

TOWARD A FRAMEWORK FOR ASSESSING PRIVATE VS PUBLIC INVESTMENT IN INFRASTRUCTURE

Significant additional resources from the private sector will be needed for infrastructure in emerging market countries if the Sustainable Development Goals are to be achieved. Close to 80 percent of all infrastructure investments are government funded in these countries, yet it is recognized that public sector investments alone will not be sufficient to bridge the infrastructure gap. Scaling up the role that private firms and investors play in infrastructure provision will require a better understanding of the advantages and disadvantages of public versus private provision, including the issues and incentives that need to be considered in order to find the right balance between the two.

A lack of adequate infrastructure in the world's poorest countries exacerbates socioeconomic issues such as poverty, unemployment, and poor access to energy, education, and healthcare. It is estimated that nearly \$2.5 trillion in infrastructure financing is required annually to meet the demands of the Sustainable Development Goals in developing countries, and to bridge the gap between current and needed investment.¹

With the right conditions in place, private firms can mobilize additional resources for infrastructure financing, and can also deliver greater efficiency and long-term societal benefits. However, unlocking the infrastructure development potential of private entities in low-income countries requires a shift in thinking about how infrastructure is provided. And examining how public policy and the private sector interact is critical to identifying and implementing sustainable and scalable solutions to these infrastructure related development challenges.

The relative merits of the current forms of infrastructure provision must be assessed against those that private firms and investors can provide. Such an assessment requires a framework that can be used to examine the different incentive structures and compare and contrast the risks and rewards inherent in each type of delivery.

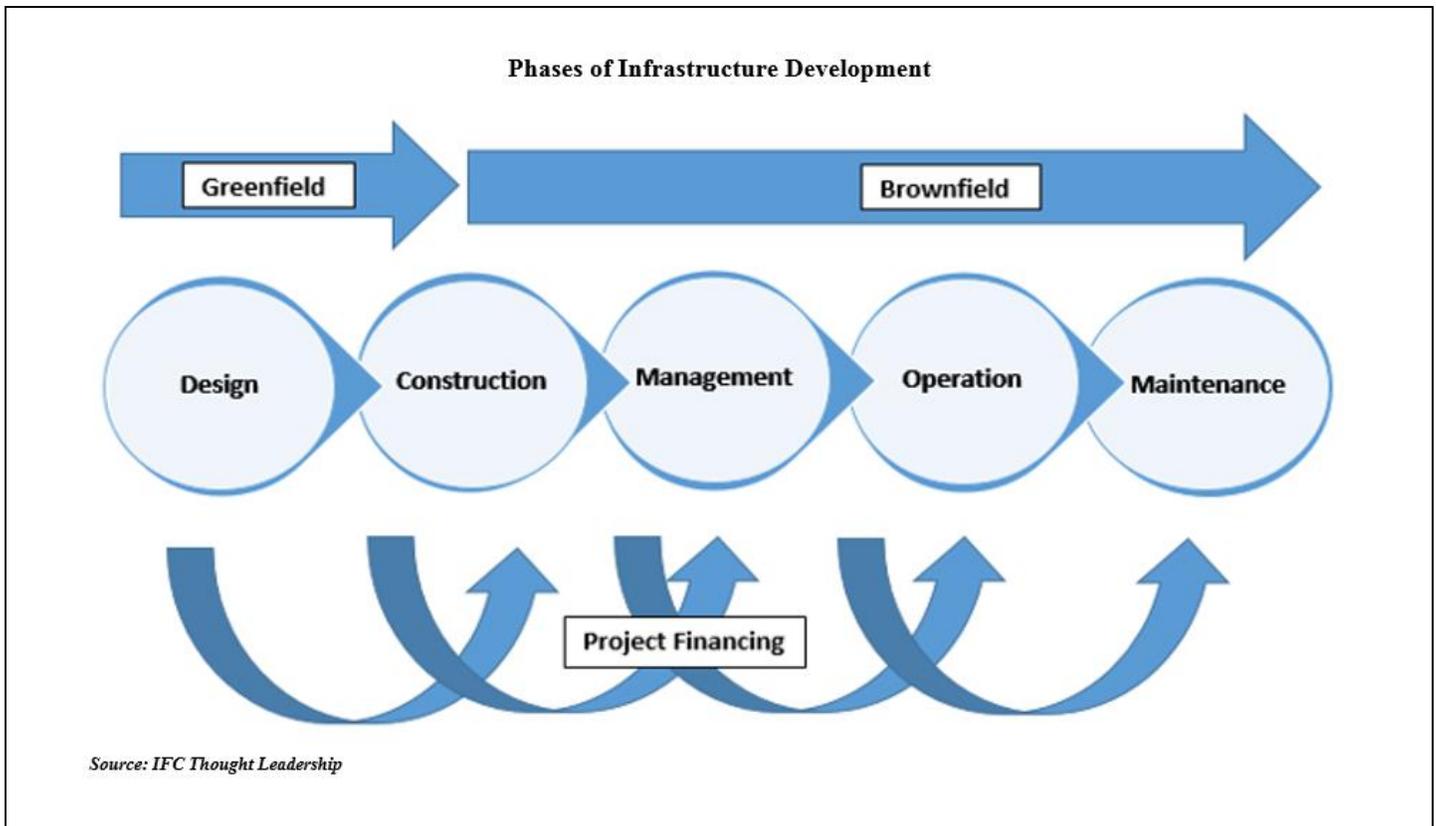
For countries with large tax bases, relatively low levels of debt, budgetary surpluses, or high levels of savings relative to investment needs, the space for infrastructure investments under public finance may be high relative to infrastructure needs, reducing the impetus to mobilize commercial finance. In other words, there may be good reasons to choose public financing, so what is important is to analyze and assess the choice between public, private or a mix in a given country context.

Infrastructure Development Phases

The public and private sectors each have an incentive structure that presents a unique set of risks with regard to infrastructure provision. Viewing an infrastructure project as a process involving multiple stages—from design and construction through to management, operation, and maintenance—is a helpful way to examine and compare these risks. The unique challenges and risks involved in each stage cumulatively contribute to a project's overall risk profile.

The diagram below is a simplistic view of the lifecycle of an infrastructure project. The five phases of the lifecycle are either all undertaken by government entities or, in the case where there is private involvement, some are contracted out. Depending on which phases are undertaken by private enterprises and in what manner, the overall role of the private actors in a project can be increased. In some cases, private involvement may start as early as the pre-bidding phase, in order to determine whether a potential bid for a contract makes financial sense.² Similarly for other phases of a project, the potential involvement of private firms in each phase is dependent on the incentives that phase holds for private firms and investors.

In many cases, infrastructure projects involve only government and public sector entities, from design through operation and maintenance.³ This is often the result of legacy factors such as habit and tradition, and/or the dominance of incumbent public institutions in a country's economy. Government provision of infrastructure is the norm in many emerging market nations, but this is not always the best strategy. Beyond the limited resources



available to governments or the inefficiencies displayed in relevant cases, public financing poses a number of additional risks that need to be considered carefully.

Advantages – Understanding the Dimensions

The relative cost of financing is the first risk involved with public sector infrastructure financing. It is often assumed that government-provided infrastructure is less expensive than infrastructure financed by private entities. This is not necessarily the case. Studies have shown that this misperception may result from the different ways in which risk is remunerated by the government and by private enterprises.⁴

Public funding traditionally implies that liabilities inherent in a project are passed on to taxpayers. Unlike private investors, taxpayers often don't have the ability to demand that they are remunerated for the risks they assume. So when an infrastructure project is publically financed, the risks that are borne by the taxpayer are not fully priced into the cost of borrowing, often resulting in a lower cost estimate.⁵ If taxpayers *were* fully compensated for risks they assume, the cost savings gained by publically financing a project could in many cases be substantially reduced.⁶

In many infrastructure investments, the inability to recoup capital costs by the taxpayer often makes sovereign borrowing seem like the cheaper alternative. And this may be the narrow perspective assumed by policymakers when comparing the costs of private and public financing. Yet from an overall economic standpoint, public financing is not necessarily cheaper and may in fact imply a welfare loss for society in the long run. Therefore, to avoid any undue bias and to accurately reflect the true cost of an infrastructure project, the full cost of financing, including unaccounted risks borne by taxpayers, needs to be considered.

There is also often a tendency to overestimate the cost disadvantages of private sector financing. Financing comes at a premium with private firms due to their for-profit nature as well as their risk aversion. While it is true that private investors do price in risk, depending on what structure their involvement takes, they can also be incentivized to sharply reduce costs—at least in competitive markets—and by doing so offset higher financing costs.

Public-private partnerships that are structured around a competitive bidding process demonstrate how the costs of involving private firms can be driven down. Submitting a competitive bid for a project requires private firms to seek the cheapest form of finance available, potentially driving down costs and minimizing abnormal premiums. This process tends to align

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the cost of financing a project more closely with the true cost of risk and the degree of risk aversion.⁷ In addition, efficiency gains from the bidding process can produce broader long-term public benefits.

Looking at the incentives involved in the different phases of infrastructure provision also shows that pure government provision of infrastructure often involves a shorter-term project outlook that can in some cases be detrimental to the quality of the project delivered.

While governments may take a long-term view of a project with regard to social benefits, that may be offset by the short-term concerns of government officials (such as reelection or the use of funds for more popular purposes such as tax cuts), which can push policymakers toward cost minimization and, as a result, a diminishment of the quality of the project delivered and an increase in longer-term maintenance and operation costs.

Private firms, by contrast, often make a rational choice to consider longer time horizons on an infrastructure project. They weigh the benefits of providing high quality infrastructure against the likely costs of future maintenance and repairs. Private firms, in essence, may choose a “whole life” approach to project construction as longer term costs can be reduced by building to higher standards. This observation was illustrated in a 2003 survey of 38 public-private infrastructure projects done by the UK’s National Audit Office.⁸

When the public sector is the sole provider of infrastructure, it is also often forced to play various roles, a situation that can potentially result in conflicts of interest.⁹ Broadly speaking, the role of government is to both safeguard the public interest *and* provide public goods. So assigning all of the stages of an infrastructure investments to the public sector entails a dual mandate—upholding the interests of the taxpayer while simultaneously promoting and implementing the delivery of infrastructure—that can be at odds with itself.

In most cases where this conflict arises, taxpayers are left with the consequences. These can include poor infrastructure quality, cost and time overruns and, in some cases, greater economic maladies.¹⁰ China provides an example. A three-decade infrastructure spending strategy there delivered massive amounts of new infrastructure, yet public financing of the projects and cost overruns resulted in a huge build-up of debt (approximately one third of China’s \$28.2 trillion debt), monetary expansion, instability in financial markets, and economic fragility.¹¹

Similarly, because of the political nature of the public sector, traditional forms of infrastructure provision can give rise to political risks. Though each political context is unique, factors such as political interests and political capital tend to become greater and more influential when the state alone is responsible for financing and delivering projects.¹² In situations where these

issues exist, the potential for risk increases along with the cost of the project.

If there is political capital to be gained by the delivery of an infrastructure project, it follows that the project’s location, timing and other factors may be driven or influenced by political considerations. For example, should an infrastructure project’s development fall at a time that is politically sensitive, for instance during an election cycle, economic rationale may be overshadowed by political motivations. This can affect both the cost and quality of the project.

Furthermore, the quality of government provision is contingent on the institutional capacity of the state and clear national plans for infrastructural provision.¹³ A lack of institutional capacity increases the risks of cost and time overruns, as well as poor project quality. In some instances, it may be a more rational choice by the state to simply repair or improve existing infrastructure rather than build new infrastructure, the construction of which may be driven by political concerns.

World Bank Experience: Power Sector

The power sector offers tantalizing hints of the potential benefits of increasing private investment in infrastructure.

This sector has been notably successful in terms of private financing. While the bulk of private investments in power have been made in China and India, the private sector’s role in power infrastructure for all non-OECD countries is also impressive, with 50 percent of all power generation assets owned or operated by private entities. In terms of transmission and distribution assets, private entities play a smaller—yet growing—role.

A review of World Bank Group activities in the power sector shows that private firms demonstrate greater efficiency in financing, construction, and operation of infrastructure projects. In cases where government finance is deemed to be cheaper, there is a much higher rate of cost overruns, which offset most of the perceived savings. This suggests the existence an optimism bias in cost estimates, or poor long-term planning with regards to maintenance.

Framing the Approach to Infrastructure Provision

The diagram below presents a simplistic scale and framework to consider when approaching an investment in infrastructure and determining whether public or private provision (or a combination of the two) would deliver optimal financing for it.

The diagram grades government and private firm provision on seven aspects of infrastructure investment—for example, borrowing costs, conflicts of interest, and political risk—as either low, medium, or high. By doing so, the framework can provide

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A Framework Assessing the Dimensions of Public vs Private Investments in Infrastructure



Source: IFC Thought Leadership

some initial thinking and analysis of the advantages derived from public versus private investments. Needless to say, the choice between public and private provision will be affected by the context in which the infrastructure is being developed.

To provide a general framework, a number of assumptions have been made in developing the diagram. One of these is that there is a symmetrical relationship between the private and public sectors. That is, that neither entity has complete dominance over the other and the two can operate as equal entities whose incentive structures are not affected by the other. In the real world this will often not be the case since public actions in many ways affect the space for private investments.

Of course, private firms and the government each bring distinct advantages to the provision of infrastructure. The point of the diagram is that long-term cost issues and risks need to be considered when assessing these advantages. And a key observation arising from this framework is that a long-term view of infrastructure investments may often assign a higher price to public provision than the one that is typically assessed. This is particularly the case in politically fragile political environments.

Conclusion

Both costs and time exceed initial estimates in 90 percent of infrastructure projects, according to recent studies.¹⁴ Depending on the structure of private involvement in these projects, it is

possible to dramatically decrease these overrun risks. Competitive bidding in public-private partnerships, with no option to renegotiate a finalized contract, is an example of how private entities can contribute to this decrease. When possible, governments should attempt to minimize the conflicting responsibilities of delivering infrastructure projects while simultaneously providing cost and time discipline. Those that do not avoid these conflicts are less likely to be effective than if the development of a project is contracted out to private entities.

Reaching the Sustainable Development Goals will be difficult without greater involvement by private firms and investors in infrastructure financing and provision. In scaling up private investments, a critical issue is the perception and integration of the costs of doing so. While this is a complex and context specific issue, a general framework that can assist the decision process can help to achieve it. Such a framework can assess the incentive structures of governments and private firms and grade them on different aspects of infrastructure investment. If overall risks and context are factored in, that process can provide a clearer way forward to scaling up infrastructure development in a manner that is most beneficial to each country.

The key question relates to the balance between public and private financing of infrastructure investments, and here it is also important to recognize the complementarity of the public and private sector. Targeted public investments are a necessary component in nearly all sectors, given the networked nature of

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infrastructure and the poverty, environmental, and social objectives that it serves. Those public investments need not crowd out commercial finance if designed properly, and may in fact crowd in commercial finance.

This paper merely provides ideas for a general framework to provide a holistic shift in the approach to infrastructure financing. Needless to say, further research is needed to allow for greater

accuracy in comparing the risks and incentives of government and private providers. ■

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⁷ Klein 1996.

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