70 percent in 2005 and by another 50 percent in 2006, contributing strongly to the

rapid growth of investment in transport (Torres de Mästle and Izaguirre 2008).

Driving policy makers' renewed interest in attracting private financing to roads is the need for greater investments to keep road networks in acceptable condition and carry out required expansions in a context of public budget constraints. Indeed, when arrangements for private participation or, more generally, public-private partnership are designed well, they can lead to greater financial efficiency (by leveraging public money through the mobilization of private capital, reducing the impact of road investments on the fiscal budget, and creating fiscal space to expand public service delivery in other sectors), better distribution of risks (by transferring design, construction, and performance risks to the private sector, which is best able to manage such risks), and better governance (by increasing the accountability of the service provider through competitive bidding, disclosure policies, and public reporting).

Drawing on the World Bank and PPIAF's Private Participation in Infrastructure (PPI) Project Database, this note analyzes recent trends in road projects with private participation as well as their policy implications.

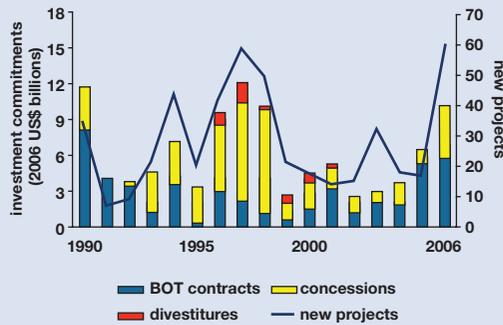
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FIGURE 1

A strong revival in private activity in roads

Private participation in roads in developing countries, 1990–2006



Source: World Bank and PPIAF, PPI Project Database.
Note: BOT = build, operate, transfer.

BOT contracts predominate

In 2001–06 build-operate-transfer (BOT) projects accounted for almost two-thirds (62 percent) of the total investment in privately managed road projects in developing countries, with \$18 billion committed to 71 projects. In the 1990s they represented only 39 percent of the total investment.

BOT projects have usually been designed to connect, or to relieve congestion in, big cities, where demand is less uncertain. For BOT road projects to be financially viable, network planning must be well developed to accurately forecast traffic. In addition, some sort of government support may be required to keep tolls at affordable and sustainable levels. The toll road programs in Mexico and Hungary in the 1990s, for example, failed to address these issues. But Mexico’s new program of public-private partnerships in roads, which started in 2006, does address them.

About a third of the investment in 2001–06 was committed to projects involving the expansion or rehabilitation of existing roads—or concessions, in the terminology of the PPI Project Database. These projects entail lower capital costs per kilometer and allow more accurate traffic forecasting than new roads projects. Moreover, private investors are usually allowed to start charging tolls after some initial rehabilitation works are completed, which improves the financial viability of projects.

In roads as well as in other transport subsectors, BOT contracts and concessions of existing assets are both called concessions, for “greenfield” projects in the first case and for “brownfield” ones in

the second. The rest of this note uses the term concessions as it is used in transport, since the contractual issues in the two cases are similar.

Private activity concentrated

The activity remained highly concentrated by country. The top 10 countries attracted 90 percent of investment in 2001–06, just as in the 1990s. But the countries on the top 10 list have changed: only Brazil, Chile, China, Indonesia, Malaysia, and Mexico made the list in both periods. Countries in the top 10 usually had programs promoting private participation in roads through many projects. The strong recovery in 2005–06 was driven primarily by India and Indonesia.

The average size of road projects with private participation has generally fluctuated between \$100 million and \$400 million (figure 2). During the review period (1990–2006) the number of projects reaching financial closure peaked in 2006, at 60. That was just slightly more than the previous peak of 59 projects in 1997.

More government support

In the 1990s most road projects with private participation in developing countries had toll collection as the only source of revenues. By contrast, in 2001–06 at least a third of such projects had some form of government support.²

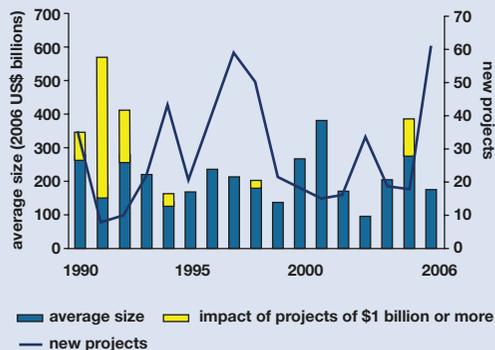
How a government contributes financial support to a concession project and how much it contributes are often limited to what is required to attract private financing and promote the success of the project. Among the mechanisms governments use to support private financing are:

- *Shadow toll*, paid to the concessionaire by the government on the basis of the volume and composition of traffic and not charged to motorists. This concept was created for design-build-finance-operate roads in the United Kingdom and is also used in such countries as Finland and Portugal. Mexico has used shadow tolls in the contracts awarded in 2006.
- *Availability fee*, paid to the concessionaire by the government on the basis of the availability of required capacity (number of lanes in acceptable condition), regardless of traffic volumes. An inherent risk of such an approach is potential overdesign of projects because payments to the private sector are not linked to road use. India has used availability payments (or annuities)

The private activity in roads was concentrated in East and South Asia and Latin America

FIGURE 2**Much fluctuation in the average size of projects**

Average size of investment commitments to road projects with private participation in developing countries, 1990–2006



Note: World Bank and PPIAF, PPI Project Database.

in some of its recently awarded road projects. Some countries have used availability payment in combination with actual toll revenues. In Poland, for example, revenues for road concessionaires come from both tolls and availability payments. In Peru the Inter-oceanic Highway contracts awarded in 2006 include periodic payments from the government to complement toll revenues.

- *Capital grants* or subsidies, to cover part of the construction cost. Where toll revenues would not be enough to recover the full construction cost of a project, reducing the privately financed construction cost may make the project financially attractive to the private sector. Colombia, India, and Mexico, for example, have offered capital grants since 2002. The grants were determined through the competitive bidding used to select the concessionaires. A capital grant is also being considered for the St. Petersburg Western High-Speed Diameter motorway in the Russian Federation, for which a concession is expected to be awarded by late 2008.
- *Minimum traffic or revenue guarantees*, in which the government pays the concessionaire compensation if traffic or revenue falls below a specified minimum (for example, 90 percent of the expected traffic volume). In Spain, for example, the compensation is 50 percent of the shortfall in revenues. Conversely, if revenues are higher than forecast, the concessionaire shares the surplus with the government, also on a 50 percent basis.

Other forms of public support to private projects also are available, such as partial risk guarantees

like those offered through the World Bank guarantee facility.

The distribution of risks between the public and private sectors varies with the form of public support. For both actual tolls and shadow tolls, for example, the private investors assume demand (traffic volume) risk, but this risk is smaller under shadow tolls because traffic volumes are not subject to the effect of toll rates. For availability payments, demand risks remain with the public sector, while the main risks assumed by the private partner are construction risk and those associated with road performance during implementation of the contract.

Estimating minimum toll rates

Balancing the affordability and sustainability of projects with attractiveness to the private sector usually requires estimating a minimum toll rate. All things being equal, this rate depends on the construction cost and traffic volumes. As Queiroz (2007) shows, estimating the minimum toll rate required to attract private investors for motorway projects is relatively easy. For example, if the initial traffic volume is expected to be 20,000 vehicles a day, and the construction cost \$4 million per kilometer, the minimum (weighted average per vehicle) toll rate to attract private sponsors would be \$0.09 per vehicle-kilometer, following some basic economic and financial assumptions. Such calculations can be made using the financial simulation tool from the PPIAF–World Bank *Toolkit for Public-Private Partnerships in Highways* (2002).³

That tolls are politically sensitive (though sometimes less so than fuel taxes) is well known. Indeed, in some countries tolls may not be viable. In cases such as these, shadow tolls or availability payments could be considered as possible options. These alternatives to tolls can also be screened for financial viability using the *Toolkit for Public-Private Partnerships in Highways*.

The need for good governance

Because road concessions have monopolistic features, good governance in managing them is essential to ensure that the private sector's involvement yields the maximum benefit for the public. Good governance in this case requires competitively selecting the strategic private investor, properly disclosing relevant information to the public, and having a regulatory entity oversee the contractual agreements over the life of the

Governments increasingly are providing support for privately managed road projects

concession.

More than two centuries ago Adam Smith (1776) wrote that “a high road, though entirely neglected, does not become altogether impassable. The proprietors of the tolls upon a high road, therefore, might neglect altogether the repair of the road, and yet continue to levy very nearly the same tolls.” To avoid such situations, which might occur even today, many countries have established regulatory agencies that monitor the performance of roads under concession.

Road concession contracts typically include required standards for construction, operation, maintenance, and toll collection. For monitoring the quality of the road during the life of the concession, several indicators of condition are usual, such as roughness, skid resistance, luminescence of pavement markings, and the presence and condition of signs, lighting, and other safety features. Performance on these indicators that falls outside the boundaries of acceptability may lead to penalties for the concessionaire.

While competitive selection of the private investor or operator is usually the preferred approach, sometimes private companies approach governments with new project ideas, typically called “unsolicited proposals.” Such proposals often become controversial if governments negotiate the project rights directly with the original proponent without sufficient transparency or competing proposals. To avoid those situations, some countries have developed effective systems to channel unsolicited proposals into processes that incorporate transparency and competition (Hodges and Dellacha 2007).

Conclusion

Developing countries now have a vast experience with road concessions: 32 of them implemented 476 road projects with private participation in 1990–2006. These projects, involving investments of \$104 billion, covered highway, bridge, and tunnel facilities. Data show that after a decline in the late 1990s, private participation in roads revived in 2005 and returned

to peak levels in 2006.

Driving this revival has been the rising demand for transport infrastructure, driven in turn by the strong economic growth in many developing countries. In addition, the revival has been greatly facilitated by the willingness of governments to provide support to attract the private sector, such as through capital grants, availability payments, and guarantees. Nevertheless, governments need to be aware of the potential costs and risks of such support (such as contingency liability).

Moreover, the monopolistic features of road concessions mean that good governance is essential, to ensure that the private sector’s involvement brings the maximum benefits to the public. Here, good governance requires competitive selection of the strategic private investor, regulatory oversight of the contractual agreements, and proper disclosure of relevant information to the public.

Notes

1. Investment data are in real terms (2006 U.S. dollars adjusted using the U.S. consumer price index). The data are from the Private Participation in Infrastructure (PPI) Project Database and include projects that reached financial closure in 1990–2006. The investment data refer to commitments and include private and public contributions. They do not cover road maintenance contracts. For more information, see the Web site at <http://ppi.worldbank.org>.
2. Government support to some road projects may have been omitted as a result of lack of public information.
3. Information on actual toll rates in different countries is published by the International Bridge, Tunnel and Turnpike Association (<http://www.ibta.org/>).

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