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What drives private sector exit from infrastructure?

Economic crises and other factors in the cancellation of private infrastructure projects in developing countries

Clive Harris and Kumar V. Pratap

The private sector exits only a fraction of private infrastructure projects before the contract ends. Yet such cancellations can have a sustained impact on a country's program of public-private partnerships, reducing the private sector's confidence in the government's commitment as well as the government's confidence in the robustness and "value for money" of these arrangements. Econometric analysis shows that macroeconomic shocks nearly double the cancellation rate. As today's global financial crisis greatly increases the cost, and reduces the availability, of project financing, the number of cancellations could grow. That would have implications for the role public-private partnerships can play in meeting the infrastructure needs of developing countries.

Trends in investment in infrastructure projects, and renegotiation of the concessions and contracts underpinning them, have received considerable attention. Less attention has been given to the premature exit of the private sector from public-private partnerships, including the factors that influence this.

In one study looking at this issue, Harris and others (2003) reviewed the extent of the cancellation of private infrastructure projects using information from the World Bank–PPIAF Private Participation in Infrastructure (PPI) Project Database. This database collects and disseminates information on infrastructure projects with private participation in low- and middle-income countries.¹ A project was deemed to have been canceled if, before the end of the contract period, the private company

sold or transferred its economic interest in the project to the public sector; the private company physically abandoned the project (such as withdrawing all staff); or the private company ceased operation or halted construction for 15 percent or more of the license or concession period, following the revocation of the license or repudiation of the contract. On the basis of this definition, they found that only 1.9 percent of projects reaching financial closure in 1990–2001, representing 3.2 percent of total investment commitments, had been canceled by the end of that period. About a third of the cancellations related to the Mexican toll road program.

This note, relying on the same definition of project cancellation, updates these findings using data through 2006 from the PPI Project Database. Of the more than 3,800 projects reported by the database as reaching financial closure in 1990–2006, 179 were canceled by 2006. These accounted for 4.7 percent of all projects and 4.9 percent of investment commitments. On average, projects were canceled 5.3 years after the date of financial closure.

Recent trends

Although the share of infrastructure projects in developing countries that are canceled has varied over time, recent years have seen an increasing trend in cancellations. While the rate of private

Clive Harris is the infrastructure policy advisor in the East Asia and Pacific Region of the World Bank. Kumar V. Pratap is a PhD candidate in the School of Public Policy at the University of Maryland.



sector exit is low, that rate doubled between 2001 and 2006.

Rates of project cancellation vary considerably among sectors (table 1). Projects in the water and sewerage sector are most prone to cancellation. About 9 percent of these projects—representing more than a quarter of investment commitments in the sector—were canceled by 2006. This was significantly higher than the overall rate of cancellation. Distribution projects and bulk water treatment plants had similar rates of private sector exit. But canceled distribution projects accounted for a larger share of investment commitments—about a third of the total in the subsector—driven mainly by the large size of a few of the canceled projects.

Energy projects were the least likely to be canceled, while canceled projects accounted for the smallest share of investment commitments in telecommunications. Among energy subsectors, distribution and integrated power utility projects had the high-

est rate of cancellation by number of projects, at more than double the average for all energy projects. The sub-sectors that have the lowest rates of cancellation are natural gas and port projects.

Factors driving cancellations

These sectoral patterns are broadly intuitive. For example, the water sector has the lowest levels of cost recovery among infrastructure sectors, and the involvement of the private sector in providing water supply is sometimes viewed negatively by stakeholders. Power distribution projects bring far greater political economy issues than do well-structured generation projects. Sectors such as ports and airports are typically highly commercialized and deal with large customers that are as interested in the quality of service as in the price.

Most projects in the more difficult sectors do not get canceled, however; among water and sewerage projects, for example, fewer than 10 percent

While the rate of private sector exit is low, it has been rising

TABLE 1

Canceled infrastructure projects with private participation in developing countries, by sector, 1990–2006

Sector	Projects reaching financial closure		Projects canceled		Canceled projects as % of sector total	
	Number	Investment commitments (US\$ billions)	Number	Investment commitments (US\$ billions)	By number	By investment commitments
Energy	1,498	322.8	49	11.5	3.3**	3.6**
Electricity generation	836	190.2	23	9.7	2.8**	5.1
Electricity distribution or integrated utilities	328	76.8	20	1.2	6.1	1.6**
Natural gas	334	55.8	6	0.6	1.8**	1.1**
Telecommunications	797	537.3	35	11.2	4.4	2.1**
Transport	994	180.2	47	15.3	4.7	8.5**
Airports	118	25.6	4	0.9	3.4	3.6
Ports	298	33.1	4	0.5	1.3**	1.5**
Railways	101	36.8	7	4.6	6.9	12.6*
Roads	477	84.7	32	9.3	6.7	10.9**
Water and sewerage	546	53.9	48	15.3	8.8**	28.4**
Treatment plants	257	11.0	23	1.1	8.9*	9.8**
Utilities	289	42.9	25	14.2	8.7*	33.1**
Total	3,835	1,094.2	179	53.4	4.7	4.9

Source: World Bank and PPIAF, PPI Project Database.

Note: Data refer to projects reaching financial closure in 1990–2006.

* Difference significant at the 5 percent level.

** Difference significant at the 1 percent level.

TABLE 2**Effect of statistically significant variables on project cancellation**

Variable	Percentage point change in probability of project cancellation
Macroeconomic shock	3.7
Water and sewerage sector	8.4
Sub-Saharan Africa	8.8
Project with foreign sponsor	1.9
Contract granted by local government	-2.2
Project investment (log)	0.3

Source: Harris and Pratap 2008.

Note: Model results with binary dependent variable taking a value of unity in case of project cancellation, zero otherwise. Data relate to 3,835 projects reaching financial closure in 1990–2006 and are from the World Bank–PPIAF PPI Project Database. Values in the table report statistically significant marginal effects calculated at the variable means using a probit model.

were canceled. Thus other factors are clearly at work, including bad project or concession design. One important factor is the impact that economic shocks can have on the sustainability of projects. Featuring prominently in the list of canceled projects are toll road projects in Mexico, water projects in Argentina, and power generation projects in Indonesia, all of which suffered from macroeconomic shocks occurring at different times in these countries.

Earlier experiences with private infrastructure also shed light on factors that might drive project cancellation. Gomez-Ibanez (1999), reviewing the nationalization of electricity utilities in Latin America in 1943–79, notes that the few that were not nationalized by the 1980s were domestically owned. By contrast, all foreign-owned utilities had been nationalized. He also notes that utilities in Argentina, which were regulated by municipalities, were the first to be nationalized, which might suggest that the level of government overseeing the projects and the quality of institutions is important.

To examine the factors that might be driving project cancellation, econometric analysis was undertaken by combining data on individual projects from the PPI Project Database with data from the World Bank's World Development Indicators database (2008 edition) and World Governance Indicators

database (2007 edition). These factors included project-specific variables (including the type of contract and the level of government granting the contract), the sector and subsector in which the project was located, and country-specific variables, including country income level, measures of governance and institutional quality, and the occurrence of macroeconomic shocks.

The results from this analysis show that the occurrence of a macroeconomic shock (measured by depreciation in the exchange rate) increases the likelihood of project cancellation from less than 5 percent to more than 8 percent, controlling for other variables (table 2). Other things equal, a project's being in the water sector increases the likelihood of cancellation by more than 8 percentage points and its being in Sub-Saharan Africa by almost 9 percentage points. The presence of a foreign sponsor also increases the probability of cancellation, as does the size of the project. However, projects granted by local governments were less likely to be canceled than those granted by other levels of government.

Some of the results confirm intuition and earlier work. Macroeconomic shocks can dramatically increase the cost of project financing, through exchange rate depreciation (where foreign currency financing is used) or through increases in domestic interest rates. These shocks may also affect demand for services from the projects through lower economic growth. In the water and sewerage sector the starting point for many public-private partnerships—low cost recovery, dilapidated assets, and the need for substantial investments—and political sensitivities around the very involvement of the private sector in water supply can make for a challenging environment.

The presence of a foreign sponsor arouses greater political sensitivities than local sponsors would, and foreign sponsors may feel more able to abandon a project in difficulty. Some have argued that domestic firms are likely to be more accommodating in renegotiations than foreign multinational firms. As a result, projects with domestic sponsors are less likely to be canceled even after a macroeconomic crisis, as with some of the Indonesian power projects after the 1997 East Asian financial crisis (Wells and Ahmed 2007). In addition, projects with foreign sponsors may be more likely to use foreign financing, which can lead to stresses when revenues are earned in local currency.

Larger projects are politically more visible, and they may also impose a large financial burden on

Today's global financial crisis could increase the rate of exit

the government, making their cancellation more likely.

Other results are less easy to explain. Projects in Sub-Saharan Africa might have significantly higher cancellation rates because of weak institutional capacity. It may also be that in countries that are smaller or that have fewer repeat projects, the private sector might expect fewer penalties from walking away from a project. The finding that projects granted by local governments were less likely to be canceled could reflect a higher level of local support. It may also reflect the private sector being given an easier ride through less effective regulation.

The analysis found no significant impact of institutional quality on cancellation. When canceled and distressed projects were used as the dependent variable, however, control of corruption was found to significantly reduce the probability of cancellation, other things remaining the same.²

Conclusion

Although relatively few projects are canceled, these cancellations can have considerable impact. They can reduce the credibility of the government's commitment to contracts in the eyes of the private sector, and they can leave the public sector feeling, often legitimately, that public-private partnerships can lead to adverse outcomes for both governments and consumers. Also true, however, is that commercial discipline and the "freedom to fail" are a big part of the rationale for turning to the private sector, and project cancellations should therefore be expected, since some projects or concessionaires will underperform.

The issue takes on particular significance at the present time. Private infrastructure projects will come under pressure as liquidity in international and domestic markets shrinks

and financing becomes most costly and less available—and as demand for services from the projects perhaps falls. While difficulties in public-private partnership projects can sometimes be self-inflicted by the private sector—for example, through aggressive bidding that leads to unsustainable project terms—macroeconomic shocks are clearly exogenous impacts. Dealing with these shocks effectively will be important in ensuring that, once financing conditions improve, governments' private infrastructure programs will recover.

Notes

A second note by the authors will examine what happens to canceled projects: do they stay in public sector hands, or are they placed back with the private sector?

1. A joint product of the World Bank's Infrastructure Economics and Finance Department and PPIAF, the PPI Project Database collects information from publicly available sources and includes transactions worth \$1 million or more or, in water and electricity distribution, transactions that would provide 5,000 or more new connections. See <http://ppi.worldbank.org>.

2. Distressed projects are those in which the government or the operator has requested contract termination or that are in international arbitration. Corruption, as defined in the World Governance Indicators database, measures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption as well as "capture" of the state by elites and private interests (Kaufmann, Kraay, and Mastruzzi 2007).

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