

Beyond Privatization:
Rethinking Private Sector Involvement in the Provision of Civil Infrastructure

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Abstract

The provision of public services (and the ownership of the associated infrastructure) in both the developed and developing world varied widely throughout the 20th century. Nationalization and public ownership often resulted in below-market charges for services but also featured poor service delivery and disinvestment in the physical systems and human capital. A wave of privatizations of public utilities in the developing world was supposed to bring efficiency through market discipline and modern business practices but often just brought hardship to those least able to pay market prices. As a result, many of the early privatizations were abandoned without finding a solution to the joint problems of the need for market efficiency while maintaining social equity. This chapter will explore the emerging nature of public-private cooperation in the provision of civil infrastructure looking particularly at the financial engineering models that have emerged in the past 10+ years. It will briefly describe the generally unsatisfactory results of public service privatization in developing countries, the emergence of the Public Finance Initiative/Public Private Partnership (PFI/PPP) approach in Great Britain, and contrast it with recent experience in other countries, notably Canada and the United States. It will close with some observations on how safeguards can be incorporated into the process to ensure that the interests of the public, especially the most economically challenged, can best be protected.

Introduction

Between January and April 2000 the streets of Cochabamba, Bolivia erupted in a series of protests over the privatization of the municipal water supply. In response to pressure from the World Bank to increase efficiency and conservation, Bolivia had entered into an agreement with International Waters Ltd. *Aguas de Tunari*, an international consortium, to provide water service in Cochabamba. Within weeks, water rates were increased an average of 35% to about US\$20 per month. In a country where many of the customers earned less than US\$100 monthly, such an increase was seen as an intolerable burden for what was considered a public good.

Water can exist in many contexts; e.g., commodity, natural resource, or mineral. More importantly, after the air we breathe, the water we drink is mankind's greatest necessity of life. Because of this, access to adequate supplies of pure water is taken as a basic human right. The United Nation's Millennium Development Goals include a statement; "Between 1990 and 2015, to reduce by half the proportion of people without sustainable access to safe drinking water" (UN, 2000). This has led to many calls for water to be made available as cheaply as possible to the public at large. At the same time, water infrastructure and water as a commodity is seen as an emerging investment opportunity (Business Week, 2005) because population growth, particularly in the developing world, will only increase demand over time and an increasing population will invariably require more water. In an era of reduced regulation,

private sector investors find utilities attractive because of the “natural monopoly” inherent in the delivery of networked services, i.e., people have little option but to purchase services delivered through the only set of pipes or wires available.

In light of these forces, it is reasonable to ask whether what became known as the "The Cochabamba Water Wars" have anything to teach us more broadly about the current interest in arrangements between the public and private sectors collectively known as “Public Private Partnerships” (PPP or P3)¹ and their role in providing public services. Before attempting to answer this question, it will be useful to step back and briefly examine the history of infrastructure service privatization in the developing and developed world, the forces driving it, and where it has led us. From there we can begin to develop an understanding of why the private sector seems poised to take on a greater if different role, and where the current interest in private participation may lead us.

The Push to Privatize

At the heart of the push to privatize² is the widely held, and mostly accurate, belief that public enterprise is less efficient than its private sector counterpart (Boycko, Shlezfer, and Vishny, 1996). To a large degree, this comes about because of a fundamental difference between public enterprise, which aims to address political and social goals as opposed to bottom-line profits, as opposed to the efficiency and financial performance goals of the private sector.

¹ PPPs are a policy option available to Governments for the provision of basic services (e.g. health, transportation), which seeks to involve the private sector. As such, they are an alternative to traditional full public provision of those services, particularly where the services are private in their nature and government resources are limited. (UNESCAP, 2008).

² Estache, Perelman, and Trujillo (2005) believe that “privatization” is an excessive word when it comes to public services. The actual sale of public assets to private operators has only been relatively common in some dimensions of the electricity generation, telecoms and the service component of the transport sector. In most other segments of the business, concession contracts, licences or leases have ensured the continuation of public property of the assets in the long run.

Much of the economics literature that addresses this question sees full, or least high, employment as the primary objective of the politically driven public enterprise and privatization as the cure for the resulting inefficiencies. At the same time, public ownership and operation has been viewed as the last defense protecting consumers from potentially predatory pricing practices in monopoly industries. However, the situation may be more complex than that.

In an exhaustive study of the privatization of many formerly state-owned enterprises (SOE) from all sectors, Megginson and Netter (2001) concluded that privatization is now a *de facto* legitimate and often core public policy tool used by many nations but that it is unlikely that full privatization across all sectors in all nations will ever be achieved. The most recent wave of privatizations grew largely out of a reaction to the activist government role that emerged in many nations following the Great Depression and particularly, World War II. Until the emergence of the conservative Thatcher government in the United Kingdom in the 1980s, socially-motivated government ownership of most of what can be considered civil infrastructure (transportation, water, gas, electric, telecommunications) was the desired norm in most of the developed world³. In the developing world, government ownership of utilities and infrastructure was used more as a means to promote growth but it was also viewed as a rejection of foreign influence in the post-colonial era (Rondinelli and Iacona, 1996). The possible remnants of colonization inherent in the presence of foreign banking and

³ The United States experience was mixed. Regulation of privately-owned enterprise was favored in the electricity, natural gas, and telecommunication sectors while highways and water and sewerage were mostly in public ownership (Jacobson and Tarr, 1996)

investment interests in private participation in infrastructure will be discussed later in this chapter.

Although the efforts of the Thatcher government were not the first, the UK privatization program and the related Private Finance Initiative (PFI), have probably had the deepest and most lasting impact⁴. Efforts to increase private participation in the provision of formerly public services in other Commonwealth nations such as Australia and Canada through PPPs build directly on the PFI and many nations, including governments in the United States at both the national and state level are attempting more widespread application of PPP to address the chronic underfunding of public infrastructure.⁵

Summarizing the “Lessons Learned” from their comprehensive review of privatization research, Megginson and Netter (2001) concluded that privatization programs initiated over the past quarter century have significantly reduced the role of SOEs in most national economies. Privatization has largely achieved its goals of improved efficiency and profitability—the resulting improvements in financial health generally permit increases in capital investment spending and reductions in employment are almost always accompanied by large performance improvements. However, at the time of their study, they found little empirical evidence of the impact of privatization on consumers, although they do note emerging evidence that large-scale privatization efforts may spur further desirable improvements in corporate governance.

⁴ Interestingly, privatization has continued apace and probably accelerated under the Labour governments of both Tony Blair and Gordon Brown.

⁵ For example, the recently completed report of The National Surface Transportation and Revenue Study Commission (2007) in noting the inability of the U.S. Highway Trust Fund to generate sufficient revenues to meet projected demand identified PPP as a potentially significant funding source.

Infrastructure Reform in the Developing World

As noted at the outset of this chapter, despite their economic benefits, efforts to increase private sector participation in the infrastructure of the developing world have not been painless. Market-oriented reforms, while producing long-term economic and operational advantages, have short-term impacts that are often keenly felt by those least able to bear them. Foster, Tiongson, and Laderchi (2005) examined the impacts of alternate utility reform measures (i.e., Public Sector Reform, Private Participation, and Regulatory Reform) in developing economies in three infrastructure sectors (energy, telecommunications, and water) and came to somewhat obvious conclusions that the directions of price and service-quality changes will vary under different reform regimes. Interestingly, they postulate that regulatory reform⁶, even more so than private participation, should have greater impacts on price, quality, and access. Table 1 displays their findings across sectors and reform measures.

-- Table 1 goes about here. --

Private participation in infrastructure is a major source of foreign investment in the developing world. Between 1990 and 2006, more than US\$1 trillion was invested in almost 3,800 infrastructure projects (energy, telecommunications, transport, and water and sewerage) in developing and transitional economies (The World Bank, 2007). Although private sector

⁶ Regulatory reform refers to actions to improve free entry, and market-based price setting and establish an independent regulator, that is, an agency separate from a ministry and from the operator.

investment was primarily focused in the energy and telecommunication sectors (see Figure 1), there was broad diversity in private investment levels by infrastructure sector, region, and the nature of participation (i.e., divestiture, concession, greenfield project, or management and lease contract) (see Figures 2, 3, and 4).

-- Figures 1, 2, 3, and 4. go about here. --

The apparent attractiveness of certain regions and subsectors to foreign capital during this period could offer some insight into future private participation in infrastructure and what form it might take. For example, many problems that arise with infrastructure in developing and transitional economies have been traced to a similar sequence of distinctly non-market events. First, for political (and/or social) reasons, fees or tariffs are often set below a level sufficient to provide reliable service, perform necessary maintenance and repair, and make capital investments. This results in service inefficiencies and encourages wasteful use which further exacerbates revenue shortfalls, leading to another round of service declines and disinvestment. At some point, government subsidies become the primary revenue source for which support eventually wanes and the system becomes completely dysfunctional and in need of major physical and institutional overhaul. Figure 5 depicts the service decay spiral that many state-owned utilities have encountered.

-- Figure 5 goes about here. --

This is neither a new nor unique issue. A considerable body of empirical research supports some basic and universal principles that should underlie long-term improvement of infrastructure service delivery in the developing world (Kessides, 2004). These include:

- Designing pricing policies that strike a balance between economic efficiency and social equity.
- Developing rules governing access to bottleneck infrastructure facilities⁷.
- Adapting regulation to address emerging problems, changing circumstances, and new information in regulated infrastructure sectors.
- Finding new ways to increase poor people's access to services.

Although the public model for network utilities has many flaws, no universally optimal private model has yet emerged that appears right for all industries in all nations. The list of "problem" infrastructure projects appearing in the literature is quite long and large projects tend to go awry for a variety of reasons, regardless of where they happen to be located or whether the public or private sector was in charge of the process. Not surprisingly, as the leaders of developing and transitional economies attempted to bring market-based reforms to their utility industries (often under considerable pressure from the international lending community), they have been repeatedly plagued by public discontent with resultant price increases, loss of patronage jobs, and the profitability of firms

⁷ Bottleneck facilities are essential infrastructure components to which all potential private competitors must have equal access if they are to compete fairly.

retained to improve performance (Kessides, 2004). At the heart of this issue is the need to strike a fundamental balance between the provision of efficient, reliable, and equitable services and the need for revenues sufficient to sustain the systems. The public and private sectors together need to align profit-seeking with social welfare in the provision of basic services.

The Public Private Partnership

Before addressing the role that PPP for infrastructure have played, or could potentially play, in developing economies, it will be useful to describe the many forms they can take and the varying levels of private sector involvement. The following terms refer to commonly used partnership agreements⁸ and the varying levels of private sector risk that are implicit in each option are depicted in Figure 6.

- *Design-Build (DB)*⁹: The private sector designs and builds infrastructure to meet public sector performance specifications, often for a fixed price, so the risk of cost overruns is transferred to the private sector.
- *Operation & Maintenance Contract (O & M)*: A private operator, under contract, operates a publicly-owned asset for a specified term. Ownership of the asset remains with the public entity.
- *Design-Build-Finance-Operate (DBFO)*: The private sector designs, finances and constructs a new facility under a long-term lease, and

⁸ The Canadian Council for Public Private Partnerships. http://www.pppcouncil.ca/aboutPPP_definition.asp. [November 16, 2007].

⁹ Design-Build is a contracting method that is at the heart of private provision of infrastructure but many do not consider DB a formal PPP strategy.

- operates the facility during the term of the lease. The private partner transfers the new facility to the public sector at the end of the lease term.
- *Build-Own-Operate (BOO)*: The private sector finances, builds, owns and operates a facility or service in perpetuity. The public constraints are stated in the original agreement and through on-going regulatory authority.
 - *Build-Own-Operate-Transfer (BOOT or more commonly, BOT)*: A private entity receives a franchise to finance, design, build and operate a facility (and to charge user fees) for a specified period, after which ownership is transferred back to the public sector.
 - *Buy-Build-Operate (BBO)*: Transfer of a public asset to a private or quasi-public entity usually under contract that the assets are to be upgraded and operated for a specified period of time. Public control is exercised through the contract at the time of transfer.
 - *Finance Only*: On behalf of the public entity, a private entity, usually a financial services company, funds a project directly or uses various mechanisms such as a long-term lease or bond issue.
 - *Concession Agreement*: An agreement between a government and a private entity which grants the private entity the right to operate, maintain, and collect user fees for an existing publicly-owned asset in exchange for an up-front fee and sometimes a share of revenues. Although ownership usually does not transfer, certain rights of ownership may.

-- Figure 6 goes about here. --

Design-Build (DB) and Operations and Maintenance (O&M) contracts and other methods shown in the lower portion of Figure 6 are primarily contracting or financing approaches and do not include the full range of services implied in a PPP. The most common applications for infrastructure PPPs are the Design-Build-Finance-Operate (DBFO) which some consider a variant of the Build-Own-Operate-Transfer (BOOT or BOT) for greenfield projects, and the long-term concession which has proven popular in the United States for existing or brownfield facilities (e.g. the Chicago Skyway and the Indiana Toll Road). The choice of approach will depend in part on the objectives of the public partner, the ability of the government to fund portions of the project from the central budget, and local capacity to manage complex procurements. For example, it might be advantageous for both sides for the public sector to take back ownership of the facility prior to it being placed in service in which case, a Build-Transfer-Operate (BTO) arrangement might be devised (Levy, 1996).

A major issue with PPP is who actually sets the level of tolls or other user charges and how far and fast they are permitted to rise. Due to the natural monopoly characteristics of most infrastructure systems, the public sector must maintain a role in the process lest the problems connected with water service in Cochabamba be repeated continuously. In well-structured PPP agreements, initial fees are usually established jointly and permitted to increase in accordance with predetermined schedules according to inflation or some other economic

marker. From a political standpoint, it is actually to the benefit of the public entity not to be involved in the direct setting of tolls and the resultant political risk.

In all of these arrangements the private partner is responsible for operating the facility or system for a period of time, which can be extremely beneficial if the public sector partner does not have access to skilled individuals to perform the necessary technical, administrative, and financial tasks. However, a shortcoming of these methods is that absent a specific requirement to provide training to the local public workforce, these agreements will not build indigenous capacity to operate and maintain the systems once the contract term is fulfilled. Excellent returns on investment to the enterprise for training in the developing world have been well documented (Almeida and Carneiro, 2006) and this would appear to be a desirable outcome of a PPP arrangement. Otherwise, once the private contractors leave, the physical plant can quickly fall into disrepair and possibly go out of service.

The Role of Project Finance

The key to most PPP ventures is the use of project finance to structure a highly leveraged arrangement of debt and equity. Typically, the private partner will bring a fraction (often as little as 10%) of the total cost of the project to the deal as its equity share and raise the remaining 90% through commercial loans and other sources. The private sector partner usually participates through a “project finance entity” or Special Purpose Vehicle (SPV) especially created to take full advantage of the non-recourse nature of project finance. That is, the private sector pledges only the revenue to be generated by the project as security for the

debt. These revenues may be in the form of tolls or other direct user fees, availability charges where the private partner is compensated for the time the facility is available for service in acceptable condition, or “shadow tolls” paid by the governmental partner in lieu of direct charges to the user. Shadow tolls are based on actual vehicle counts from sensors and are charged based on a predetermined pricing schedule. They have been used for roads in Finland, Spain, and Portugal and are primarily a way to shift usage risk onto the facility operator. Their effectiveness has been questioned because they decouple the use of a facility from its cost which can send the wrong signal to the user (Grimsey and Lewis, 2004) . In either case, it is these revenues alone that will be used to retire the debt and make returns to equity. In the event that the project defaults or experiences other difficulties or liabilities, the SPV alone is responsible; the parent organizations have no obligation to honor the debt or otherwise be accountable for the performance of the project. This aspect of PPP arrangements can become problematic if significant cost overruns occur or projected user volumes fail to materialize.

For example, Flybjerg, Holm, and Buhl (2005) have shown that these conditions occur in many rail and toll road projects. However, due to the limited liability inherent in the SPV, even if projects experience serious financial difficulties, the potential loss of equity may not be sufficient to compel the private partner to prevent default. This is particularly true if the SPV is comprised of several private parties whose equity share might be quite small compared to the overall cost of the project. For example, the equity investment or “at risk” capital

of 5 equal-equity partners in a \$1 billion project could be as little as \$20 million. Although this is not a trivial amount, it does represent the upper bound on the financial risk faced by the private partners. Recently, the SPV formed to perform repair and renovation on two lines of the London Underground (Metronet) declared bankruptcy rather than take on the additional risk posed by rapidly escalating project costs (UKHCTC, 2008). The public partner here (The UK government) can certainly be considered a sophisticated player in these arrangements but this was still not sufficient to prevent the deal from going bad and the private partner walking away. However, in this case, the members of the SPV can hardly be considered “damaged” considering that

It is most likely that overall the shareholders may not have lost any money on the PPP at all (e.g. 20% of £2 billion is £400 mn.)!! It will be just that they—the shareholders—have made less money on the PPP than they had originally hoped! Blaiklock (2008)

When Should Governments Consider a PPP?

A major decision point employed in the decision to use a PPP is the “value for money” (VfM)¹⁰ analysis. This exercise is intended to determine whether the “best” model for service provision is via public or private delivery. However, a very real limitation on the VfM analysis is that it fails to take into account the social and other non-financial objectives that public sector policy makers must address. For example, if cost reductions (and higher VfM scores) are achieved

¹⁰ 'Value for money' (VfM) is a term used to assess whether or not an organization has obtained the maximum benefit from the goods and services it both acquires and provides, within the resources available to it. Achieving VfM can be described in terms of economy (careful use of resources to save expense, time or effort), efficiency (delivering the same level of service for less cost, time or effort) and effectiveness (delivering a better service or getting a better return for the same amount of expense, time or effort).

by reducing the benefits paid to workers, eliminating subsidies to low-income customers, or cancelling community outreach, then this method would not be the most desirable from a social welfare perspective. .

Although there are those who would argue that subject to a favorable VfM analysis almost everything within the realm of civil infrastructure should be considered a potential PPP, experience has shown that this is an overly optimistic view of this project delivery vehicle. For example, the assumptions developed early in the life of a project, such as construction cost, projected use, acceptable fee structures, cost of capital, etc., are subject to considerable volatility. A fluctuation of a few basis points on the cost of commercial credit (or its sudden unavailability as during the 2008 credit crisis) can have a measurable and substantive impact on the fees that must be collected through tolls, user charges, or availability payments. If fees must consequently be set so high that use is negatively impacted, the financial viability of the overall project could be affected.

With so many potential caveats, it is not unreasonable to ask why private participation in public infrastructure services should be considered at all. In a perfect, or at least less dysfunctional world, the public sector should be able to raise the necessary capital, build and operate the desired infrastructure economically and efficiently, and provide reliable service at a fair price. However, developing economies often lack expertise, stability, and access to capital that would make public provision possible. It may also be more politically acceptable to provide infrastructure on a fee-for-service basis rather than diverting limited

funds from the central budget. The following sections discuss some of the factors that influence whether a PPP is appropriate for a project under consideration and some of the issues that influence how these arrangements perform in practice.

Risk Management

Public private partnerships are subject to a broader range of risks than more routine procurements, and the identification and management of risks is at the core of the design of any PPP (Estache, Juan, and Trujillo, 2007) In fact, one of the strongest arguments for the PPP delivery model is that the various project risks are transferred to the party best able to manage them. Some of the more common risks to a PPP project include:

- *Political risks*, such as the unanticipated change in government, cancellation of a concession, unanticipated tax increases, arbitrary toll or fee imposition or increases, or new and unilateral regulatory policies
- *Construction risks*, such as incorrect or inappropriate design, delays in land acquisition or escalation of land costs, project delays, unanticipated site conditions, or poor contractor performance
- *Operation and maintenance risks*, such as the physical condition of a concession facility, operator's incompetence, poor construction quality, etc.
- *Legal and contractual risks*, such as the concession warranty, or incomplete or inadequate contracts
- *Income risks*, such as inaccurate estimates or traffic volume or revenue, construction of a competing facility that would reduce use or profitability

- *Financial risks*, such as inflation, local currency devaluation and difficulties in conversion to hard currency, interest rate fluctuations, changes in monetary policies, highly leveraged positions
- *Force majeure*, such as war, natural disasters, extreme weather condition, terrorism

Who actually bears each of these risks will be determined by whether they are entirely under the control of one party. For example, the government should bear the risk of future legislation discriminating against the project while the private partner should be expected to control construction risk. If neither party can accept full control, then risk allocation should be based on the price the private party will charge to take on the risk and whether the government is able and willing to pay that price. Many of the problems ascribed to PPP can be found rooted in poor risk allocation such as when governments try to shift all of the usage or revenue risk for a new facility to the private party. This can be done, but then the private partner will set fees and returns accordingly which may require user charges that are too high to be sustainable. For some risks, private insurance may prove to be the best management strategy. The key to risk management lies within the concept of partnership. If risk can be transparently identified, equitably allocated, and costed appropriately, successful projects will result. If the objective is to just shift risk away from one party to the other, success will be more difficult to achieve.

The importance of political stability to the success of PPP projects cannot be overstated. In a comparative assessment of BOT transportation projects in

Asia, Tam (1999) described three tunnel projects constructed in Hong Kong during the 1970s, 1980s, and 1990s. All were completed ahead of schedule and within budget. The Hong Kong government took a major equity position (20%) in the Cross Harbor Tunnel that was completed in 1972 but had reduced its equity participation to zero by the time the Western-Harbor Crossing was completed in 1997. The success of these projects contrasts sharply with experience in Thailand during the 1990s. Thailand attempted to have two toll roads and an urban rail project delivered using BOT arrangements obtained through public tenders but all projects experienced difficulties due to government instability and currency fluctuations¹¹. Although the projects were all completed eventually, the political risks translated into serious financial impediments to the projects (Tam, 1999). Sachs, Tiong, and Wang (2007) have ranked various risks in Asian countries based on a survey of public and private individuals and institutions. Their results are presented in Table 2.

-- Table 2 goes about here. --

Developing economies are more vulnerable to certain types of risk such as political, currency, and natural hazards and the results are likely to be more deeply felt than in the more developed world where the systems are generally more insulated from or resilient to various shocks. Currency fluctuations pose significant risk in that project revenues will be in local currencies rather than more

¹¹ During this period, the average longevity of a government in Thailand was about one year. Following execution of the contract for the rail systems, the government changed by means of a coup, two controversial elections, and the ousting of a military junta.

readily convertible foreign exchange. Unrelated crises also can serve as focusing moments for those opposed to market based reforms and counter-reform movements have emerged from them (Henisz, Holburn, Zelner. 2005).

Abednego and Ogunlana (2006) note that the inability to control all aspects of risk properly is a key factor in poor project performance and believe that proper risk allocation can be achieved only if decision makers consider the type of risk (what) to be allocated, which party should accept the risk (who), when to allocate the risk as well as application of proper strategy to prevent or minimize its consequences (how). Figure 7 illustrates their useful concept of risk allocation. Although apparently obvious, poor risk allocation is not at all uncommon as will be seen in the forthcoming discussion.

-- Figure 7 goes about here. --

Setting aside for a moment the difficulties that many governments in developing nations would have in managing the large and complex risks associated with the financing and construction of major infrastructure, several recent studies suggest that risk transfer to the private sector may be less complete than is often claimed.

In the many of the cases reviewed by these authors, the promises appear to have exceeded performance. Bloomfield (2006) reports on a sewer project in Massachusetts where the contract ultimately negotiated was found to have left

performance risk with the customer rather than the contractor. Hodge and Greve (2007) in a literature review, note that

...it is one of the surprises of the existing PPP literature to find that for the size of the financial commitments to PPPs being entered into by governments around the globe, the evidence on cost and quality gains for techniques such as PFI seems limited.

This comment would appear to apply to risk transfer as well. Finally, in an assessment of experience with PPP projects in the United States and Canada, Vining, Boardman, and Poschmann (2005) note that in two decidedly successful Canadian projects (The Highway 407 Express Toll Route and the Confederation Bridge), the government rather than the project SPV ultimately took on the project's financial risks. A more recent analysis of 10 Canadian PPP shows that the private partner is unwilling to take on high levels of cost risk when the revenue risk is also high (Vining and Boardman, 2008). This raises a question of the benefits of risk transfer in a PPP if apparently occurs so infrequently. A definitive answer to this question lies beyond the scope of this paper but the effectiveness and value of risk transfer is certainly an issue demanding attention during the negotiation phase of a PPP.

Although risk is ubiquitous to all PPP and infrastructure projects in general, developing countries pose additional risks to project success in that they are often less likely to have in place the mature regulatory and adjudication structures that are widely acknowledged to be essential to successful implementation. The relatively high transaction costs of PPP projects, absence of uniform regulatory structures, and the asymmetry of public and private

capabilities in the developing world are cited as major factors in the frequent, and often detrimental, renegotiation of infrastructure concessions (Guasch, 2004).

Infrastructure privatization has been promoted as part of a suite of neo-liberal business practices aimed at promoting entrepreneurship, investment, and long-term growth along with market-based reforms of SOEs. This agenda was also advanced by the World Bank, which made a commitment to market-oriented reform a prerequisite for project lending (Henisz, Zelner, and Guillén, 2005).

Unfortunately, these same authors conclude

Privatization of state-owned utilities coupled with de jure regulatory reform only, and unaccompanied by any true competition, imbues private (and often foreign) investors with unchecked market power and is thus likely to have a deleterious effect on consumers and citizens...the current backlash against neoliberalism in many parts of the world is driven partly by the fact that local and foreign investors have benefited disproportionately and sometimes at the expense of consumers.

The Public Interest

“Protecting the public interest” has become a mantra of those who demand accountability from the PPP process, but this catch phrase means different things to different people. Ortiz, Buxbaum, and Little (2007) examined recent experience with the concession model in the United States and found that most concerns with “the public interest” could be distilled down to whether the presence of the private sector in the transaction would cause system users to pay more than they would have under a public provision model. The general perception, underscored by articles in the popular press, is that revenue-based projects, operated by any entity other than a government agency, will somehow cost more and provide a lower level of service. At the same time, up-front concession payments and the ability to move infrastructure costs off the books remain attractive lures to public officials concerned with dwindling revenue

streams and out-of-balance budgets—the same decision drivers found in the developing world. Those opposed to any private involvement in the delivery of “public” services see price gouging as the inevitable outcome of these arrangements. A legitimate question to ask is whether the public interest is well-served by a system where prices are kept artificially so low as to preclude the delivery of safe, reliable services and where sufficient revenue cannot be generated to support routine maintenance, repair, and renovation¹².

For example, despite arguments that water is too necessary to life to be priced or treated as anything other than a public good, “free” water comes with its own costs. In Dar es Salaam, Tanzania, water was historically subsidized and provided below cost. In addition to the negative impacts of such policies on capital investment in the system, these practices actually hurt the very people they were intended to help. By reducing revenues to a level below which system expansion and improvement cannot occur, the availability to poor people of even marginally purified water is also reduced, leaving them the undesirable options of using more expensive or unsanitary sources. (McKague and Branzei, 2007)

Although there are definitely social and moral questions that can be raised regarding what constitutes equitable charges for the basic building blocks of civil society and, in some instances, the necessities of life itself, these questions do not obviate the fundamental reality that projects and services must be paid for; if not directly by some or all of the users, then by the larger “public” in their stead.

¹² The previously cited report of the U.S. National Surface Transportation and Revenue Study Commission (2007) found that the chronic revenue shortfalls besetting the U.S. Interstate Highway System are partially the result of not indexing fuel excise taxes (the major source of revenue to the Highway Trust Fund) to inflation and the rapidly rising costs of construction.

There is no way to finesse this issue over the long term. Civil infrastructure must be supported by revenue streams generated either by taxes or fees that are paid to a service provider whether public or private (Little, 2008). The affordability issue is often raised as an argument against cost recovery in the developing world but Foster and Yepes (2006) have shown that in Latin America at least, there does not appear to be a major affordability problem except for those in the poorest quartile. They partially explain this by the fact that cost recovery in Latin America is influenced more by local than international prices¹³, whereas in developing countries of other parts of the world, international prices play a bigger role. Although they opine that targeted safety nets for utility services can help to balance the objectives of cost recovery and social protection, the international nature of most PPP consortia (and their need to calculate returns in readily convertible currencies) could exacerbate affordability concerns in some poorer countries.

Whether this provider is in the public or private sector should be less a matter of ideology than whether the customers receive good value for their money. Several recent assessments have demonstrated somewhat mixed results from around the world in this regard (see Hodge and Greve (2007), Vining, Boardman, and Poschmann (2005), and Vining and Boardman (2008). The most recent indicates that for a suite of Canadian PPP projects representing several sectors, the total costs (production costs and all contracting costs) did not differ appreciably from what might have been achieved under a more traditional

¹³ This is apparently due to purchasing power parity across economies in Latin America where there are larger middle-income countries than in other regions of the developing world.

design-build approach. The higher transaction costs of PPPs are ascribed to inherent goal conflicts between the public and private partners and the unwillingness of the private partner to take on high levels of cost and revenue risk.

If PPPs are going to serve as a useful model for the developing world (and the developed world for that matter) there needs to be a robust set of metrics that can capture the essence of the arrangement and quickly and transparently convey to all interested parties whether the venture has been a “success” however one wishes to define it. Success in a PPP needs to be carefully defined and based on the input of all stakeholders in the process. PPPs developed to date have notably lacked the input of the user community who will actually pay for the services. The details usually are explained after the fact (if at all) which is fertile ground for the skepticism and mistrust which inevitably seems to follow.

How the local community views private participation in infrastructure will also determine whether it believes its interests are being protected. Typically, the equity partner in a PPP will be an international consortium of engineering, construction, utility operations, finance, and legal firms. The debt component likely will be provided by an international lending institution. Both of these entities, but particularly the SPV, will exert considerable influence on the provision of local services. Increasingly, in the era of the dedicated global infrastructure investment fund, urban infrastructure is becoming little more than a financial product subject to what Torrance (2008) speaks of as “glocal” governance where local stakeholder concerns will not be the first priority. Thus

financial decisions made a continent or half a world away will have very real and personal local impacts. To the extent that this strikes the locals as reminiscent of the colonial period of prior centuries then this could strongly influence their reaction to the PPP arrangement.

Empirical research suggests that this is not a binary decision process; i.e., to turn to a private concession or retain public operations. In countries with a high level of political risk it may be difficult or impossible to attract private capital to marginal projects. These might best pursue a strategy of seeking local private investment or NGO support. This trend toward local and regional, as opposed to international, investment was noted by Kikeri and Kolo (2005). They cite four privatizations of electric utilities where the investors were from Malaysia, Brazil, Hong Kong, and Thailand.

It also is not clear what the long-term impact of the U.S. mortgage-backed security crisis (and its spillovers) will have on the availability of commercial credit to finance infrastructure PPPs. However, given the important role that debt plays in project finance, it is likely that uncertainty will persist at least until the crisis is resolved. This may create further opportunities for local and regional participation in these projects, possibly marrying foreign technical expertise with local and regional investment capital.

The Future of PPP in the Developing World

For a variety of financial and public policy reasons, it appears that the PPP in all or some of its many forms will be an infrastructure provision option in the developing world for the foreseeable future. However, as governments

increasingly rely on private initiative to improve performance in infrastructure industries to achieve public policy goals and improved efficiency, they will need to consider both the possibilities and pitfalls of privatization (The World Bank, 1996).

A benefit of private participation in infrastructure is that private financial incentives replace more diffuse systems of accountability under government ownership. However, even where operations are technically efficient, monopoly pricing can lead to allocations of a society's resources just as inefficient as public provision. Thus, competition in the marketplace is a highly desirable complement to private incentives and even if *competition for customers* is not feasible due to the presence of a single network, it is possible to foster *competition to provide the service* under a concession. Where competition is unable to provide the required market discipline, regulation may be necessary, but regulatory bodies must, above all else, be perceived as fair and not captive to special interest groups seeking to slant the system to their benefit. Private financial markets should also produce more accountability than that provided through oversight of governmental budgets. However, PPPs usually have some public financing component (even if only the financial risk retained by the government) and the relationship between government and private financing in a project should be transparent and readily accessible.

Overall If PPP arrangements are to prove beneficial to all of the parties involved, at a minimum some guidelines need to be developed, adopted, and implemented. Guiding principles for PPP should include:

- Participation, by all involved parties, needs to be informed and organized.
- The “Rule of Law” must be in place so that fair and equitable legal frameworks are enforced impartially.
- All decisions and their implementation must be transparent to the public and abide by established rules and regulations. Information must be freely available and directly accessible to those who will be affected by the decisions.
- The process must be consensus oriented, responsive to the needs of all stakeholders, and equitable.
- The project should be effective and efficient, producing results that meet the needs of the local society while making the best and sustainable use of available resources.
- All project participants must be accountable to those who will be affected by their decisions or actions.

Contract law is the vehicle by which the performance requirements and accountability standards for PPP are defined and enforced. This is a compelling argument for the PPP structure as opposed to the more “flexible” public policy statements and performance goals that normally define the performance of the public sector. However, all contracts are imperfect to some degree (Hart and Moore, 1988; Hart, 2003), and here again the asymmetry in skill sets between the public and private sector is glaring. Additionally, although contracts are generally binding instruments where the “Rule of Law” is in place, actually achieving performance through contract enforcement can be costly, time-

consuming, and politically embarrassing to the public sector organizations that negotiated it. The overall ability or willingness of developing countries in particular to underwrite these high transaction costs is open to some question.

Conclusions

Globally, the world's 20 largest private equity infrastructure funds now have nearly US \$130 billion under management, 77 percent of it raised in 2006 and 2007. Taking into account leverage, a billion dollars of equity funding could, in some situations, pay for up to \$10 billion in projects (Palter, Walder, and Westlake, 2008). The need of the developing world for infrastructure and the capital to build and maintain it will continue to grow with increasing population and rising expectations. Revenue-supported infrastructure projects are attractive to the investment community because properly structured, they can produce stable, long-term returns to equity that are particularly attractive to pension funds and other income-oriented investment vehicles. These factors would appear to support an optimistic forecast for the future of PPP arrangements in the developing world.

However, as has been described here, there are many challenges to the successful application of the PPP model broadly and in particular in the developing world. The ultimate success of PPP in the nations most in need of private investment will depend on the degree to which the issues discussed in this chapter can be addressed to the benefit of both parties. In particular, the question of equitable, universal access to basic services must be resolved. At the same time, nations in the developing world are probably least able to secure an

equal bargaining position with their potential partners from the private sector. Thus, capacity building, either indigenous to the countries involved or through trusted NGO representation, is a critical step to placing both parties on an equal footing in negotiating service contracts or concession agreements.

For its part, the developing world must seek to provide stability to the international financial community if the investment capital so needed to is to be provided. Although the private sector is viewed overall as risk-taking, considerations of prudence, regulation, and shareholder oversight all dictate that risk be minimized to the extent possible. Developing nations seeking private investment must seek to manage those risks within its control to the extent possible. Ultimately, the question for both sides in PPP negotiation to answer is whether the public or private sectors (or some combination) is best positioned to deliver reliable, equitably priced, and universally accessible services to the public at large. In cases where the private sector can do so at lower overall cost and make a profit at the same time, a PPP should be the preferred method of provision.

Figures

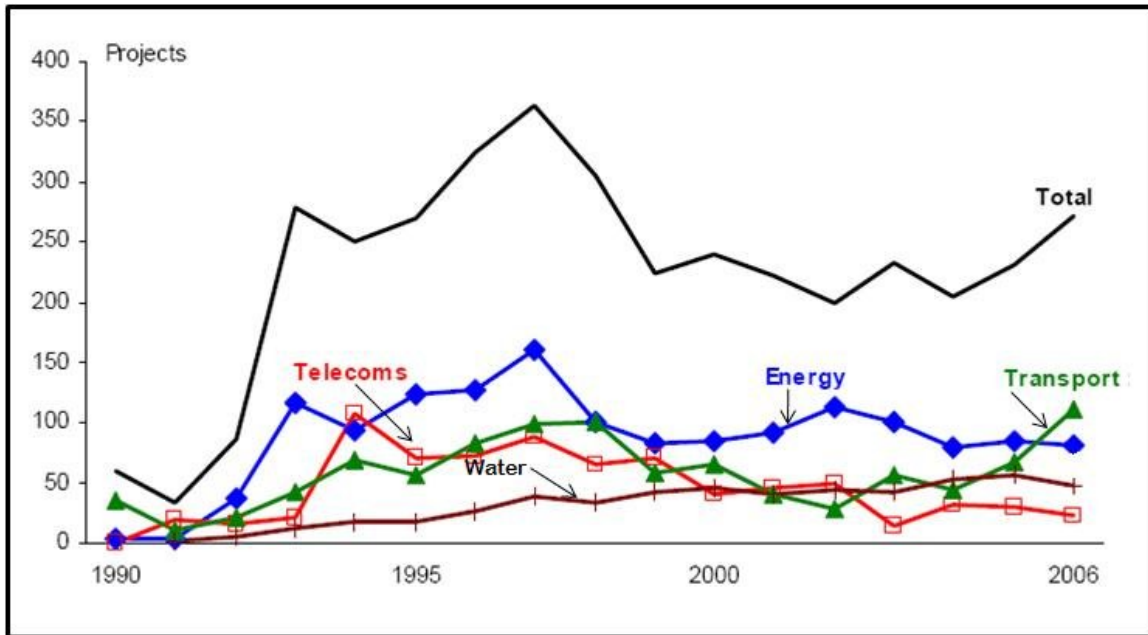


Figure 1. Number of privately provided infrastructure projects by sector.
(Source: The World Bank, 2008)

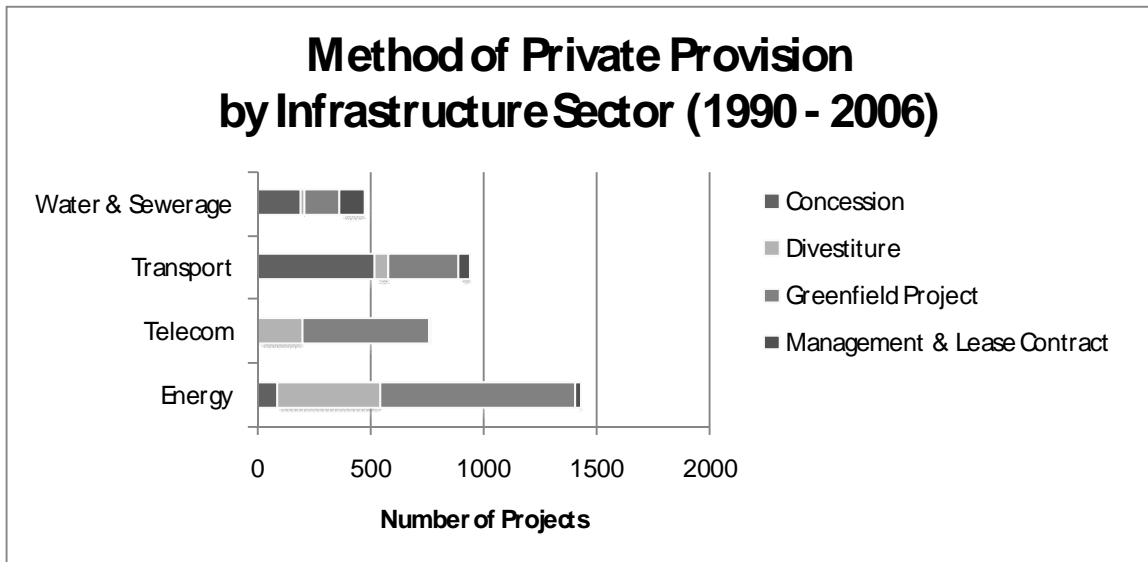


Figure 2
(Source : The World Bank, 2008)

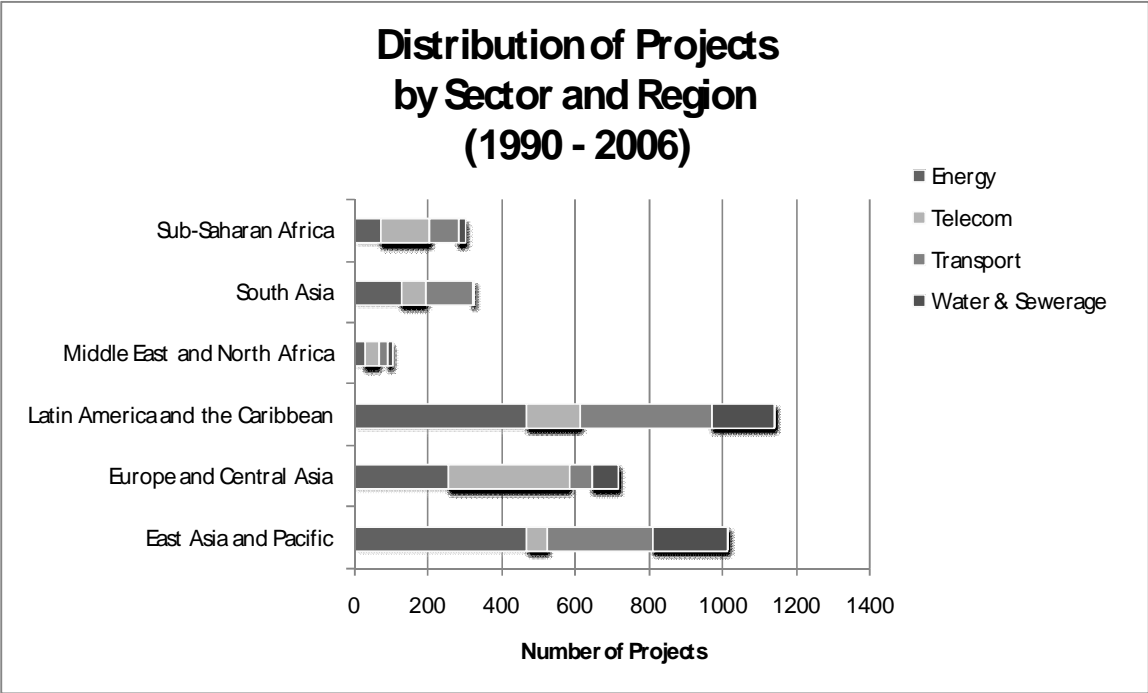


Figure 3
(Source : The World Bank, 2008)

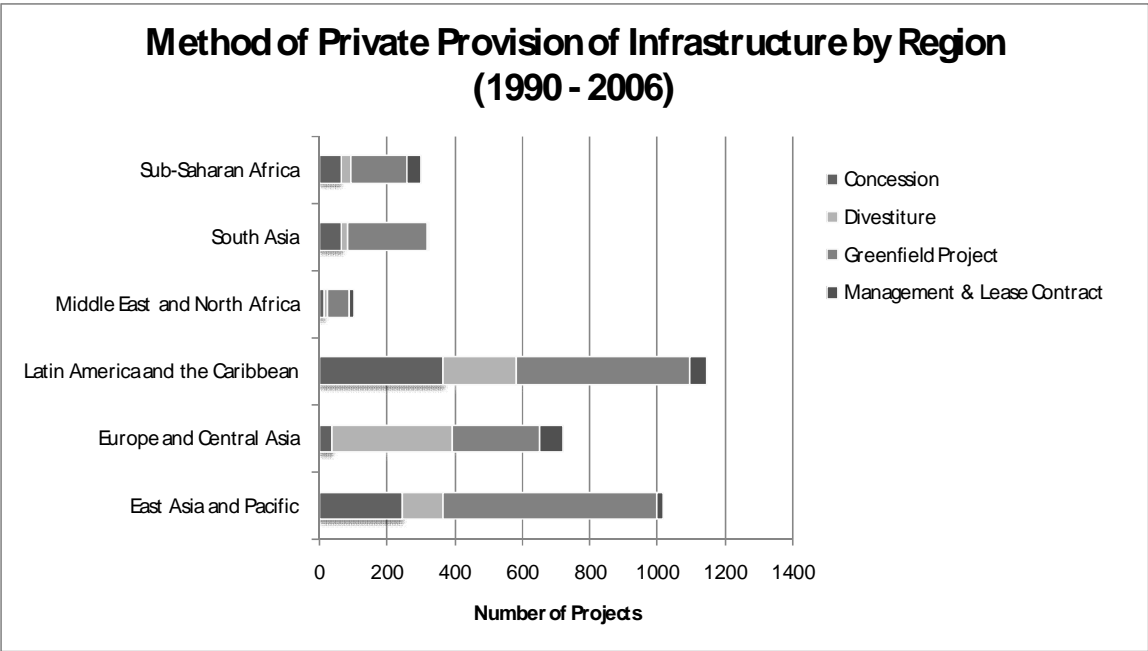


Figure 4
(Source: The World Bank, 2008)

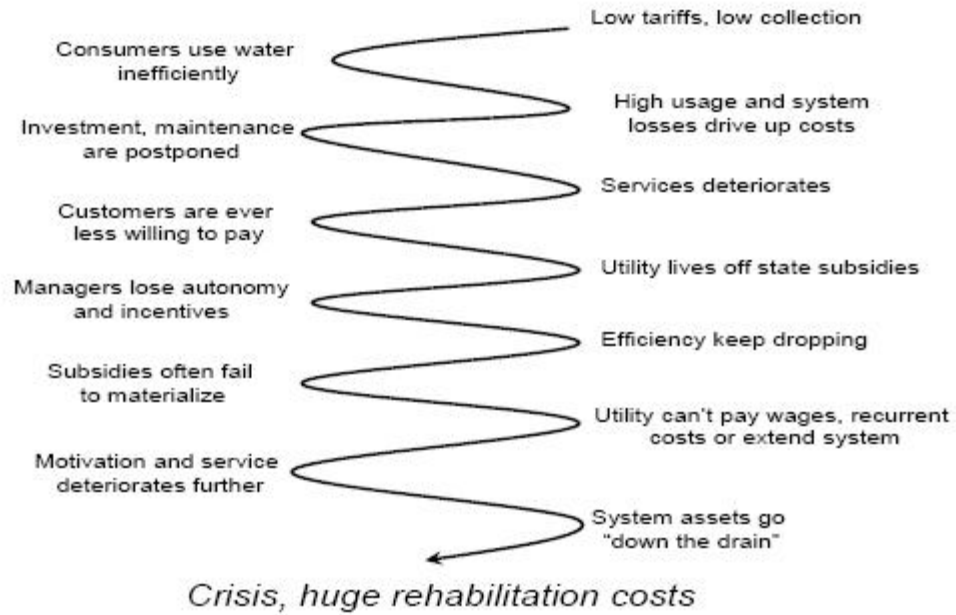


Figure 5. Service quality spiral downward when service is provided below cost.
Source: McKague and Branzei, 2007

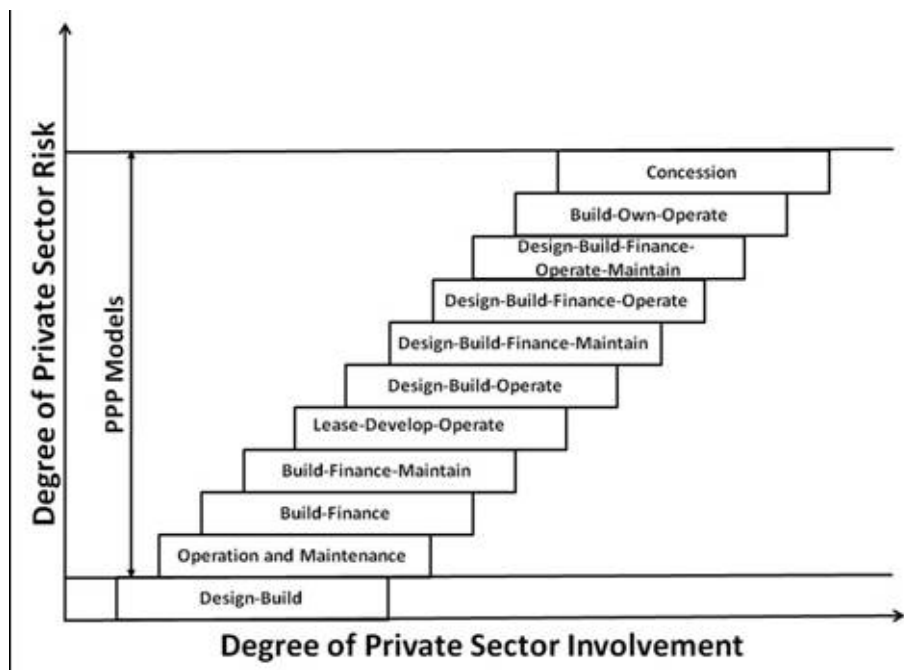


Figure 6. The scale of public-private partnerships
(Source: The Canadian Council for Public Private Partnerships)



Fig. 7. Effects of proper risk allocation on project success
(Source: Abednego and Ogunlana. 2006)

**Table 1. Ranking of political risk factors within countries in Asia
(Source: Sachs, Tiong, and Wang. 2007)**

	Asia														Total	
	Bangladesh	Cambodia	China	India	Indonesia	Japan	Korea, Rep.	Malaysia	Pakistan	Philippines	Singapore	Taiwan	Thailand	Vietnam	All of Asia ex Japan, Korea, Singapore	Japan, Korea, Singapore
A: currency inconvertibility and transfer restrictions	1	1	4	5	4	5/6	6	1	2	1	6	6	5	1	2	6
B: expropriation	4	4	3	6	6		5	4	4	5	5	5	4	2	5	5
C: breach of contract	3	3	2	2	2	3	3	3	3	3	3	4	6	3	3	3
D: political violence	6	6	6	4	3	4	4	6	5	5	4	3	3	6	6	4
E: legal, regulatory, and bureaucratic risks	2	2	1	1	1	2	2	2	1	4	2	2	1	4	1	2
F: non-governmental action/outside risks	5	5	5	3	5	1	1	5	6	2	1	1	2	5	4	1

**Table 2. Impacts of Alternative Public Sector Reforms
(Source: Foster, Tiongson, and Laderchi. 2005)**

	<i>Employment and wages</i>	<i>Price of service</i>	<i>Quality of service</i>	<i>Access to service</i>	<i>Asset ownership</i>	<i>Fiscal flows</i>	<i>Entry conditions</i>
Public sector reform	Employment <i>may</i> ^a fall because of increased pressure for efficiency.	Prices <i>may</i> adjust upward or downward toward efficient cost-reflective levels.	Quality <i>may</i> improve because of better management.	Access <i>may</i> improve because of improved finances.	n.a.	Subsidies to the sector <i>may</i> be reduced.	n.a.
Private sector participation	Employment <i>should</i> ^b fall because of increased pressure for efficiency.	Prices <i>should</i> adjust upward or downward toward efficient cost-reflective levels.	Quality <i>may</i> improve because of better management.	Access <i>may</i> improve because of improved finances.	Asset sales increase private ownership, concentration depends on design details.	Subsidies to the sector <i>should</i> be reduced, sale revenues <i>may</i> be large, and tax revenues <i>may</i> follow thereafter.	n.a.
Regulatory reform	Employment <i>may</i> fall because of increased pressure for efficiency.	Prices <i>should</i> adjust upward or downward toward efficient cost-reflective levels.	Quality <i>should</i> improve because of increased oversight and accountability.	Access <i>should</i> improve because of increased oversight and accountability.	n.a.	Subsidies to the sector <i>should</i> be reduced as tariffs converge to cost-reflective levels.	Regulatory decisions <i>may</i> affect terms of competition between providers.

References

- Abednego, M.P. and S. O. Ogunlana. 2006. "Good project governance for proper risk allocation in public–private partnerships in Indonesia." *International Journal of Project Management*. 24:622–634.
- Almeida, R. and P. Carneiro. 2006. "The Return to Firm Investment in Human Capital." Policy Research Working Paper 3851. Washington, DC. The World Bank.
- Blaiklock, T.M. (2008). "Memorandum from T. Martin Blaiklock," (PPP 02) Written Evidence in "The London Underground and the Public-Private Partnership Agreements: Second Report of Session 2007-2008, House of Commons, Transport Committee, London: The Stationary Office Ltd.
- Bloomfield, P. 2006. "The Challenging Business of Long-Term Public –Private Partnerships:Reflections on Local Experience." *Public Administration Review*, 66(3):400-411.
- Boycko, M., A. Shlezfer, and R.W. Vishny. 1996. "A Theory of Privatisation." *The Economic Journal*, 106:309-319.
- Business Week. 2005. "Now That's A Liquid Investment," April 18, 2005.
- The Canadian Council for Public Private Partnerships.
http://www.pppcouncil.ca/aboutPPP_definition.asp. [November 16, 2007].
- Estache, A., E. Juan, and L. Trujillo. 2007. "Public-Private Partnerships in Transport." Policy Research Working Paper 4436. Washington, DC. The World Bank.
- Estache, A., S. Perelman, and L. Trujillo. 2005. "Infrastructure Performance and Reform in Developing and Transition Economies: Evidence from a Survey of Productivity Measures." Policy Research Working Paper 3514. Washington, DC. The World Bank.
- Flyvbjerg, B., M. Holm, and S. Buhl. (2005). "How Inaccurate Are Demand Forecasts in Public Works Projects? The Case of Transportation," *Journal of the American Planning Association* 71(2): 131-144.
- Foster, V. and T. Yepes. 2006. "Is Cost Recovery a Feasible Objective for Water and Electricity? The Latin American Experience." Policy Research Working Paper 3943. Washington, DC. The World Bank.

- Foster, V., E.R. Tiongson, and C.R. Laderchi. 2005. "Utility Reforms," in *Analyzing the Distributional Impact of Reforms*, Vol.1. A. Coudouel and S. Paternostro, eds. Washington, DC. The World Bank.
- Grimsey, D. and M.K. Lewis. 2004. *Public Private Partnerships: The Worldwide Revolution in Infrastructure Provision and Private Finance*. Cheltenham, UK. Edward Elgar Publishing.
- Guasch, J.L. 2004. *Granting and Renegotiating Infrastructure Concessions: Doing It Right*. Washington, DC. The World Bank.
- Hart, O. 2003. "Incomplete Contracts and Public Ownership: Remarks, and an Application to Public-Private Partnerships." *The Economic Journal* 113(March):C69-C76.
- Hart, O. and J. Moore. 1988. "Incomplete Contracts and Renegotiation." *Econometrica*, 56 (4):755-785.
- Henisz, W.J., G.L.F. Holburn, and B. A. Zelner. 2005. "Deinstitutionalization and Institutional Replacement: State-Centered and Neo-liberal Models in the Global Electricity Supply Industry" (August 2005). World Bank Policy Research Working Paper No. 3690 Available at SSRN: <http://ssrn.com/abstract=801446>
- Henisz, W.J., B.A. Zelner, and M.F. Guillén. 2005. "The Worldwide Diffusion of Market-Oriented Infrastructure Reform, 1977-1999." *American Sociological Review*, 70(6):871-897.
- Hodge, G.A. and C. Greve. 2007. "Public-Private Partnerships: An International Performance Review." *Public Administration Review*. 67(3):545-558.
- Jacobson, C.D. and J.A. Tarr. 1996. "No Single Path: Ownership and Financing of Infrastructure in the 19th and 20th Centuries," in *Infrastructure Delivery: Private Initiative and the Public Good*. Ashoka Mody, ed. Washington, DC. The World Bank.
- Kessides, I.N. 2004. *Reforming Infrastructure: Privatization, Regulation, and Competition*. Washington, DC. The World Bank.
- Kikeri, S. and A.F. Kolo. 2005. "Privatization: Trends and Recent Developments." World Bank Policy Research Working Paper 3765 (November 2005). Washington, DC. The World Bank.
- Levy, S.M. 1996. *Build, Operate, Transfer: Paving the Way for Tomorrow's Infrastructure*. New York. John Wiley & Son's Inc.

- Little, R.G. 2008. "Time to ask the infrastructure funding question." *San Francisco Chronicle*, March 5, 2008.
- McKague, K. and O. Branzei. 2007. "City Water Tanzania(A): Water Partnerships for Dar es Salaam." Richard Ivey School of Business. Case Study 907M25. London, Ontario, Ca. Ivey Publishing.
- Megginson, W. L. and J. M. Netter (2001). "From State to Market: A Survey of Empirical Studies on Privatization." *Journal of Economic Literature*. 39: 321-389.
- Ortiz, I.N., J.N. Buxbaum, and R. Little. 2008. "Protecting the Public Interest: The Role of Long-Term Concession Agreements for Providing Transportation Infrastructure." Proceedings of the 84th Annual Meeting of the Transportation Research Board. Washington, DC. National Academies Press.
- Palter, R.N., J. Walder, and S. Westlake, 2008. "How investors can get more out of infrastructure" *The McKinsey Quarterly*. February, 2008.
- Rondinelli, D. and M.lacono. 1996. *Policies and Institutions for Managing Privatization*. International Training Centre, ILO, Turin, Italy.
- Sachs, T., R. Tiong, and S.Q. Wang. 2007. "Analysis of political risks and opportunities in public private partnerships (PPP) in China and selected Asian countries: Survey results." *Chinese Management Studies*, 1(2):126-148.
- Tam, C.M. 1999. "Build-operate-transfer model for infrastructure developments in Asia: reasons for successes and failures." *International Journal of Project Management*. 19(6):377-382.
- The National Surface Transportation and Revenue Study Commission. (2007). *Transportation for Tomorrow*.
http://www.transportationfortomorrow.org/final_report/ [3/15/2008].
- The World Bank. 2007. "Private activity in infrastructure continued its recovery in 2006," *Private Participation in Infrastructure Database*.
<http://ppi.worldbank.org/features/Nov2007/2006GlobalDataLaunch.pdf>.
[March 29, 2008].
- The World Bank. 1996. *Infrastructure Delivery: Private Initiative and the Public Good*. (Ashoka Mody ed.). Washington, DC. The World Bank.

- Torrance, M.I. 2008. "Forging Glocal Governance? Urban Infrastructure as Networked Financial Products." *International Journal of Urban and Regional Research*. 32(1):1-21.
- United Kingdom, House of Commons, Transport Committee (UKHCTC). (2008). "The London Underground and the Public-Private Partnership Agreements: Second Report of Session 2007-2008, London: The Stationary Office Ltd.
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). 2007. "PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE DEVELOPMENT: An introduction to issues from different perspectives." Prepared for the High-level Expert Group Meeting Jointly organized by UNESCAP and the Ministry of Planning and Budget, Republic of Korea, 2-4 October 2007, Seoul. Available on-line: http://www.unescap.org/ttdw/common/TPT/PPP/text/ppps_infrastructure_development.pdf [3/23/2008].
- United Nations. Millennium Development Goals, Goal 7, Ensure environmental sustainability. <http://www.un.org/millenniumgoals/> [2/12/2008].
- Vining, A.A. and A.E. Boardman. 2008. "Public-private partnerships in Canada: Theory and evidence." *Canadian Public Administration*, 51(1):9-44.
- Vining, A., A. Boardman and F. Poschmann. (2006). "Public-Private Partnerships in the U.S. and Canada: There Are No 'Free Lunches'," *Journal of Comparative Policy Analysis*, 7(3): 1- 22.

Dear Rich,

This is a very strong, well-written piece. I have done some very light editing, and have raised a few questions (e.g., isn't the BOT approach rather common?).

The main place where I think it would use elaboration is in taking stronger position on the question of who should bear what risks, given the situations of the private sector and the governments, especially those of developing countries. Related to this, I suspect (as some of my marginal comments and questions indicate) that there are second-order effects when the private investors perceive that they are going to bear risks—they are likely to require a bigger profit cushion, etc. I wonder whether you could do a bit more analysis along these lines. If I am not being clear in this and in my marginal comments, give me a call; I will be back in the U.S. on Sunday.