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Private financing of public infrastructure

Following the example of the United Kingdom, a number of Australian governments are considering some form of 'private finance initiative' (PFI), under which private enterprises would build, own and operate physical infrastructure. Such initiatives have been widely adopted in the transport sector. Examples include the CityLink project in Melbourne and the Sydney Harbour tunnel.

The most important recent innovation has been the extension to cover areas of social infrastructure such as schools and hospitals. Although the dividing line is not always clear, the idea is that the private owner would manage the services of the school or hospital building, while the public sector would provide the medical or educational services.

Previous initiatives of this kind, including privatisation and earlier forms of private infrastructure provision (among them the first version of the PFI in the United Kingdom) have been subject to increasingly vigorous criticism. In retrospect, many of these projects have been shown to have reduced the net worth of the public sector, and to have incurred higher financing costs than would have arisen with traditional methods based on the use of bonds to finance publicly-owned assets. The superficial appeal of such projects as a way of reducing public sector debt has been shown to be an illusion generated at high social cost.

Advocates of the PFI claim that the problems with earlier initiatives have been overcome, and that newer approaches are designed to ensure cost savings to the public. In particular, it is claimed that the PFI involves a focus on the appropriate allocation of risk, something that was clearly missing in most earlier examples of privately-financed public infrastructure.

The object of this paper is to review these claims. The paper begins with a review

of the history of private infrastructure provision in the United Kingdom and Australia, along with some observations on the related issue of privatisation. The next section deals with the problem of public debt and public sector accounting. Although this issue has been downplayed in recent official discussion, the desire to achieve cosmetic reductions in reported debt still plays an important role in the political appeal of the PFI. The core of the paper deals with the appropriate allocation of risk. The final section of the paper deals with issues raised by the recent collapse of the Enron corporation, and the similarities between its financial strategy and that of the PFI.

A historical overview

Before the late 1980s most infrastructure projects were owned by the public sector and constructed by private enterprise under a system of competitive tendering with the construction firm bearing the risk associated with cost variations. This approach had always been used in major projects, and had gradually displaced the alternative of construction by public works departments.

As concern about budget deficits and public debt mounted a number of devices were employed in an attempt to reduce the debt 'burden' associated with infrastructure projects. In many cases, ownership of infrastructure has been transferred, at least nominally, to the private sector.

A particularly popular way of packaging infrastructure projects in Australia has been the Build, Own, Operate and Transfer (BOOT) system. Under this system, a private enterprise constructs the project in return for access to a stream of user charges, such as the revenue from a toll. After a period sufficient to cover the cost of construction, the user charges are abolished and the asset is handed over to the public sector. From the viewpoint of the GFS system of accounting, the government pays nothing during the period of private ownership, and receives a free asset at the end. The biggest single Australian example has been the CityLink road project in Melbourne. The construction

cost for this project has been estimated at between $1.5 billion and $2 billion, but the present value of the tolls to be paid to the construction consortium is around $4 billion.

Despite, or perhaps because of, their superficial appeal, BOOT schemes have not been viewed favorably by Australian economists. The EPAC Infrastructure Taskforce (), Harris (), the Industry Commission (), Quiggin () and Walker () reach similar negative conclusions.

First, the apparent reduction in public debt associated with projects of this kind is illusory. To provide a return to the operator, the public must either commit to a stream of payments from general revenue or alienate a revenue source such as a toll. As the EPAC Taskforce pointed out, the fiscal and macroeconomic impacts are essentially the same as if the construction of a publicly-owned asset was financed by the issue of bonds.

Second, when used to finance road construction project, BOOT schemes typically involve a misallocation of risk, since the risk in revenue flows is usually related to the planning of the transport network as a whole, rather than to the construction of a particular project. Hence, in most cases, it is preferable for the construction and maintenance of the project to be undertaken by competitive tendering with ownership passing to the network owner (normally the relevant state government) on completion of the construction phase. The gap of $2 billion between the construction cost of the CityLink project and the tolls paid to the private consortium is, in part, compensation for the real costs of risk misallocation.

Third, the set of road user charges associated with BOOT schemes is ad hoc and arbitrary, being dictated by historical accident rather than economic considerations. On average, the pricing system is perverse, raising the cost of using new, uncongested, roads, then eliminating charges later, when roads are likely to be congested.

Finally, in cases where private ownership is optimal, the commitment to transfer the asset to public ownership must reduce welfare. There may, perhaps, be assets which are optimally owned by the private sector at one point in their lives and by the public sector in another, but the likelihood that such a crossover point will coincide with the

date at which the project is ‘paid off’ is minuscule.

Another set of initiatives has involved the sale and leaseback of public assets. Early deals of this kind in the 1980s, notably some involving power stations, were often sham transactions designed to evade controls on borrowing imposed by the Loan Council. By contrast, from the 1990s onwards, sale and leaseback has become standard operating procedure for some governments.

The most egregious deals have been those undertaken by the Commonwealth Department of Finance, which is willing to sell assets, then lease them back at rates of up to 15 per cent, implying that the entire purchase price would be paid back in rent within seven years. As has been noted by the Australian National Audit Office

In effect, this approach ensures that the Commonwealth will hold no property. As the Australian National Audit Office observes ‘By applying the hurdle rate of return of 15 per cent in the Commonwealth Property Principles to the selection of properties for sale, it would be unusual for the Commonwealth to own property".

The Audit Office correctly notes that the Department of Finance has based its approach on a misapplication of the Capital Asset Pricing Model, commonly used to value private equity investments. As it has previously shown in relation to the Telstra privatisation, the Department of Finance remains ignorant of basic elements of the economic theory of finance.

In some cases, such as that of general office space in State capitals, there is a reasonable argument that flexibility is enhanced by renting rather than owning. But many of the assets in these deals have been special-purpose facilities for which the Commonwealth is the only plausible user, and the terms of the leases have been correspondingly long. Examples include Discovery House, occupied by the Australian Geological Survey Office, and the headquarters of the CSIRO in Canberra.

Apart from blind ideology, the main attraction of these deals has been the apparent reduction in debt that has been achieved. In practice, however, a commitment to pay

interest has been replaced by a commitment to pay even larger sums in rent. There has been no reduction in the risk borne by the Commonwealth. On the contrary, separation between the owner of an asset and the sole user creates new risks which must be shared between the Commonwealth and the private buyer. However the risk is divided up, the public pays.

Similar initiatives have been adopted in Victoria, where sale and leaseback deals have included police stations and adjoining court complexes. A noteworthy feature of the Victorian deals has been the (mis)use of notions of competitive neutrality to disregard adverse cost implications of the deals. As the Victorian Auditor-General observed,

> The (Finance Department) consultants concluded there was a clear advantage to the state owning these assets, given the State's cost of ownership was 6.4 per cent compared to market based rentals of around 9 per cent. However, when applying the principle of competitive neutrality used by the government in analysing the various options, the ownership advantage was negated. The Department subsequently elected to dispose of the properties as part of its overall unwinding strategy.

The difficulty here is that the crucial argument for privatisation is the claim that private sector providers enjoy an operating cost advantage, commonly estimated at 20 per cent. An approach to competitive neutrality which eliminates all cost advantages arising from ownership would lead nowhere - public and private ownership would be equally good by definition.

The real problem is to distinguish between genuine cost advantages and those that arise from costs imposed on other members of society. These may include hidden subsidies to publicly owned enterprises or the payment of lower wages by private firms. An appropriate, competitively neutral, analysis should compare the costs of public and private provision after netting out such transfers. However, this approach would not satisfy the

ideological thrust which demands privatisation in all cases. In many cases, it might well require renationalisation.

Developments in the United Kingdom followed a similar path. Having used the sale of public assets, typically at large discounts, to finance illusory surpluses during the 1980s, the Thatcher government turned to the Private Finance Initiative as a means of pursuing its principal fiscal objective, reduction of the Public Sector Borrowing Requirement. The initiative had only modest success, largely because government departments and agencies were unwilling to bear the higher costs associated with private financing.

On its election in 1997, the Blair government rejected the earlier version of the PFI, but sought to persist a new and improved version, in which ‘value for money’ would be a crucial criterion. Critical reports from the Auditor-General and from Parliamentary committees have found that this goal has not yet been achieved, in that, to date, PFI initiatives have not demonstrably achieved improved value for money.

Further doubt has been cast on the PFI by the poor performance of privatised infrastructure providers. The operator of the rail infrastructure network rail track was forced into administration in late 2001, following years of poor performance. The Labor government blamed this failure on a botched privatisation undertaken in haste by the previous Conservative administration. Early in 2002, however, the partially privatised air traffic control system ran into similar difficulties and now faces the need for a government bailout. This privatisation was undertaken by Labor, apparently against the advice of the relevant safety authorities.

In summary, advocacy of initiatives such as PFI represents, at this point, a triumph of hope over experience. Previous experiments in private ownership of public infrastructure have resulted in high costs and a misallocation of risk. The hope is that with improved contracting procedures, these problems will be overcome and genuine cost savings will be realised.

Public debt and public net worth

As has already been noted, the primary motivation of the Thatcher government's PFI was the desire to reduce the Public Sector Borrowing Requirement and, ultimately, public debt. Similar concerns have been prominent in Australian jurisdictions, most notably in Victoria.

The idea that problems with public debt can be resolved by encouraging the private sector to undertake infrastructure investment is superficially appealing. However, a more rigorous economic analysis reveals two fundamental problems with this idea.

The first is, that, in many cases, private infrastructure initiatives have been associated with a series of guaranteed government payments which have exactly the same economic and fiscal effects as the repayment of interest on a debt. In the case of the Sydney Harbour Tunnel for example, the Auditor-General concluded that the effect of the contract was that the Tunnel was actually owned by the State government rather than the nominal private owners, and that the obligatory payments to the owners were, in effect, interest on a debt. Similar points arise where a 'sale' is associated with a long-term leaseback or 'take-or-pay' arrangement.

Related issues arise in relation to macroeconomic concerns. Efforts to restrict the growth of public debt are sometimes motivated by concerns that rising interest rates will 'crowd out' private investment (the magnitude of this effect depends on the extent to which Australian interest rates move independently of world rates). However, the effects on interest rates of borrowing to finance a large infrastructure project are the same whether the project is nominally owned by the government, a private provider, or some combination of the two. In any of these cases, private investors outside the infrastructure sector will feel the same effect.

The second problem is that public debt should not, in itself, be a central policy target. The crucial variable is public sector net worth, the difference between the value of

public assets and the level of public debt. Sale of a public asset, or the replacement of public by private investment will always reduce public debt, but that does not make such a policy economically sound. An improvement of public sector net worth will only arise when assets are sold for more than their value in continued public ownership or when private investors can supply services more cost-effectively than publicly-owned assets.

The need to focus on net worth rather than on measures of gross public debt is central to the accrual accounting framework adopted by all Australian governments. Nevertheless, many politicians continue to focus on measures of debt, partly because they are more easily manipulated through asset sales. For example, the Federal Treasurer, Peter Costello, regularly cites the achievements of the current Commonwealth government in reducing debt. However, most of this reduction was achieved by selling shares in Telstra for less than their market value, thereby reducing the net worth of the public sector.

The inappropriateness of using asset sales and private infrastructure projects has been widely recognised at the official level. For example, the list of objectives for the Partnership Victoria scheme does not include the desire to reduce public debt, and the accompanying document contains no reference to the word ‘debt’. Official descriptions of the PFI scheme in the United Kingdom are similarly devoid of reference to the objectives that motivated the original scheme.

At the political level, however, the idea that PFI schemes provide a debt-free way of financing infrastructure remains strong. Opponents of particular PFI projects are regularly told that, in the absence of private financing, a desired project, such as the construction of a hospital cannot proceed.

From an economic viewpoint, the use of private financing is unlikely to yield more than a modest reduction in the cost of a project, and is therefore unlikely to result in a project passing a public benefit test it would otherwise fail. Thus, the assertion that a project can only proceed with private financing is typically based on the idea that an

arbitrary constraint on public debt can be evaded using private financing.

This is a dangerous illusion. If constraints on public debt are unjustified in a particular instance, they should be removed. If such constraints are justified, resort to 'creative' methods of financing paves the way for subsequent fiscal disaster.

Risk allocation and management

The allocation and management of risk is a crucial issue in contracting, whether between governments and private parties or within the private sector. Indeed, if risk is defined sufficiently broadly, all issues arising from contracts may be regarded as issues related to risk.

The failure of early versions of PFI to take any real account of risk was the biggest single reason for their unsatisfactory performance. This lesson has been taken to heart in more recent version, such as Partnership Victoria, which provides a 200-page manual on the subject, covering everything from construction risk to *force majeure.* The problem with such an elaborate approach is that there is a danger of missing the wood for the trees.

The basic principle of optimal risk management, identified in the Partnership Risk manual, is that risk should be allocated to the party best able to manage it. In the case where risk arises entirely from the possible actions of one party to a contract, that risk should be internalised, that is, borne by the party able to affect it.

This principle provides immediate guidance on the appropriate risk allocation for the 'standard' infrastructure project, in which it is necessary to construct a piece of infrastructure that will then form part of a network used to provide publicly-funded services. Four main components of risk may be identified. The first is risk associated with the construction phase, for example, the possibility of delays due to strikes or equipment breakdowns. The second is operational risk, for example risk associated with the cost of repairs and maintenance. The third is demand risk, associated with the quantity

and value of the services actually provided by the infrastructure asset. The fourth is ownership risk, that is, the pure risk premium associated with risky capital investment.

The basic principle of allocating risk to the party best able to bear it implies that risk associated with the construction phase of a project should be borne by the private firm engaged in construction. The allocation of demand risk depends on the nature of the market. Where goods and services are supplied to a competitive market with many buyers and sellers, demand risk should be borne by individual suppliers. By contrast, where there is only a single buyer, demand risk should be internalised by the buyer.

In the case of governments, this means that generic goods and services such as office supplies should be purchased from private providers. On the other hand, the services of a school building or hospital are specific to a particular end-use. Hence, in most cases, it will be appropriate for the government to bear the associated risk through ownership of the asset.

Operational risk must be assessed on a case-by-case basis. In some cases, the costs of repair and maintenance will depend on the quality of work done in the construction phase. Hence, it will be appropriate to contract simultaneously for construction and for maintenance. In other cases, probably more common, operational costs will be determined primarily by usage patterns. It will then be sufficient to require the constructor to guarantee that work has been done to an appropriate standard, and to contract separately for repair and maintenance, with the risks being borne by the owner.

The most controversial issues relate to the pure risk premium associated with ownership. On average, the real rate of return on riskless debt (public or high-quality corporate) has been below four per cent. An additional risk premium of six to eight percentage points has been required for equity investments with ‘average’ risk characteristics. Despite an extensive examination of the issue by the economics and finance professions, no satisfactory explanation of this risk premium has been derived. It seems clear, however, that inefficiencies and transactions costs associated with private

financing must explain part or all of this ‘equity premium’.

The problem, in these circumstances, is to evaluate the benefit to the public when risk of this kind is transferred to the private sector. Standard methods of economic analysis suggest that the benefit is very small, and that the appropriate rate of discount for public investments is close to the real bond rate.

By contrast, advocates of PFI normally begin with the ideological assumption that private markets are to be preferred to the operations of government and that the cost of risk to government must be at least as great as in the public sector. This ideological assumption is at the core of the case for PFI.

In summary, a straightforward application of the basic principle of optimal risk management suggests that, in most cases, the optimal approach to the provision of infrastructure for publicly-funded services involves a combination of private construction and public ownership. The suggestion that this approach should be abandoned in favour of a PFI approach relies on unproven and ideological assumptions of private sector superiority.

Concluding comments

The basic principle that the provision of public services should involve joint efforts by the public and private sectors is, or ought to be, self-evident in a mixed economy. The problem for advocates of PFI is that they have provided no clear argument for deviating from the established basis of co-operation. The basic principles of risk allocation imply that in most cases, the optimal approach to the provision of infrastructure for publicly-funded services involves a combination of private construction and public ownership.