

JOHN QUIGGIN

FORUM: PUBLIC-PRIVATE PARTNERSHIPS

RISK, PPPs AND THE PUBLIC SECTOR COMPARATOR

The financing and management of investment in physical and social infrastructure has posed severe problems for Australian governments. The slowdown in economic growth rates that followed the end of the long economic boom from the second world war to the 1960s caused serious difficulties for governments on both capital and current accounts in the last quarter of the twentieth century.

On the current account, governments have faced increasing demands for the provision of services such as health and education and for a variety of social welfare payments, while slow economic growth and resistance to new and higher taxes have constrained the growth of revenue.¹ As a result, governments have sought to scale back any areas of expenditure where cutbacks appear politically and economically feasible.

Pressures on the capital account have been equally severe. The deficits that accumulated during the 1970s and 1980s produced a significant increase in ratios of debt to income for many governments. At the same time, aversion to debt increased, with many Australian governments committing themselves to targets of zero net financial debt, while often expanding measures of debt to encompass unfunded superannuation liabilities that had previously been addressed on a "pay as you go" basis.

A variety of expedients has been tried in an attempt to provide new physical and social infrastructure without incurring new debt. Some of these, such as the sale and leaseback of publicly-owned assets, have been purely cosmetic. On the other hand, where assets are sold for more than their value in continued public ownership, and the proceeds are used to repay debt, a genuine reduction in public debt may be achieved.

Between these extreme points lie a range of policy initiatives designed to reduce the level of public debt by increasing the role of the private sector in the provision of infrastructure while retaining, as far as possible, the benefits previously associated with public ownership. In the early 1990s, the dominant approach

This paper argues that the "first generation" approaches to private investment in public infrastructure in the United Kingdom and Australia were inappropriate and socially costly. In most cases, the PPP approach involves an inappropriate allocation of risk between the public and private sectors, an excessive cost of capital, and an inappropriate bundling of risk through the use of a single private partner (or consortium) rather than separate contracting for separate project stages. Conditions under which a PPP approach is likely to be appropriate are considered. The main conclusion is that the PFI/PPP approach should be adopted only in special cases.

to the private provision of infrastructure in Australia was that of Build, Own, Operate and Transfer (BOOT) schemes, such as the CityLink project in Melbourne and the Sydney Harbour Tunnel. At around the same time, the Conservative government in the United Kingdom introduced the first version of the private finance initiative, (PFI) a systematic program to encourage private investment in infrastructure and other public services.

These initiatives have been subject to increasingly vigorous criticism. In retrospect, many projects have been shown to have reduced the net worth of the public sector, and misallocated risk. 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 (Harris 1996, Quiggin 1996).

Advocates of the Blair government's modified version of the PFI, and of similar initiatives in Australia, claim that the problems with earlier policies have been overcome. It is claimed that the systematic assessment frameworks now in use will 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. By contrast, critics argue that the changes, notably including the terminology of public-private partnership (PPP) represent little more than a cosmetic repackaging, and that the spurious objective of reducing public-sector debt remains dominant.

The crucial innovation in the modified PFI is the introduction of the "public sector comparator" (PSC). The idea of the PSC is to estimate the costs of delivering a given service through the public sector. Financing under the PFI is approved if and only if the cost of service delivery is less than that of the PSC. This procedure, it is claimed, ensures that PFI financing will be adopted only if it delivers "value for money".

FIRST-GENERATION APPROACHES: PRIVATISATION, SALE AND LEASEBACK, BOOTs

Of the expedients adopted in response to the fiscal crisis of the 1970s, the two that raised the most important issues in relation to public accounting were privatisation and private participation in the provision of public infrastructure. In the UK, the Thatcher government embarked on a large-scale privatisation program beginning with the sale of British Telecom in 1984. However, private involvement in the provision of public infrastructure in the UK was delayed until the 1990s by the Ryrie Rules (established in 1981) which established that private expenditure could not be additional to public expenditure and required a strict "value for money" test to ensure that the cost of private provision was lower than that of traditional financing through public debt.

In Australia, the position was the opposite of that in the UK. Hostility to privatisation within the Labor party, which was politically dominant for most of the 1980s, meant that large-scale privatisation did not commence until 1990, when the Commonwealth Bank was partially privatised. By this time, governments had experimented with a range of fiscal expedients involving private provision of infrastructure, particularly at the state level.

The archetypal examples were the sale and lease-back of the Eraring power station and the construction of the Sydney Harbour Tunnel. The Eraring transaction was a transparent attempt to evade Loan Council restrictions on aggregate public borrowing and to exploit the differential tax treatment of private corporations and state governments. The Loans Council loopholes were plugged to prevent future use of this device and, in 1992, Eraring was recognised as an asset of the publicly-owned Pacific Power Corporation. As the Audit Office of New South Wales (1994) recognised, this decision was made "on the basis of substance over form".

In the contract for the construction of the Sydney Harbour Tunnel, a more serious attempt was made to give the arrangements the form of a private investment project. In particular, toll revenue was paid to the private party, the Sydney Harbour Tunnel Consortium (SHTC), which undertook construction and bore the associated risk. However, the value of this revenue was guaranteed by the public party, the Roads and Traffic Authority, which therefore bore all the demand risk. As a result, the Audit Office of NSW (1994) concluded: "In many senses the Sydney Harbour Tunnel project was merely a more sophisticated construction-financing agreement than the model used in the Eraring Power Station project, with the same basic properties. Apart from construction risks, all the risk associated with the project remained with the Roads and Traffic Authority and the SHTC has little benefit from its continuing association with the Tunnel. Thus, the Audit Office concluded, the RTA was the effective owner of the Tunnel and its contractual obligations were debts to the SHTC."

The more elaborate structure of the Sydney Harbour Tunnel contract overcame some of the objections to the Eraring deal. However, the innovative financing arrangements, including one-sided guarantees regarding the risk of changes in taxation arrangements, created new risks, all of which were borne by the public.

The same pattern may be seen in subsequent contracts, such as those for the M4 and M5 motorways in Sydney. At each stage, there was an attempt to overcome criticism of previous deals by transferring risks to the private sector. At the same time, the increasing complexity of financial arrangements created new risks, mostly borne by the public.

In the UK, the Ryrie Rules were scrapped in 1989 and replaced in 1992 by the PFI. In its initial version, the PFI, like earlier Australian initiatives, was little

more than a device to finance public investment without breaching politically sensitive limits on the public-sector borrowing requirement (PSBR).² The resulting projects were criticised, as in Australia, because they increased the costs borne by the public sector with no corresponding transfer of risk to the private sector.

In retrospect, although they were arguably too rigid, the Ryrie Rules had considerable merit.³ The non-additionality requirement that private infrastructure investment must replace, rather than supplement, public investment reflected the point that it is inappropriate to use private financing as a device to overcome limits on aggregate public investment that have been imposed on the basis of concerns about macroeconomic policy or about the sustainability of fiscal policy. In most cases, the replacement of traditional debt financing by more innovative methods of private financing will not affect these concerns. Thus, if restrictions on aggregate public investment are justified, they should, as in the Ryrie Rules, encompass privately funded projects as well as traditional public investments. If the restrictions are not justified they should be modified or scrapped (Economic Planning Advisory Commission 1995a, 1995b).

A separate set of concerns arose in the context of privatisation and other asset sales. During the 1980s, the proceeds of asset sales were treated as current revenue or as negative expenditures. The result was that privatisation was seen as a painless way of financing public expenditure or tax cuts.

The inappropriateness of selling income-generating assets to finance current expenditure was gradually recognised. The initial response was the *ad hoc* device of publishing an "underlying" budget balance, excluding the impact of asset sales. As with the *pro forma* profits reported by many enterprises during the recent Internet boom, this device was not entirely unjustified, but gave rise to opportunities for various kinds of manipulation, such as shifting attention from one set of accounts to another depending on the political demands of the occasion.

A more systematic response was the shift to accrual accounting, which treated capital and current expenditure separately, unlike the system of cash

accounting that it replaced. The process was marked by some unfortunate excesses, such as the attempt to recast the defence forces as a business enterprise, producing defence services at a substantial profit. Nevertheless it seemed, until recently, that the transition to accrual accounting would produce, in the medium term, an improvement in the transparency and usefulness of public accounts.

Unfortunately, this prospect is now receding. Two factors are evident. First, there is the decline in the quality and informativeness of the budget papers over recent years. Although contemporaneous with the shift to accrual accounting, this decline is a more general reflection of the view that a businesslike government should not reveal commercially sensitive information to satisfy the curiosity of the general public. Second, and more significantly in the present context, there is the continued focus of senior political leaders, most notably the treasurer, Peter Costello, on the cash accounts and the associated measures of debt. This focus largely negates the supposed shift to accrual accounting.

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SECOND-
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The UK has taken a systematic approach to private involvement in infrastructure projects from the outset.⁴ Unlike the *ad hoc* developments in Australia, the first generation of projections was undertaken within the organised framework of the 1992 version of the PFI. With the election of the Blair government in 1997, the PFI, like other policies of the outgoing Conservative government, was modified, but not abandoned. Moreover, while privatisation was slowed down (and, in some cases, such as that of the railway track operator Railtrack, reversed), the PFI was greatly expanded.

The Blair government downgraded the PSBR from the role it had held under the Conservative government as the central target of fiscal policy. Instead, it adopted a "golden rule" under which current expenditure should equal current revenue over the course of the business cycle, leaving a cash deficit equal to the level of net public investment. Thus, in principle, the level of public investment, and the associated growth in debt, could be determined on the basis of the microeconomic criteria of

cost-benefit analysis, rather than on the basis of aggregate targets. However, a second component of the golden rule, the "sustainable investment rule", restricted aggregate public debt to 40% of GDP.

This change in emphasis is reflected in treasury statements about the PFI. Rather than providing a method of avoiding debt financing, the stated objective of the PFI is to achieve the most efficient possible division between the public and private sectors of responsibilities in the provision of services, thereby meeting social objectives at the lowest possible economic cost ("value for money" is the standard term). In particular, this requires an efficient allocation of risk.

As noted, the crucial innovation in the modified PFI is the introduction of the PSC as a device for ensuring value for money. The idea is to estimate the costs of delivering a given service through the public sector. The assessment process in the health sector is described in detail by Froud and Shaoul (2001) and, more critically, by Mayston (1999). Financing under the PFI is approved if and only if the cost of service delivery is less than that of the PSC. However, the converse is not true. Even if the PSC is cheaper, there is no guarantee that funding for public provision will be provided (Heald 2003).

The most extensive external survey of British performance has been that of the Institute for Public Policy Research (2002), a think-tank generally described as being Labour-oriented, and, more specifically, as supportive of the "Third Way". The Institute concludes that "the expected benefits of the PFI are mixed. Prisons and road schemes have tended to demonstrate value for money, but for schools and hospitals the results are much less impressive. The evidence looked at by ippr (*sic*) assesses the expected value for money of PFI schemes after the deals are signed, but before the projects are up and running. There is currently no evidence to suggest whether or not the PFI schemes deliver expected benefits once they are under way."

Spackman (2002, p. 283) similarly concludes: "The balance of advantage is often unclear, and at the strategic level the main drivers appear still to be ideology and accounting."

A formalised approach to PPPs has also been adopted in most Australian states. Most have been modelled on the Victorian policy document "Partnerships Victoria" (Victorian Department of Treasury and Finance 2000) and the associated guidelines (Victorian Department of Treasury and Finance 2001a, 2001b). Attention will therefore be focused on the Victorian approach, which can be taken as representative of the general approach of Australian state governments. Some cases where the approach in other states differs from that in Victoria will also be noted.

RISK ALLOCATION

The allocation of risk is the central issue in contracting. Partnerships Victoria sets out the optimality principle governing risk transfers: "The principle govern-

ing risk transfer is that risk will be allocated to whoever is best able to manage it at least cost, taking into account public interest considerations. This does not mean that all risk is transferred. If risk is transferred inappropriately, the Government will pay a premium. The ability to secure risk transfer on worthwhile terms requires the scope of the project to be drawn sufficiently widely."

The general principle of allocating risk to the party best able to bear it is sound. However, the detailed treatment of risk is less satisfactory. The presentation of a long list of risks raises the danger of "not seeing the woods for the trees". In addition, there are significant inconsistencies between the general principles and the detailed rules that have been adopted in practice. A summary of the main categories of risk follows, with an assessment of the optimal allocation of risk.

Construction

Proposals to undertake a transport infrastructure project typically include an estimate of the costs of construction. However, this estimate may be turned out to be an underestimate because of increases in wages or the costs of other inputs, or because of unforeseen technical difficulties, such as equipment breakdowns and adverse weather. The political processes surrounding the evaluation of proposed projects tend to encourage underestimation of costs (Flyvbjerg *et al* 2003). In an economic sense, failure to complete the project on time reduces the present value of the services provided by the project and therefore increases the effective cost of the construction phase. Less frequently, things may turn out better than expected, with the project being completed "on time and under budget".

Until the 1970s, it was common for Australian public infrastructure projects to be constructed by government public works and main roads departments using public-sector employees (Department of Main Roads, Queensland 2002). In general, this arrangement has proved less satisfactory than the alternative of competitive tendering.

Competitive tendering, with the successful tenderer receiving a fixed price on completion of the project, is designed to ensure that the tenderer bears most of the risk associated with the infrastructure projects, and therefore has incentives to ensure cost-efficient construction. By contrast, the incentives for individuals in a government department to minimise costs are relatively weak and diffuse. In practice, a complete transfer of risk is not possible in most cases. Since governments bear substantial costs if a project fails, or is behind time, they are subject to pressure to extend additional finance to contractors who run into difficulties. Nevertheless, in most cases, the optimal allocation of risk requires construction risk (including site risk and design risk) to be borne, as far as possible, by the enterprise undertaking construction. This is consistent with the "government preferred position" presented in Partnerships Victoria.

Operation

Operational risk encompasses risks relating to industrial relations and maintenance as well as commissioning and operating risk. After completion of the construction phase, an infrastructure asset must be maintained. In addition, the operator may provide a range of operational services using the asset. For some assets, such as roads, costs of operation and maintenance are relatively stable and predictable and are small relative to initial costs of construction. For other assets, such as airports, operations may be complex and subject to substantial risk.

Another important issue regarding risk and operational costs is the relationship between the construction and operation phases. In some cases, decisions made in the construction phase, for example regarding the quality of materials, may have a substantial effect on subsequent costs of operation and maintenance. In such cases, contractual arrangements in which the constructor is required to undertake maintenance may be optimal.

In other cases there is no such link, and the appropriate contractual relationship involves a "turnkey" contract with payment on completion of the construction phase. Recent public infrastructure projects have involved the creation of a consortium providing a combination of construction, operation and financing, with which the government enters into a contract. In the absence of inherent links between these activities, such an approach reduces the transparency of arrangements and increases the risk of adverse outcomes for the public sector.

In summary, no simple principle can be stated with respect to the optimal allocation of operational risk. Broadly speaking, where costs of operation are substantially influenced by decisions made in the construction phase, risk should be allocated to the enterprise undertaking construction through such mechanisms as guarantees. In other cases, risk should be borne by the agency or enterprise providing the relevant service, which should be separate from the construction enterprise.

This recommendation differs from the "government preferred" approach presented in Partnerships Victoria. In the "government preferred" approach, the government contracts with a single party or consortium for both construction and operation. As is argued below, this approach, which is often referred to as "bundling", will be optimal only in cases where there is a close link between special design features and subsequent operation.

Service specifications

The principle that risk should be allocated to the party best able to bear it applies to changes in service specifications. Where the services required from an infrastructure project are subject to frequent and unpredictable change, the risk must be borne by the service user, in this case, the government.

As the costs of changes in service specifications have been recognised, construction contracts have increasingly relied on a clear preliminary specification of required standards with little scope for changes in specification before completion of the project. In many cases, however, it is impossible to avoid changes in service specifications. This is clearly true in relation to core public services such as health and education, and in the medium term it also applies to less complex activities, such as ancillary services for hospitals. Because service specifications are subject to change, risk analysis implies that governments, and for that matter private corporations, should not enter into long-term contracts for the provision of complex services.

Since the optimal term for most service contracts is shorter than the life of associated capital infrastructure such as schools and hospitals, this analysis reinforces the point that the "government preferred" approach of contracting with a single party is unlikely to be appropriate in such cases. Except where service specifications are stable and preferable, contracts for the provision of services should be separate from contracts for the construction and maintenance of physical infrastructure.

Demand or market risk

Demand risk refers to the possibility of unforeseen variation in the demand for the services generated by a project. Where there are many consumers, demand risk is appropriately borne by the service provider. However, where there is a single major consumer, that consumer should bear the risk associated with changes in their demand. This situation applies to many public infrastructure projects. The analysis in Partnerships Victoria is somewhat equivocal. The general guideline (Department of Treasury and Finance Victoria 2001a, p. 75) is: "Where the private party has little or no control over the level of service demand, it is not optimal to structure the payments to include a significant usage component. However, wherever possible, there should be a volume component with some volume risk being borne by the private party."

The obvious, and correct, implication of the first sentence is that, where a department or agency is the sole or predominant user of an asset, demand risk should be borne by the public sector. This is usually the case for schools, hospitals, prisons and other special-purpose public facilities. Exceptions include infrastructure projects where services are marketed, such as the Sky Train in Brisbane and dual-purpose facilities such as the Spencer Street railway station redevelopment project in Melbourne.

However, the suggestion that volume risk should be transferred "wherever possible", tends to undermine this analysis. The preference for transfer of volume risk may reflect, in part, the fact that the allocation of volume risk is the most important single distinction between a PPP program and the contracting out of publicly provided services, which typically does not involve a transfer of asset ownership.

Regulatory risk

All businesses are subject to regulation, and must bear the risk of possible regulatory change. It is useful to distinguish between general regulations, applying equally to all firms (or at least all firms in some large class) and firm-specific regulation. Examples of general regulation include employment law and environmental regulation. Price regulation of monopoly enterprises, and oversight of PPP arrangements are examples of firm-specific regulation.

Under public ownership, regulatory risk is "internalised". That is, if a government directs a public enterprise to keep prices low or to improve services, it bears both the costs, in the form of lower earnings or higher costs, and the benefits, in the form of lower prices or improved service to users, who are also citizens. By contrast, under privatisation, regulatory risk generates substantial transfers between governments, service users and service providers. The resulting conflicts will result in the consumption of resources in litigation, lobbying and risk management strategies.

Regulatory risk may be reduced by the provision of guarantees, ensuring private service providers that rules will not be changed to their disadvantage or that compensation will be provided if rules are changed. But such guarantees reduce the capacity of governments to respond to new information, and discretionary regulation is desirable primarily where there is inadequate information to set well-specified rules in advance.

Where regulatory risk is important, the principles of optimal risk allocation require that the government undertaking regulation should, as far as possible, bear the associated risk. It follows that where complex and intrusive regulation is required, public ownership will yield a more efficient allocation of risk (King and Pitchford 1998). The more significant and complex the regulatory risk, the stronger the case for public ownership.

Many of these issues also arise in analyses of vertical integration in the private sector, such as that of Grossman and Hart (1986). The greater the information asymmetries, and the more complex the relationship between the parties, the stronger the case for vertical integration.

Network risk

The term "network risk" describes a class of risks applying to an individual asset that is part of a larger network, for example, an individual road in an urban road network. Usage of a particular road will depend, to a large extent, on decisions made with respect to other elements of the transport network. Hence, in many cases, it is inappropriate to consider the risks associated with an individual asset in isolation from the larger network.

In some cases, typically described as "interface risk", interaction with the larger network is of relatively modest importance in relation to the services of

the asset in question. In such cases, a division of risk between the owners of the asset and the owners of the network is appropriate. In other cases, however, the value of the asset is primarily determined by its interaction with the network as a whole. Where network risk takes this form, the optimal allocation of risk can only be achieved if the owner of the network also owns the asset. In particular, this conclusion applies to most urban roads. Public ownership is appropriate where the dominant risk arises from either network risk (where the main network is publicly owned), market risk (where government is the sole or main consumer of services) or regulatory risk.

Systematic and idiosyncratic demand risk

A crucial aspect of demand risk is the distinction between risk that is correlated with movements in the general economy (often referred to as systematic risk) and risk that is specific to a particular project (often referred to as idiosyncratic or unsystematic risk). Under plausible conditions, idiosyncratic risk can be pooled and diversified in such a way that no individual bears any significant risk. By contrast, because systematic risks are highly correlated, pooling and diversification has little effect other than to redistribute a given risk within the population.

The Partnerships Victoria guidelines do not address systematic risk explicitly. Rather, systematic risk is reflected in the "cost of capital" or "discount rate" applied to projects, which is typically substantially higher than the real rate of interest applicable to public debt. This approach fails to take note of the fact that the cost of private equity capital is inflated by capital market failures.

THE PUBLIC SECTOR COMPARATOR

Among the British innovations adopted in Australian PPP programs is the idea of assessing the "value for money" benefits or proposed PPP against a public sector comparator. Unfortunately, the implementation of this idea in the UK leaves a great deal to be desired. The incentives are such that the PSC is never seriously considered (Heald 2003). Australian PPP systems, such as Partnerships Victoria, have made significant improvements on the British model, at least in principle (Department of Treasury and Finance Victoria 2001b). Nevertheless, substantial problems remain.

The need for real comparisons

The UK treasury claims that the use of the PSC is designed in such a way as to ensure that there is no preference for any particular model of financing. However, the treasury position is undercut by the statements of ministers and other political actors, who make it clear that projects will proceed if and only if they can secure private funding and approval under the PFI program (Heald 2003).

The incentives generated by a policy framework under which approval of the PFI is a necessary condition for a project to proceed mean that PSCs are virtually worthless in *ex ante* analyses of value for money. Given the scope to vary results through arbitrary choices of parameters, and the fact that all parties involved in the evaluation have an interest in rejecting the PSC, the results of such comparisons are predictable. A more detailed analysis, showing that the process will lead to excessive reliance on the PFI option, is given by Heald (2003).

In these circumstances, the description, by the assistant auditor-general (Colman 2002), of the PSC as “pseudo-scientific mumbo-jumbo” seems entirely reasonable. As in other forms of magical divination, the exercise is designed to compel assent to a predetermined outcome rather than to provide an assessment of the merits of alternative choices.

The biases that undermine the usefulness of the PSC may also affect *ex post* evaluations under the PFI, particularly where they incorporate elements of the *ex ante* comparison with publicly-funded alternatives or rely on the subjective judgments of school and hospital managers. Given the short period for which most PFI projects have been operational, it is difficult to avoid some inputs of this kind. At least in the absence of serious operational problems, managers are unlikely to give negative views about value for money, given that the alternative was no new investment.

Real and spurious sources of cost difference

Many assessments of contracting arrangements have been based on claims that on average, the cost of providing public services will be reduced by 20% as a result of contracting out. This estimate is derived mainly from the work of Domberger and his co-workers (Domberger *et al* 1986, Domberger and Rimmer 1994), and has been employed by the Industry Commission and other Australian government agencies.

However, other studies have suggested that reductions in costs have arisen primarily as a result of reductions in wages and conditions, or increases in work intensity (Quiggin 1994). Cost reductions arising from such sources do not yield any net gain in social welfare, but constitute a transfer from employees to the purchaser of services. If wages and conditions are protected, and the costs of tendering and contract management are taken into account, there may be no net saving from contracting out. Arbitrary assumptions about cost savings have led to failures in contracting, notably in the case of the (now-abandoned) system of centralised contracting for IT services adopted by the commonwealth government.

In assessing the costs of private provision against a PSC, it is important to ensure that only genuine social cost savings arising from differences in productivity and efficiency are taken into account. Sources of cost difference that should be disregarded include: exemptions of state instrumentalities from taxes; the

ability of private enterprises to avoid or minimise taxes; and differences in wages and conditions.

The cost of capital

The central principle of risk on which Partnerships Victoria is based is that, as far as possible, risks should be identified explicitly and then allocated to the party best able to manage them. This principle is not applied, however, in the selection of discount rates in the evaluation of the PSC. The general statement of principle in Partnerships Victoria (Victoria Department of Treasury and Finance 2001b, p. 7) is unobjectionable: “The value of risks transferred will be estimated and included in the Public Sector Comparator, to allow for a like-with-like value for money assessment.”

However, the appropriate value for risk transferred is the cost of risk to the public sector. Evaluation processes in PPP programs have generally used the cost of risk to the private sector, which is substantially greater. This nullifies the general rule that risk should be allocated to the party best able to bear it. To understand this point, it is necessary to consider the relationship between risk and the cost of capital in more detail.

If all risks have been identified and taken into account, the appropriate procedure for the evaluation of costs and benefits is to compute the present value using a riskless discount rate such as the rate of interest on government bonds, implying a real rate of discount of 3% to 4%. By contrast, the evaluation procedure proposed in Partnerships Victoria calls for a real rate of discount of around 6%. For a long-lived project with returns that are stable in real terms, the effect of using a 6% rather than a 3% real rate of discount is to reduce the present value of benefits by about half.

The justification for the use of a higher rate of discount is that it takes account of “systematic risk”, that is, of the correlation between the returns from the project and fluctuations in the economy. There are a number of fundamental difficulties with this approach.

First, as with other risks, the appropriate method of taking systematic risk into account is by reducing the expected, or certainty-equivalent, value of benefits, not by adjusting the discount rate. Except in very special circumstances, the use of adjustments to discount rates as a correction for any form of risk is inappropriate. However, given the entrenched nature of this practice, it is unlikely to change. Second, and most important, no attempt has been made to evaluate the social cost of systematic risk. Standard principles of economic analysis suggest that this cost is quite small. The risk premium arises from the covariation between project returns and aggregate national or state income, which, expressed in proportional terms, is less than 1% for most projects. Under plausible assumptions about risk aversion, the appropriate

deduction from project benefits should also be less than 1%.

The application of a systematic risk premium to public projects is not based on an estimate of social costs, but on observations of the "equity premium" in private markets. The equity premium is the difference between the average return to equity (shares in private companies) and the rate of return to riskless debt (government bonds or top-grade corporate debt). This premium is around six percentage points, and since most projects are financed with roughly equal proportions of debt and equity, the effect is to raise the "weighted average cost of capital" by around three percentage points, as noted above.

The fact that the equity premium observed in private markets greatly exceeds plausible estimates of the social cost of systematic risk is well-known in the economic literature under the name of the "equity premium puzzle" (Mehra and Prescott 1985). Despite the development of a vast literature on this topic, no generally agreed explanation of the anomalously large equity premium has emerged.

Nevertheless, Grant and Quiggin (2003) argue that at least some of the premium is accounted for by the fact that the "efficient markets hypothesis", under which the market return to equity would exactly reflect the social cost of risk, is invalid. The efficient markets hypothesis requires, first, that all households should be able to smooth their consumption over time, if necessary by borrowing at a rate close to the riskless bond rate and second, that all income-earners should be able to insure themselves against fluctuations in their income. Neither of these conditions is met. The result is that individual and household consumption is more risky than would be expected under the efficient markets hypothesis. Individuals and households therefore demand a premium in return for holding risky equity.

By contrast, governments can smooth their income and expenditure over time by borrowing at the real bond rate to finance deficits during recessions and repaying debt out of surpluses arising in periods of boom. Moreover, the way in which risk is spread through the tax system is quite different from the insurance mechanisms available in private capital markets.

There is, therefore, no reason to suppose that the risk premium associated with private equity investments is a useful guide to the cost of systematic risk in returns to public investments (Grant and Quiggin 2003). The cost of risk for public investments is lower than for the private sector and probably equivalent to a discount rate adjustment of less than one percentage point.

BUNDLING

A notable feature of the official PPP programs in Australia and the PFI in the UK is that, with few exceptions, the only arrangements considered are those involving a single private partner. This

approach is a form of the practice of "bundling" where a set of goods and services are supplied as a single bundle rather than being available for purchase separately (Stigler 1963, Adams and Yellen 1976). There is no reason to suppose that a policy of bundling will lead to an optimal allocation of risk in most cases. In fact, in many such projects, a financial institution devotes substantial resources to constructing a consortium to provide a bid, and then "unbundles" the consortium as soon as the bid is successful.

Examples of this practice are provided by firms such as Macquarie Infrastructure Group and Transfield, which are major owners of private infrastructure assets but do not normally engage in construction. Rather, their usual procedure is to form a consortium with construction companies, which are bought out on completion of the construction phase.

The Westlink consortium, established to build the Western Orbital toll road in Sydney, is a typical example. The partners in the consortium are Macquarie Infrastructure Group and Transfield (40% each) and the construction firms Leightons and Abigroup (10%). On completion of construction, Leightons and Abigroup will transfer half of their shares to Macquarie Infrastructure Group and Transfield, who will retain pre-emptive rights over Leightons and Abigroup's remaining 10%, which cannot be sold within five years of completion (Macquarie Infrastructure Group 2003). In practice, therefore, the consortium displays the same separation between construction and ownership that would be observed with traditional public procurement.

In considering the appropriateness of bundling, two questions must be considered. First, under what circumstances do the principles of optimal risk allocation imply that a single party should bear all the risks associated with a project? Second, if the optimal allocation of risk involves a number of separate parties, does government benefit from dealing with a financial intermediary rather than contracting directly with the relevant parties?

Experience suggests that circumstances in which a single party should bear all the risks are rare. The frequency of post-contract unbundling has already been noted. Similarly, the crucial element in the shift to modernised public procurement of infrastructure was the recognition that, in most cases, the risk associated with construction costs should be borne by the construction enterprise and not by the owners or users of the project.

The bundled or fully-integrated approach is most likely to be preferable in cases where construction involves an innovative special-purpose design, leading to an integration between construction risk and operating risk. In cases where a fully integrated approach is not appropriate, it seems unlikely that governments will benefit by contracting through a financial intermediary rather than contracting directly with the private partners who will ultimately bear the relevant risk. It is unusual for private firms to contract at such

an aggregate level for the provision of core operational facilities.

The most obvious problem is a loss of transparency which is, if anything, more serious for a public service provider than for a private firm. In an unbundled approach, separate contracts are tendered for each of a wide range of activities. Each contract may be subjected to scrutiny to ensure that prices are appropriate and that the contracted services have been delivered. By contrast, in a bundled approach there is no way of checking individual components. Instead, the entire project is compared to largely hypothetical alternatives.

As the Western Australian Treasury Corporation (2001, p. 3) notes: "The Corporation has noted the current push that is being mounted by the private sector to have departments and agencies move into project financings funded by the private sector, usually at a cost premium over public funding. In such arrangements, there is a tendency to keep all components of each project packaged together rather than unbundled. However, unbundling enables the State to cost each component of a tender individually and it is then in a position to select the best priced component from each tender. This unbundling approach normally provides the most transparent means for assessing the premium paid for private sector funding compared to public funding against the risks that the private sector might assume in such arrangements."

The bundling of design, construction and operation with financing is particularly problematic. It raises the danger that design and operational decisions may be distorted by the desire to make cosmetic improvements to the financial structure associated with the project, such as the desire to achieve sufficient risk transfer to move the project off-budget. Palmer (2001) argues that, for most services that are now subject to PFI contracts, a "design, build and operate" contract will yield better outcomes than a fully-integrated "design, build, finance and operate" approach.

THE PUBLIC DEBT DEBATE

Partnerships Victoria contains no reference to public debt. Moreover, the secretaries of the Victorian and New South Wales treasuries have explicitly repudiated the idea that PPP projects represent a way of funding infrastructure without incurring debt. On the contrary, it has been stated (Little and Pierce 2002, p. 4) that "both NSW and Victoria do not regard the use of private finance or public private partnerships as a means of expanding the overall level of resources available to it to spend on government-funded social infrastructure. Even though social infrastructure may be *financed* by the private sector, the government, through payments made through the contract's life will ultimately *fund* it. These payment commitments are as real as those associated with servicing balance sheet debt and in the context of a government's fiscal strategy, need to be considered in a similar manner."

The key point, put more succinctly (Little and Pierce 2002, p. 10), is that PPPs are "not a magic pudding . . . PPPs/PFPs do not provide governments with an additional bucket-of-money for use on infrastructure projects."

By contrast, the South Australian PPP program includes an explicit statement that the government prefers arrangements that reduce public debt.

In significant respects, Victorian budgeting procedures reflect the viewpoint of the state treasury. At least formally, the set of infrastructure projects put forward in the state's investment program does not depend on the choice between public and private financing. Rather, the infrastructure investment program is determined and the possibility of private financing for particular projects is evaluated against the PSC. The project proceeds regardless of whether private financing is approved. Moreover, impacts on measures of public debt are determined as a matter of accounting after the project is approved, rather than in advance. Thus, the Victorian procedures represent a significant advance on those adopted in the UK.

Nevertheless, despite the clearly-stated treasury position and the institutional safeguards, there is significant evidence that the illusion of a "pot of gold" is still influential at the political level. For example, when introducing the Partnerships Victoria scheme, the Victorian treasurer, John Brumby, stated (Office of the Victorian Treasurer 2000): "Even with our strong financial position the State, on its own, cannot meet all of Victoria's infrastructure requirements." Similarly, in a statement relating to refinancing of debts of the Snowy Mountains Corporation, Brumby stated (Office of the Victorian Treasurer 2001): "Once the Snowy is corporatised, it can refinance this debt with other private financiers. That will free up funds for reinvestment in new infrastructure."

The only reasonable interpretation that can be put on these statements is that the use of private funds for infrastructure investment does indeed yield an additional "bucket-of-money for use on infrastructure projects". In reality, the refinancing of a debt implies the acceptance of new repayment obligations or the alienation of an income stream arising from ownership of an asset. In the absence of efficiency gains or losses, there is no change in the net worth of the public sector and no additional capacity for infrastructure investment. It may be that such statements are merely the result of misunderstanding, or an attachment to familiar rhetorical themes, and have no impact on policy outcomes. However, it seems unwise to rely on this assumption.

To the extent that governments are motivated to adopt PPP approaches by the desire to reduce, or avoid taking on, public debt, the allocation of risk becomes problematic. Under current International Accounting Standards Board (IASB) accounting arrangements, a distinction is drawn between finance leases and operating leases. A leasing arrangement where the lessee (in this case, the government) bears

the risks normally associated with ownership is classified as a finance lease. The associated obligations are classified as debts. By contrast, if the risk of ownership is borne by the lessor (in this case, the private partner) the arrangement is classified as an operating lease, and the obligations do not count as debt.

IASB proposals to treat operating leases in the same way as finance leases have encountered vigorous opposition from private enterprises, such as airlines, which have masked high levels of indebtedness through extensive use of operating leases. However, the experience of the airline industry itself, including the sudden and unexpected collapse of Ansett Airlines, gives strong support to the view that it is dangerous to disregard operating leases when assessing the balance sheet of an enterprise.

In the case of PPP approaches, the differential treatment of finance and operating leases raises the concern that pressure may arise to ensure that apparent risk transfer is sufficient to ensure that the arrangement is classified as an operating lease. The dangers of such an approach include the likelihood that an inefficient risk allocation will be adopted on purely cosmetic grounds, and the possibility that secret contractual clauses or extra-contractual understandings will be used to transfer risk back to government.

Many of the same issues arose in the UK in relation to the accounting standard FRS 5A, which applied specifically to PFI projects (Accounting Standards Board, UK, 1995). As Heald (2003) notes, FRS 5A was a response to evidence that PFI contracts were being structured to achieve the minimum risk transfer required to shift lease obligations off the balance sheet. However, it is by no means clear that manipulation of this kind has ceased to be a significant factor in contract design.

CONCLUSION

The adoption of PPP programs by Australian state governments could, somewhat uncharitably, be described as a triumph of hope over experience. The first round of BOOT programs in Australia yielded poor outcomes for the public in most cases (Harris 1996), and the British PFI program has been subject to strenuous criticism even from groups, such as the Institute for Public Policy Research, which have a generally sympathetic view of market-oriented reform.

A more favourable assessment would be that governments have learned from past mistakes and are seeking the most cost-effective means of delivering physical and social infrastructure. The principles underlying the Australian PPP programs are generally sound, and the budgetary approach within which they are implemented is designed to avoid the biases that have characterised the British program.

Both assessments have an element of truth. Although substantial progress has been made, significant problems remain. In particular, as noted above, the details of the evaluation process are not always consistent with the general principles of risk allocation

and value for money. The discussion above has indicated a number of instances where the detailed criteria are inconsistent with the general principle of optimal risk allocation.

Since rigorous application of the economic criteria for PPP programs is likely to produce an outcome where PPP financing is the exception rather than the rule, there is always a temptation to modify the details of the criteria so as to bias them in favour of the PPP approach. This temptation must be avoided if infrastructure is to be provided in as efficiently as possible.

The principle of optimal risk allocation requires the availability of a range of contracting arrangements. The single-contractor model that characterises PPP programs will be appropriate only in a minority of cases. For most infrastructure projects, standard public procurement procedures, with subsequent public ownership of the asset, will be preferable.

John Quiggin is Australian Research Council Federation Fellow at the School of Economics and School of Political Science and International Studies, University of Queensland. The author thanks Nancy Wallace and David Heald for helpful comments and criticism. This research was supported by an Australian Research Council Federation Fellowship.

NOTES

- 1 Resistance to higher taxes has been declining in recent years, and relatively good economic performance has reduced some of the pressures on government. But public policy debates are still shaped by the experience of the 1980s and 1990s.
- 2 Similar concerns have arisen subsequently in relation to the Stability and Growth Pact (Maastricht) targets, which would apply if Britain adopted the Euro (Spackman 2002, Broadbent and Laughlin 1999).
- 3 Heald (1997) gives a detailed discussion.
- 4 While a systematic program is preferable to *ad hoc* deals drawn up behind a veil of secrecy, it should be borne in mind that if the policy framework is wrong, a systematic approach will be systematically wrong.

REFERENCES

- Accounting Standards Board, UK, 1995, Financial Reporting Standard 5 *Reporting the Substance of Transactions*, London.
- Adams, W., and J. Yellen, 1976, "Commodity Bundling and the Burden of Monopoly", *Quarterly Journal of Economics* 90 (August): 475-98.
- Audit Office of NSW, 1994, "Private Participation in the Provision of Public Infrastructure: The Roads and Traffic Industry", <http://www.audit.nsw.gov.au/rta98/rta.htm>.
- Broadbent, J., and R. Laughlin, 1999, "The Private Finance Initiative: Clarification of a Future Research

- Agenda", *Financial Accountability & Management* 15, 2: 95–114.
- Colman, J., 2002, "Mumbo Jumbo . . . and Other Pitfalls: Evaluating PFI/PPP Projects", National Audit Office PFI / PPP Conference "Bringing About Beneficial Change", London, May.
- Department of Main Roads, Queensland, 2002, *From Bulldust to Beef Roads and Beyond*, Brisbane. <http://www.mainroads.qld.gov.au/MRWEB/Prod/Content.nsf/0/b9c023134a5cdae44a256a47000c6604?OpenDocument>
- Domberger, S., S. Meadowcroft and D. Thompson, 1986, "Competitive Tendering and Efficiency: The Case of Refuse Collection", *Fiscal Studies* 7, 4: 69–87.
- Domberger, S., and S. Rimmer, 1994, "Competitive Tendering and Contracting in the Public Sector: A Survey", *International Journal of the Economics of Business* 1, 3: 439–53.
- Economic Planning Advisory Commission (EPAC), 1995, "Interim Report of the Private Infrastructure Task Force", AGPS, Canberra.
- Economic Planning Advisory Commission (EPAC), 1995, "Final Report of the Private Infrastructure Task Force", AGPS, Canberra.
- Flyvbjerg, B., N. Bruzelius and W. Rothengatter, 2003, *Megaprojects and Risk: An Anatomy of Ambition*, Cambridge University Press, Cambridge.
- Froud, J., and J. Shaoul, 2001, "Appraising and Evaluating PFI for NHS Hospitals", *Financial Accountability & Management* 17, 3: 247–70.
- Grant, S., and J. Quiggin, 2003, "Public Investment and the Risk Premium for Equity", *Economica* 70, 277: 1–18.
- Grossman, S., and O. Hart, 1986, "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration", *Journal of Political Economy* 94, 4: 691–719.
- Harris, A.C., 1996, "Financing Infrastructure: Private Profits from Public Losses", Audit Office of NSW, paper presented at Public Accounts Committee, Parliament of NSW, Conference, "Public/Private Infrastructure Financing: Still Feasible?", Sydney, September.
- Heald, D., 1997, "Privately Financed Capital in Public Services", *Manchester School* 65, 5: 568–98.
- Heald, D., 2003, "Value for Money Tests and Accounting Treatment in PFI Schemes", *Accounting, Auditing & Accountability Journal* 16, 3: 342–71.
- Industry Commission (1996), "Competitive Tendering and Contracting by Public Sector Agencies", AGPS, Canberra.
- Institute for Public Policy Research (2002), "ippr Calls for Review of PFI", press release, 9 December 2002, <http://www.ippr.org.uk/press/index.php?release=184¤t=2002>.
- King, S., and R. Pitchford, 1998, "Privatisation in Australia: Understanding the Incentives in Public and Private Firms", *Australian Economic Review* 31, 4: 313–28.
- Little, I., and J. Pierce, 2002, "Address to the Australian Council for Infrastructure Development", Sydney (5 April) and Melbourne (12 April).
- Macquarie Infrastructure Group, 2003, "Macquarie Infrastructure Group Concession Awarded for Western Sydney Orbital", press release, 17 February 2003, <http://www.macquarie.com.au/au/mig/news/20030217.htm>.
- Mayston, D., 1999, "The Private Finance Initiative in the NHS: An Unhealthy Development in New Public Management?", *Financial Accountability and Management* 15, 3/4, 249–74.
- Mehra, R., and E. Prescott, 1985, "The Equity Premium: A Puzzle", *Journal of Monetary Economics* 15, 2: 145–61.
- Office of the Victorian Treasurer, 2001, "A Joint Release Between Victoria and NSW: Snowy Debt Can and Will Fund New Infrastructure", press release, Wednesday 24 October 2001, http://www.dpc.vic.gov.au/domino/Web_Notes/MediaRelArc02.nsf/d025c300601da9dc4a25688e00143d49/ddb3cba327b2c5444a256af0007cb38c?OpenDocument
- Palmer, K., 2001, "Contract Issues and Financing in PPP/PFI (Do We Need the 'F' in 'DBFO' Projects?)", contribution to the IPPR Commission, London.
- Quiggin, J., 1994, "The Fiscal Gains from Contracting Out: Transfers or Efficiency Improvements?", *Australian Economic Review*, third quarter: 97–102.
- Quiggin, J., 1996, "Private Sector Involvement in Infrastructure Projects", *Australian Economic Review*, first quarter: 51–64.
- Spackman, M., 2002, "Public-Private Partnerships: Lessons from the British Approach", *Economic Systems* 26, 3: 283–301.
- Stigler, G., 1963, "United States v. Loew's, Inc.: A Note on Block Booking", *Supreme Court Review*: 152–57.
- Victoria, Department of Treasury and Finance (2000), "Partnerships Victoria", Victorian Government, Melbourne.
- Victoria, Department of Treasury and Finance (2001a), "Partnerships Victoria Guidance Material: Risk Allocation and Contractual Issues", Victorian Government, Melbourne.
- Victoria, Department of Treasury and Finance (2001b), "Partnerships Victoria Guidance Material: Public Sector Comparator — Technical Note", Victorian Government, Melbourne.
- Western Australian Treasury Corporation, 2001, annual report, Perth.