The 1990s have marked the reemergence of private railway operation in developing countries after half a century of nationalization and public sector management. Since private operators took over freight transport on Argentina’s Rosario to Bahia Blanca railway line in 1991, private participation in the sector has grown significantly. By the end of 1997 the governments of fourteen developing countries had transferred varying degrees of responsibility for railway operation to the private sector. In these countries private companies entered into a total of thirty-seven new contracts for the operation and management of railways in 1990–97 (figure 1). By contrast, only five projects in just three developing countries reached financial closure during the six years before 1990.1

For these thirty-seven projects, private companies committed to rehabilitating existing infrastructure or building new systems, involving a total investment of more than US$14 billion over the life of the contracts (figure 2).2 The investment involved in each project depends primarily on the type of contract (box 1), but also on the state of existing infrastructure and expected traffic volumes. Another six rail projects reached financial closure during the first half of 1998, and the trend toward private contracting is expected to continue.

This Note uses the PPI Project Database to analyze what has happened in the railway sector since 1990. The database reveals the following patterns:

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**Private Participation in the Rail Sector—Recent Trends**

Nicola Tynan

The World Bank's Private Participation in Infrastructure (PPI) Project Database covers private participation in infrastructure in developing countries. The database records details of all projects newly owned or managed by private companies from 1984 to the present in water, electricity, transport, telecommunications, and natural gas transmission and distribution. This Note focuses on rail projects with private participation that reached financial closure in 1990–97, surveying regional trends, types of private participation, and project size.

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**FIGURE 1** CUMULATIVE RAIL PROJECTS WITH PRIVATE PARTICIPATION IN DEVELOPING COUNTRIES, 1990–97

**FIGURE 2** CUMULATIVE INVESTMENT IN RAIL PROJECTS WITH PRIVATE PARTICIPATION IN DEVELOPING COUNTRIES, 1990–97

*Source: PPI Project Database.*
Private Participation in the Rail Sector—Recent Trends

Database coverage
- To be included, a project must have reached financial closure and directly or indirectly serve the general public.
- The sectors covered are energy, water, transport, and telecommunications.
- The transport sector includes the following subsectors: rail, roads, and ports. Rail includes the following segments: freight, intercity passenger, local passenger, and fixed assets.
- Movable assets, incinerators and stand-alone solid waste projects, and small projects such as windmills are excluded.
- The period covered is 1984–97.
- The countries covered are developing countries, as defined and classified by the World Bank, in East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, South Asia, and Sub-Saharan Africa.

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. In addition, the operator must consist of one or more corporate entities with significant private equity participation that are separate from any government agency.

Project types
- Operations and management contracts. The private entity takes over the management of a publicly owned enterprise for a given period. This category includes management contracts and leases.
- Operations and management contracts with major capital expenditure. The private entity takes over the management of existing facilities under a concession contract while also assuming significant investment risk. This category includes build-transfer-operate, build-lease-transfer, and build-rehabilitate-operate-transfer contracts as applied to existing facilities.
- Greenfield projects. A private entity or a public-private joint venture builds and operates a new facility. This category includes build-operate-transfer and build-operate-own contracts.
- Divestitures. The state sells an equity stake to private entities; this may or may not involve private management. This category includes full and partial divestitures.

Definition of financial closure. For greenfield projects and for operations and maintenance 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 projects, a lease agreement or a contract authorizing the commencement of management service must exist. For divestitures, the equity holders must have a legally binding commitment to acquire the assets of the facility.

Sources
- Commercial databases.
- Developers and sponsors.
- Regulatory agencies.

Contact. The database is maintained by the Private Participation in Infrastructure Group of the World Bank. For more information contact Mina Salehi at 202 473 7157 or msalehi@worldbank.org.
Operations and management contracts are more common than greenfield projects or divestitures.

Private participation is more common for freight than for passenger services.

Latin America has led the new wave of private railway projects.

**Operations and management contracts are most common**

Concessions that are for managing and operating existing railways and involve major capital expenditure by private sponsors are the dominant form of contract for private participation in the rail sector, accounting for twenty-two of thirty-seven projects (table 1). Another five operations and management contracts do not involve significant private investment. Divestitures and greenfield projects are less common, accounting for a total of ten projects.3

Governments wanting to improve the efficiency of railway networks and reduce the burden of subsidies have transferred management responsibility to the private sector. In some of these countries underinvestment by the public operator had left railways in need of rehabilitation to meet expected demand. Governments were keen to transfer the risk of this investment to the private sector, and private sponsors were willing to assume the risk under credible contractual arrangements of sufficient duration—ten to fifteen years where the operator invested only in rolling stock, but up to ninety years where the track required substantial restoration. Concession contracts allow governments to increase efficiency and investment while retaining ownership of the rail infrastructure. Almost all the projects in Latin America are concessions.

Numbering only six, greenfield contracts run a distant second to operations and management contracts. But with each greenfield project involving significant investment, they run slightly ahead of concessions in terms of investment.

The greenfield projects are concentrated in rapidly growing cities of East Asia, a regional concentration that mirrors the pattern in gas, electricity, and water and sanitation. In all these sectors private participation in Asia has typically focused on increasing capacity in response to rapid urbanization and growing demand for infrastructure services rather than improving the efficiency of existing public operators.

Greenfield projects are distinct not only in location, but also in subsectoral classification. All the greenfield projects are for metropolitan light or “heavy” rail systems rather than for long-distance freight lines.4 The build-operate-transfer (BOT) contracts in Asia account for half the passenger and fixed asset projects (figure 3).

Divestitures account for only four railway projects and little private investment to date. There is no standard model for these privatizations, and all four projects are quite distinct. They include full and partial privatizations, aimed at either transferring operation to a strategic investor (Brazil and Chile) or raising revenue (China).

**Private participation is more common for freight**

Most of the railway projects are in countries with a long history of rail transport, often with early private involvement. Heavy financial losses and

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**TABLE 1 PRIVATE RAIL PROJECTS AND INVESTMENT IN DEVELOPING COUNTRIES BY TYPE OF PROJECT, 1990–97**

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of projects</th>
<th>Investment (1997 US$ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations and management with major capital expenditure</td>
<td>22</td>
<td>6,319</td>
</tr>
<tr>
<td>Greenfield</td>
<td>6</td>
<td>7,399</td>
</tr>
<tr>
<td>Operations and management</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Divestiture</td>
<td>4</td>
<td>699</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>14,417</td>
</tr>
</tbody>
</table>

*Source: PPI Project Database.*
poor operating efficiency prompted governments to consider (or reconsider) private sector approaches. The deficiency in government investment led to interest among freight customers in taking over the networks, and the potential for reliable revenue encouraged sponsor support.

In 76 percent of projects the government transferred the management of fixed assets and rolling stock to the private sector as a vertically integrated utility, introducing competition at the bidding stage. Even as regional monopolies, however, railways are not insulated from competition; both passenger and freight customers typically have alternatives. Some governments have gone further, requiring concessionaires to open their network to competing operators.

The historically dominant use of rail for freight transport partly explains the larger number of freight than passenger projects awarded to the private sector. Freight only and freight and fixed assets account for 57 percent of all projects (table 2). The standard model for private participation in railways in Latin America involves separating passenger and freight service, leaving long-distance passenger services with a public operator. Bolivia is an exception. It awarded leases for the operation of both services on each of the country’s two networks. In Africa two projects transferred responsibility for both freight and intercity passenger services to the private sector.

The transport sector faces greater intermodal competition than other infrastructure sectors—railways are one of several forms of land transportation—and this competition is especially intense for passenger transport. Roads offer most customers a less than fully priced alternative to rail travel, leaving most passenger railways unable to compete without subsidies. To deal with this problem, passenger concessions in Argentina were awarded on a least-subsidy basis.

East Asia and the Pacific has had less history of private investment in freight railways and less reliance on freight transport by major exporters. But with rapidly growing cities, many Asian countries face a rising demand for intercity passenger transport. To meet this demand and improve passenger transport within their capital cities, Malaysia and Thailand turned to the private sector, awarding contracts for the construction of new light rail systems. Five other passenger and fixed asset contracts were awarded for the oper-
Latin America has clearly led the way in the revival of private participation in the rail sector. Seven countries in the region have awarded a total of twenty-six contracts to private companies, 81 percent of the sector total. Fewer contracts have been awarded in East Asia and the Pacific, although the size and nature of the projects have meant slightly more private investment (table 3). A few projects have reached financial closure in Sub-Saharan Africa and in Europe and Central Asia. South Asia and the Middle East and North Africa have not yet transferred any railway operation to the private sector, but some countries are considering private participation.

Within each region, projects are further concentrated in a few countries. The top five countries ranked by investment in rail projects account for almost 95 percent of private investment in the sector and for 68 percent of the projects (table 4). Ranking countries by number of projects would replace Thailand and Mexico with Bolivia and Chile, with three projects each.

Regions show continued trend to private participation

The following regional review of concessions under way signals an ongoing trend toward private participation in the rail sector. While not comprehensive, it illustrates the drivers underpinning the trend.

Latin America and the Caribbean

One reason for Latin America’s dominance in private railway projects is the region’s positive experience with private participation in other infrastructure sectors. Many Latin American governments have gained experience in concessioning through private participation in electricity, telecommunications, and water and sanitation (see Izaguirre 1998 on electricity, and Silva, Tynan, and Yilmaz 1998 on water and sanitation).

Most railway concessions in Latin America have been awarded to consortia of domestic companies, often in partnership with one experienced international operator, and sponsored by a major freight customer. The overseas arms of state railway companies have also taken an interest in recent projects. Involving existing customers improves the operator’s access to information on expected demand changes and reduces the risk to the sponsor by allowing investment to respond to these demand predictions. Sponsors
and operators of early concessions have capitalized on their experience and taken a stake in later contracts. In the longer term, however, customer ownership may reduce the operator’s incentive to expand service for new users (see Campos and Cantos 1999).

Argentina started moving toward private contracting in the late 1980s. It awarded contracts in the early 1990s, with contracts for five freight railways reaching financial closure in 1991–93. These routes have already achieved major gains in productivity and revenue. Encouraged by the success of freight concessioning, Argentina has contracted out the operation of suburban passenger rail and the subway in Buenos Aires, where again productivity has increased and subsidy costs have fallen.

Argentina’s freight and passenger concessions have faced challenges despite their general success. Initial demand projections proved too optimistic, and sponsors have been unable to fulfill their investment commitments. Argentina’s experience highlights the importance of renegotiation or other adjustment mechanisms that allow concessionaires to remain in business without the government losing credibility (Thompson and Budin 1998).

Concessioning started later in Brazil than in Argentina, but the outcome in traffic growth and profitability in the two countries looks likely to be similar. Sponsors in Argentina and Brazil have committed to similar levels of investment (see table 4). The Brazilian government recently awarded a concession for Fepasa, the last of its seven regional railway networks, and one for the Rio de Janeiro metro. Bolivia, Chile, Colombia, Guatemala, and Mexico have also awarded contracts to private sponsors and operators.

**Sub-Saharan Africa and the Middle East and North Africa**

The experience with private rail contracts in Latin America and elsewhere has encouraged some African governments to consider private participation to improve rail service and prevent further deterioration of railway infrastructure. Latin American contracts provide good models for countries with a similar history of private freight railways.

Four railway projects in Africa have reached financial closure since 1990, two with World Bank assistance—the Abidjan-Ouagadougou railway linking Côte d’Ivoire and Burkina Faso and the Maputo Rail network in Mozambique. Cameroon and Gabon have started the bidding process for private concessions.

Among countries in the Middle East and North Africa, Jordan and Tunisia are considering private contracting. In Jordan negotiations for a concession to operate, manage, and extend the 283-kilometer Aqaba railway had reached an advanced state by the end of 1998.

**Eastern Europe and Central Asia**

The only country in Eastern Europe and Central Asia with private involvement in the railway sector is the Czech Republic. In 1997 the Czech government awarded regional railway leases to private operators willing to maintain local services. Since then it has also privatized two previously leased regional railway operations, with the goal to transfer loss-making routes to private operators rather than to raise revenue. The Czech contracts have left ownership of fixed assets with the government, but transferred all rolling stock—freight and passenger—to a private operator.

**Asia**

In East Asia and the Pacific two countries dominate private involvement in the rail sector: Malaysia (four projects) and Thailand (two). Both countries have awarded greenfield contracts for new metropolitan light railway networks. The only other Asian developing economy with private investment is China, where the government sold shares in the
Guangshen Railway Company to raise capital without a transfer of control. No country in South Asia has yet awarded a private contract, but a light rail concession is under consideration in India.

In Malaysia and Thailand established property development and construction companies were attracted by the potential increase in property value from improving local transport facilities. But the importance of property development to the success of projects has made financing difficult, particularly with the recent financial crisis drastically reducing property values. One project in Thailand, Hopewell’s Bangkok Elevated Road and Train System (BERTS), reached financial closure in 1990, but later suffered financial problems and was officially terminated in 1998. To prevent the financial crisis from undermining the country’s second light rail project, the Thai government has provided soft loans to the sponsors. Two of Malaysia’s three light rail systems have experienced financing difficulties, and the already completed Star has reported revenue below expectations (Symon 1998). The financial crisis is encouraging Asian governments to look at using private participation to improve the efficiency of existing assets rather than building new systems.

Conclusion

Private participation in the railway sector has increased significantly during the 1990s, with fourteen developing countries reaching financial closure on thirty-seven projects in 1990–97. Although this resurgence in private participation is still in its infancy, the experience in Latin America highlights some lessons. For example, the renegotiation of freight concessions in Argentina has revealed the importance of establishing flexible contracts and setting clear renegotiation or other adjustment mechanisms in advance. Developing countries can also learn from the experience of OECD countries with different models of private involvement, such as Japan, New Zealand, and the United Kingdom (see Australia 1999). For example, the benefits of splitting infrastructure provision from service operation have driven many of the reforms in OECD countries and may offer one solution to the access pricing issues faced when vertically integrated companies are concessioned with open access requirements (van de Velde 1999).

Concessions have been more common than other types of private participation, with most countries turning to the private sector to improve the management of loss-making railways and rehabilitate deteriorating infrastructure. This pattern looks set to continue. Improvements in performance in most of the projects in Latin America have encouraged governments in Sub-Saharan Africa and the Middle East and North Africa to consider concessions for railway management, operation, and rehabilitation. A few BOT projects in Asia have involved the private sector in financing and building new infrastructure, but the financial crisis has made it difficult to gauge their success.

1 Three were short-term leases for the operation of railways in Thailand that expired in 1991 and were not renewed. The other two were a management contract in Mexico and a BOT contract for the Ferronorte railway in Brazil.
2 All investment figures are in 1997 U.S. dollars.
3 In the rail sector concessions range from leases with little or no private investment to full French-style concessions; all leave ownership of fixed assets with the public sector and transfer operating risk and responsibility to the private sector. See Thompson and Budin 1998.
4 Almost all the privately operated passenger railways in developing countries are urban railway systems.
5 See Thompson and Budin 1997 for more details on railway concessioning in specific countries.
6 Because the Maputo concession closed in 1998, it is not included in the figures and tables.
7 These small leases are recorded as one project in the PPI Project Database.
8 This follows the model for investment in the electricity sector. See Izaguirre 1998.

References


Nicola Tynan, George Mason University and Private Participation in Infrastructure Group