

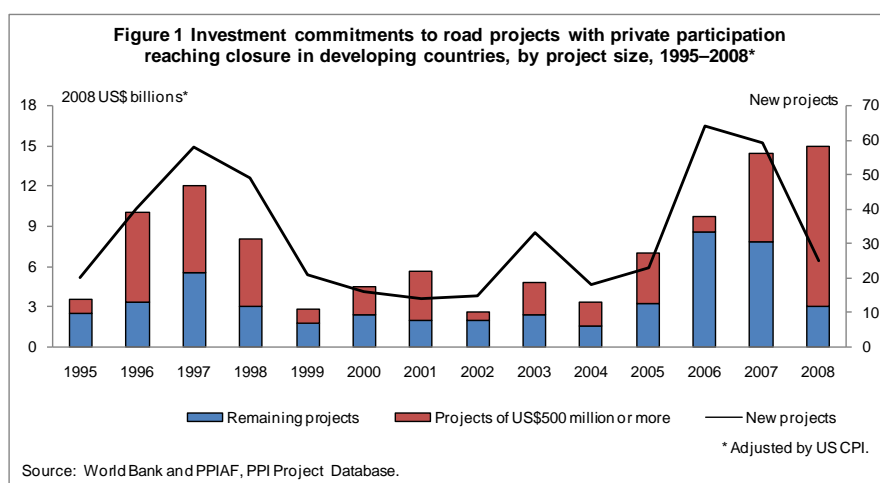
PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE

Did you know? 12

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Investment in road projects with private participation more than doubled between 2005 and 2008, but was concentrated in a few countries

Private activity in road projects in developing countries underwent a resurgence in the past four years. Investment commitments to road projects with private participation grew from US\$7 billion in 2005 to US\$16.7 billion in 2008, reaching a new peak (figure 1). Yet while investment grew every year in the period, the number of road projects with private participation declined after peaking in 2006. Large projects (US\$500 million or more) clearly drove the investment growth in 2007 and 2008. With these projects excluded, investment would have fallen from a peak of US\$8.6 billion in 2006 to US\$7.8 billion in 2007 and US\$3 billion in 2008.



The growth in investment was concentrated in a few countries (figure 2). Brazil, Mexico, and India saw their share of the total investment rising from around 20% in 2005 to 50% in 2006, 66% in 2007, and more than 80% in 2008. With these countries excluded, annual investment in road projects with private participation would have remained around US\$5 billion a year in 2005–07, then dropped to US\$2.9 billion in 2008. In all three countries new models and frameworks for private participation helped attract investment in road infrastructure.

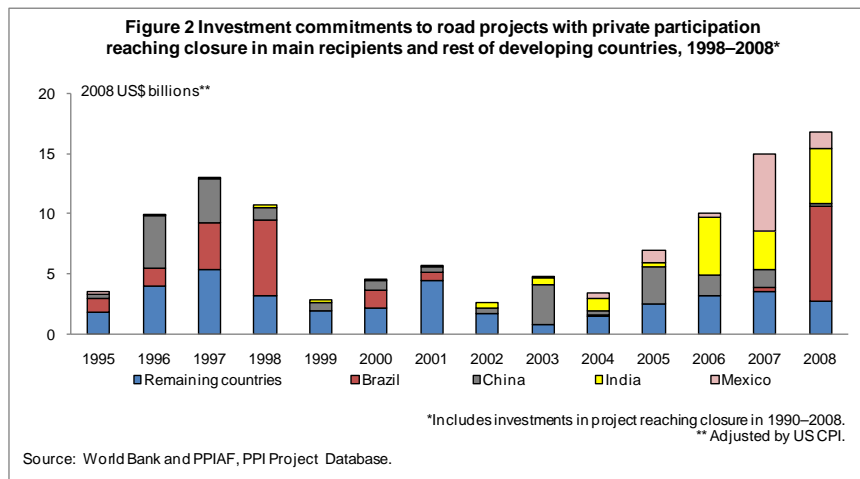
Brazil. After having no new road projects with private participation in 2002–06, Brazil implemented one project in 2007 and eight in 2008. In 2007 the state of Minas Gerais signed a 25-year concession to operate and expand highway MG-050.¹ In 2008 seven of the eight projects reaching closure were 25-year concessions for federal highways in the Mercosul corridor, which connects Brazil's southern Atlantic coast to Argentina, Paraguay, and Uruguay. These formed part of the second phase of the federal highway concession program, whose first phase, in 1995–2000, covered 13,780 kilometers under concessions granted by the federal and state governments. The seven federal concessions

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¹ This note uses the term *concession* as defined in the PPI Project Database methodology, a narrower definition than that commonly used in the transport literature. That broader definition includes not only BROT (build, rehabilitate, operate, and transfer) and ROT (rehabilitate, operate, and transfer) projects but also BOT (build, operate, and transfer) projects, which the PPI Project Database classifies as greenfield projects. In other infrastructure literature, such as that for water and electricity, the term *concession* refers mainly to contracts dealing with operation and expansion or rehabilitation of existing assets.

PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE

awarded in 2008 were tendered on the basis of the lowest tariff requested and involve 2,600 kilometers and US\$6.4 billion in investment to expand and modernize highways. The eighth project reaching closure in 2008 is a 30-year concession awarded by the state of São Paulo to operate and expand the 32-kilometer Rodoanel Mario Covas Western Beltway, with US\$1.6 billion to be invested over the concession period.²



India. In India private activity in roads rose steadily from 2002 on, with annual investment reaching levels of US\$3.2–4.8 billion in 2006–08, far higher than in previous years. India awarded 83 projects in 2006–08, involving investment of US\$12.6 billion and almost 6,100 kilometers. Of these projects, 74 are concessions (61 for federal roads and 13 for state roads). These involve investment of US\$11.6 billion, 80% of it for federal roads. The other nine projects are BOT (build, operate, and transfer) contracts (two for federal roads and seven for state roads), accounting for 290 kilometers and the remaining US\$1 billion in investment.

The Indian projects granted in 2008 differ in nature from those in 2006–07. The 75 projects (concessions and BOT contracts) implemented in 2006–07 averaged around US\$100 million in investment size, and around 80% were tendered using the lowest government contribution (lowest government payments or subsidies) as the main bidding criterion. In contrast, the eight projects implemented in 2008 averaged US\$570 million in size, and six used highest transfers to the government (highest price paid to or highest percentage of revenue transfer to government) as the main bidding criterion. These data suggest that most Indian projects awarded in 2008 were expected to generate enough resources to be financially viable, requiring little or no government support.

The higher level of activity in India was made possible by an amendment to the National Highways Act of 1995 that allows private participation in roads and sets out three models for private participation in highways: BOT contracts on a toll basis, BOT contracts on an annuity basis, and special-purpose vehicles.³

² Under the Public-Private Partnership Law enacted in December 2004, road projects in Brazil can also take the form of public-private partnerships. A concessionaire develops or operates a road (or does both) under a 5- to 35-year contract and is paid by the granting authority on the basis of performance. Depending on the project structure, the concessionaire might also collect user fees. Until 2008 no Brazilian road project had used this scheme (Ministério do Planejamento, Orçamento e Gestão, <http://www.planejamento.gov.br/hotsites/ppp/index.htm>).

³ India, Ministry of Road Transport and Highways (<http://www.morth.nic.in/index2.asp?sublinkid=103&langid=2>).



PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE

In the BOT toll model the private concessionaire finances and undertakes the construction and maintenance of a highway and recovers its investment (plus a return) from toll revenues. For projects in which the traffic is expected to be insufficient to recover the expected investment, the government can provide a capital grant (up to 40% of the project cost). The BOT toll-based contracts are granted through a tender process in which the minimum capital grant requested is used as a bidding criterion. For projects expected to generate enough traffic to cover the project cost, the highest payment to the government is used as a bidding criterion.

In the BOT annuity model the private concessionaire finances and undertakes the construction and maintenance of the highway and recovers its investment (plus a predetermined rate of return from the annuity payments by the government (granting authority). The BOT annuity-based contracts are granted through a tender process in which the lowest annuity requested is used as a bidding criterion. The granting authority retains the traffic risk, since it collects the toll revenues.

In the third model the National Highways Authority of India forms special-purpose vehicles, which are independent legal entities, for funding road projects. The highways authority provides limited equity or debt support, while financial institutions or beneficiary organizations supply the remaining funding.

Mexico. After a hiatus in new private activity in roads from 1996 to 2002, the Mexican government again began to attract private investment to road projects with the financial closure of three BOT contracts (for two federal roads and one state road) in 2003–04. Since then private activity in roads has increased. In 2005–08 Mexico awarded 17 federal road projects (seven concessions and 10 BOT contracts), involving US\$8.3 billion and 2,040 kilometers. By far the largest was the first highway concession package awarded by Farac (Fondo de Apoyo al Rescate Carretero), a trust fund managing federal highways “rescued” from private concessionaires.⁴ This concession package involves US\$4.2 billion in investment (of which US\$4 billion is concession fees to the government) and 558 kilometers. Besides the federal projects, Mexico awarded three state road projects in 2005–08.

These Mexican contracts have been implemented under one of three new models launched in 2003: new highway concession, private service contract, and asset utilization. In the new highway concession model the Ministry of Communications and Transport provides final designs, sets the contract period and maximum average tolls, and offers a minimum revenue guarantee. It can also provide an initial contribution of public funds. This contribution is usually determined in the tender process, with the lowest government contribution used as a bidding criterion. For road projects expected to generate enough traffic to cover the project cost, such as a bypass in a major city, the highest payment to the government is used as a bidding criterion.

In the private service contract model, also known as the PPS model for highways, an association between a private firm and the Ministry of Communications and Transport is established to design, finance, build, operate, and maintain a highway for a period ranging from 15 to 30 years. The private firm provides services in exchange for periodic payments based on road availability and traffic levels. These payments are determined during the tender process and are based on construction and operating costs, requested return on equity, estimated annual traffic, and contract duration. The lowest net present value of periodic payments is used as a bidding criterion.

In the asset utilization model the ministry prepares concessions of highways with more than 10 years of continuous operation under the Farac program as well as new highways to be constructed. The concession packages are tendered using maximum payments to the government as a bidding

⁴ In 2006 Farac was managing 4,400 kilometers of federal highways rescued in 1997 from private concessionaires. These highways were among 52 federal highways (about 5,000 kilometers) that the Mexican government had concessioned to the private sector in 1988–94. Although these highways had among the highest traffic levels, traffic was nevertheless lower than expected, and by 1997 many of the private concessionaires faced major financial difficulties for that reason and because of the Mexican economic crisis of 1994–95. To ensure continuity of service, the federal government rescued 23 of the 52 concessioned highways and assumed the outstanding debt. Most rescued highways were put under Farac’s management.



PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE

criterion. The concessionaires are responsible for operating, maintaining, and collecting toll revenues on the existing toll roads as well as for building and later operating the new highways in the concession.