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4. CHOOSING THE PUBLIC/PRIVATE MIX IN DELIVERY

KEY POINTS

There is wide acceptance that private sector needs to be involved in competitive tendering and bidding at various stages of an infrastructure project (design, construction, management and operation). The key area of disagreement is the extent of private sector involvement in ownership risks.

Private sector ownership of infrastructure makes good sense if all or most of the following conditions prevail:

- reasonable competition prevails in both the bidding process and the final product market
- the risks are predominantly "commercial" in character (i.e. of the kind that commercial businesses normally take into account)
- the private capital market for infrastructure is reasonably mature and efficient
- the wider economic and social concerns can be effectively accommodated within a private sector framework and/or
- there are severe fiscal constraints which would delay the efficient implementation of the infrastructure program under government ownership

If many of these conditions do not exist (as in the case of urban road projects) the appropriate public/private mix can only be decided judgmentally on a case by case basis, weighing the costs against the benefits.

If the project meets the five conditions except that the risks are not wholly commercial, the optimal mix is often a risk-sharing arrangement, e.g.:

- a predominantly private sector owned project through a boot-type contractual arrangement but with contingency guarantees by the government
- alternatively the project can be broken up, with the core network remaining in public hands and the other parts privatized

FOR DISCUSSION

- IN WHAT AREAS (E.G. POWER) ARE THE CONDITIONS GENERALLY RIGHT FOR PRIVATE SECTOR OWNERSHIP OF NEW INFRASTRUCTURE ASSETS? IN WHAT AREAS (E.G. URBAN ROADS) ARE THE CONDITIONS UNFAVOURABLE FOR PRIVATE SECTOR OWNERSHIP?
- IF SOME RISK SHARING ARRANGEMENT IS DESIRABLE, WHAT FORM SHOULD THIS IDEALLY TAKE?

In the last decade there has been a much more receptive policy attitude to private sector involvement in new infrastructure assets.

This more positive attitude reflects:

- *technological advances*; these have made exclusion of non-paying users more practicable (e.g. for roads and tollways), reduced the incidence of natural monopolies and lessened the advantages of large scale economies (e.g. in electricity generation);
- *innovative financing techniques*, which are making it feasible for the private sector to provide long term funds and not rely solely heavily on bank finance;
- *globalization and deregulation of capital markets*, which have greatly increased the availability of risk capital; and

- *the perceived success of contracting out* and of many *privatization ventures*, both overseas and in Australia.

As a result, the private sector is playing an increasing role in financing new infrastructure. In Queensland in 1997/8, for example, only about 55% of engineering construction work on infrastructure, such as roads, bridges, railways, harbours, water storage and supply, sewerage and draining and electricity generation, was attributed by the ABS to the public sector. Some 45% was by the private sector (source: ABS catalogue 8762.0).

The brief for this study requires us to "discuss the various delivery mechanism for provision of infrastructure, including by the private sector". This could be interpreted very broadly to encompass discussion of:

(a) the appropriate extent of contracting out to the private sector at all stages of infrastructure development, from design and construction to financing and operation;

(b) the appropriate allocation of ownership risk between the public and private sector; and

(c) the various ways in which the private sector can participate.

However we understand that advice is not being sought on (a). Under the new National Competition Policy, there will be an increasing trend towards competitive tendering and contracting (CTC) in the future. It can be expected therefore that there will be opportunities for the private sector to tender competitively for construction, operation and maintenance of new infrastructure, within the policy frameworks of individual state jurisdictions.

It must be acknowledged that the CTC process (and indeed the whole issue of national competition policy) is not devoid of controversy. In recent years concerns have been raised about the loss of some accountability to consumers (e.g. Richard Mulgan 1996). There are also understandable fears that CTC may generate undesirable regional employment effects or that supply may prove unreliable at critical times. Further as John Quiggin has frequently pointed out (1996, chapter 13), cost savings are sometimes achieved through the imposition of worse working conditions and by requiring more effort from workers: when that happens, the cost savings will over-estimate the net efficiency or social welfare gains.

Such concerns are understandable and need to be taken into account by governments in their approach to CTC. But the concerns are not a necessary or intrinsic outcome of a CTC process. This process does not per se prevent governments from addressing transitional and distribution problems, so long as it is done by other means than restricting competition.

Assuming undesirable social and employment effects are addressed separately, CTC can contribute positively to community well-being. It can lead to significant improvements in accountability (by forcing public servants to define what they want, write it down and measure performance) as well as in quality and cost-effectiveness, with benefits for clients, taxpayers, and the broader community. This is now widely accepted (see IC 1996, Harris 1996, Argy 1996).

So we do not propose to discuss CTC issues here. Rather our concern will be with the second and third topics noted above - the allocation of infrastructure financing risk between the public and private sectors and the various ways in which the private sector can participate.

In discussing the allocation of risk between the public and private sectors, it will be assumed that the choice governments face is between:

- allocating to a corporatized government-owned entity the full ownership (equity) risk while allowing that entity to make full use of CTC as appropriate; or
- assigning the ownership risk to a privately owned entity.

The optimal allocation of ownership risk depends on relative efficiency, the extent to which the public interest can be safeguarded under private ownership, the severity of the fiscal constraint and which party can better manage the risks.

We now discuss each of these in turn (4.1. to 4.4) and this is followed by a review of the various vehicles for private sector participation (4.5 and 4.6) and conclusions (4.7).

4.1 Relative technical or productive efficiency of private and public sector managers

Technical or productive efficiency is about producing a given output value with a minimum input of productive factors. Achieving maximum productive efficiency is a necessary condition for maximizing social welfare [although not a sufficient condition by itself]. Productive efficiency is determined by organisational, managerial and labour practices and, underlying all of these, by the managerial incentive structure in place.

The majority view among economists is that the main force driving productive efficiency is competition rather than ownership per se. It is arguable that simply opening up public utilities to private sector equity participation will act as a catalyst for new competition and more rational pricing policies. Leaving this point aside (as it begs a few questions), if competition is vigorous both in the tendering process and in the product/service market, there is no need for public ownership on efficiency grounds, and indeed the advantage lies with the private sector. The main reasons why private sector managers will generally perform better - in productive efficiency terms - than public sector managers under conditions of vigorous competition (and where the main motivation is maximization of the surplus) are summed up below.

- There is nothing in the public sector comparable to the on-going scrutiny of share markets. In the public sector the equity holders are diffuse and heterogeneous and have multiple goals. In the private sector the equity holders are smaller, more focused and homogeneous and almost wholly profit-oriented. Although the link between share market performance and managerial rewards is often tenuous, the potential retribution of share markets concentrates the mind of managers wonderfully. The threat of takeover can also have a strong disciplinary effect and this is unique to the private sector.
- Private sector incentives and accountability controls will offer managers more "freedom" than public sector controls and incentives. Reduced managerial discretion and flexibility may entail an efficiency loss.
- The scope for performance-related managerial remuneration is greater in the private sector. For example, profit-sharing, share purchase options and arrangements linking rewards to improvements in asset values have no clear counterpart in the public sector. Without such incentives, "public managers have less incentive to undertake personal activities and investments that will increase net asset value" (King/Pitchford 1998: 318).
- Private sector participation is more likely to flush out, evaluate and where necessary diversify the various risks associated with a project. According to the OECD (Occasional Paper no. 6 1994) this leads to better investment evaluation. It does so "by forcing a clear identification of what is economically justified and what is not", providing "a clearer trade-off between political and economic justifications" and exposing more fully "the costs and benefits of projects and who pays and who benefits".
- The alternative to private sector ownership viz corporatization (where the Government requires a public firm to operate like a private firm) does not always work well. Public managers will have the incentive to inflate current profits at the expense of long-term viability e.g. through inadequate maintenance, and to manipulate the increases in asset values it reports. Performance measures which can overcome these problems are hard to devise (King/Pitchford). Further, corporatization often involves the application of "one size fits all" management theory without understanding the peculiarities of individual institutions and this does not necessarily produce good management (Economist 19/10/96).

- Integrating design, construction, operation and ownership under full private sector ownership offers "synergy" benefits (such as less disputation between builder, operator and ownership and closer examination of capital/maintenance costs) which are not available if the owner is Government and the other functions are fully contracted out, although this claim has been questioned by many writers.

In short, where competition can be reasonably assured and the main driving force of managers is profit maximization, there are a priori reasons why privatization will tend to produce higher levels of productive efficiency. Moreover this is backed by empirical evidence. "An impressive range of evidence indicates that as long as privatisation occurs in a competitive market, it usually produces lower prices and improved services for customers" (DFAT 1998).

But even if the same productive efficiency outcomes are possible under private or public ownership it is arguable that the scarce time of hard pressed Ministers and senior public servants can be better spent on other things more vital to the national interest.

Once we drop the assumptions that (a) competitive conditions prevail, both in the bidding process and in the product/service market and (b) profit-maximizing is the principal objective of the enterprise, the choice between public and private sector ownership, in terms of productive efficiency, becomes more difficult. In such circumstances, the enterprise delivering the service will need to be heavily regulated, whether it is private or government-owned. In such a case, the productive efficiency of the enterprise will be constrained by restrictions on managerial discretion, and it will not necessarily perform better than a government-owned entity.

The extent and intrusiveness of regulation will have a critical bearing on the choice. One lesson from the UK experience (Fraser 1996) is that it is often important to control (through regulation) not only prices but also quality of service provided - otherwise quality gets abused. Another lesson from the UK is that the adoption of price caps does not prevent excessive profiteering unless the price reviews are frequent, in which case it becomes another form of rate of return regulation.

The level of regulation required is even more intense where the industry is or threatens to become vertically integrated as it is necessary to ensure adequate access and to protect consumers from excessive market power.

In such a situation, the incentives and accountability arrangements are essentially those which are familiar to public sector managers. Private managers would have to behave just like public managers to do an equivalent job. There are doubts that they can. Heavily regulated private managers with a range of public interest constraints on them will "engage in a variety of inefficient conduct" to get around the regulations and will probably not perform as well as public mangers (King/Pitchford 1998: 323).

Another problem with public sector utilities where there is inadequate competition and where public interest sensitivities arise is poor accountability to consumers. The World Bank report (1994)) thought this could be overcome under public ownership by giving users and other stakeholders a strong voice and real responsibility in such cases. The National Consumer Council of the UK saw a need to "budget separately for consumer satisfaction" by setting service standard targets and compulsorily requiring a payment into a fund which would be returned to the service provider if they met the targets. It is not clear that these sorts of remedies are as readily available under private ownership.

It is sometimes argued that the private sector will be more effective in reducing the power of trade unions and this will give managers greater flexibility and help keep wage demands under better control. We do not attach much weight to such arguments. The point about increased flexibility is much less true nowadays given the new flexible enterprise bargaining system. And any gains to the user of the service or to shareholders which simply involve a transfer of incomes from workers do not represent a genuine social gain.

In short, the "efficiency" case for fully privatizing a new infrastructure entity is not strong where competition is severely limited, where non-profit objectives dominate over profit objectives and where

high levels of regulation are required. On the other hand the case is strong where there is effective competition and essentially profit objectives can be pursued (which does not preclude a government involvement through CSO's and subsidies).

4.2 Public interest concerns

The IAQ paper warned that full privatization of a new infrastructure asset may not be desirable if:

- the externalities and CSO's are so complex or so contingent on future developments that they cannot be efficiently accommodated through contracting with private firms or through regulation; or
- there are significant risks of supply discontinuity of an essential service or of health hazards.

The IAQ paper tended to play down many of these problems. It argued for example that providing subsidies direct to eligible consumers is not only feasible but also more cost-effective (less distorting and more conducive to managerial efficiency), more equitable and more transparent than to provide the same concessions through cross-subsidisation It also argued that when supply or service quality problems arise they often reflect a lack of clarity about objectives or excessive complexity in the contracts or lack of effective sanctions and weak mechanisms for enforcement. Such problems can be in theory be avoided.

However, drawing on the Victorian experience, the IAQ paper warned that where there was any doubt at all about supply continuity of an essential service, "it may well be that the optimal solution is an arrangement with the private sector to design, build, maintain and or operate, with ownership and funding remaining with the public sector" (74).

Since completion of the IAQ paper, we have seen increased community concern about maintenance standards and supply reliability of many essential services such as gas, power, water and also the ability of our public emergency services (ambulance, fire fighting etc) and correction services to respond to emergencies.

The concerns about quality and continuity are related to the earlier issue of competition. If competition exists they are less of a hazard. If however there are elements of natural monopoly, public interest concerns could compound the efficiency concerns noted earlier. A comprehensive review by King/Pitchford (1998) cautions against privatisation of prisons, ambulance services and the disposal of highly toxic waste unless quality can be effectively controlled. These are natural monopolies and - unless they can be very tightly controlled - there will be an incentive for the private sector to reduce quality in order to maximize profit. A loss of quality can entail great social harm in such cases (319).

Moreover, as argued earlier in this section, where there are substantial CSO's and externalities and/or these require very complex contracts to be negotiated to ensure adequate means of redress, public sector incentive and accountability arrangements will probably be appropriate, so the efficiency gains will be much reduced.

As to any undesirable distributional effects of private sector involvement in new infrastructure (with full cost pricing), these can often be efficiently and effectively offset through concessions to target users. However if this is not practicable the social concerns have to be borne in mind. Where additions to an existing network are involved, the problem is one of horizontal inequity, e.g. users in one location paying for a service which is provided free in other locations, and this is somewhat intractable.

All this does not alter the basic conclusion reached in the IAQ paper that most public interest concerns can be accommodated under private ownership - except to inject a greater element of caution about privatizing where there is a strong element of uncertainty about the ability to reliably deliver good essential services and to meet community obligations.

4.3 The budget/public debt constraint and delays in infrastructure provision

In choosing between public or private financing of infrastructure, concerns are often raised about

what public ownership will do to public debt levels. The IAQ paper (Argy 1996) argued that such concerns are greatly exaggerated.

The Queensland Commission of Audit also warned of the risks of governments embracing private sector participation with the wrong motivation. "Some governments have seen private sector participation as a means of circumventing financing constraints or as a means of using cash accounting deficiencies to dress up budget positions. The risks in these situations is that the potential benefits of private sector participation are squandered in concessions aimed at meeting the underlying motivation" (65).

Similar arguments have been put by others. For example, the Productivity Commission (1997) has made an assessment of urban road BOOT schemes . It notes that concerns over debt levels have limited the ability of state governments to fund major infrastructure projects. It says: "States ability to borrow remains bound by perceptions that public borrowing is less desirable than private sector borrowing - despite private or public sector debt having similar economic effects". The PC paper questions the use of revenue for this purpose: "borrowing is justified for infrastructure projects because they are generally long-lived assets, and it is appropriate that future generations meet some of the cost."

The guiding principle in deciding the public/private mix should be what best promotes public sector net worth and community well-being - not a crude desire to simply reduce public debt. If the public sector can enhance community net worth more than the private sector (e.g. because it is better able to manage the risk and deal with externalities and social concerns) then the former should be involved in financing, irrespective of what it does to public debt (subject to the prudent limits indicated in chapter 2). If the private sector is clearly more efficient in managing the risk and the operation, then it should provide the equity.

Nevertheless the reality is that governments will always feel more inhibited in borrowing than the private sector and concerns about tax levels will limit the scope for drawing on revenue to finance capital spending. This presents a further argument to justify private financing - that enabling the private sector to participate in the equity risk would allow governments to bring forward a valuable infrastructure program (i.e. make the facilities available earlier than would otherwise be possible).

Whatever one's views about the logical sustainability of the assumptions which underly it, this argument carries a lot of force in practical political and public financing terms. It means that with the aid of private equity financing, infrastructure projects can proceed quickly and as single projects and governments can concentrate their limited capital resources on other projects. It must be an important consideration in deciding the appropriate mix of public and private equity.

This view is questioned by the Queensland Treasury Corporation. In its Annual Report (1998) it treats the argument that external funding will accelerate project delivery as a "fallacy". It says: "In Queensland, Treasury is not motivated by superficial attractions of shifting expenditures from a capital budget to a recurrent budget, reducing reported debt level, or moving transactions of balance sheets, especially in circumstances where the effect of the arrangement on a net present value basis is to increase the overall cost of the transaction in Government" (1998, Appendix D).

We accept of course that no government these days would be foolish enough to transfer ownership to the private sector if (i) at the same time government guarantees are given which have the same characteristics as debt i.e. the transfer of risk is a phony one (ii) the only aim is to window-dress the cash flow budget accounting figures and (iii) the effect on net worth would be negative under accrual accounting. That is not at issue. The point we are making is that concerns about tax and debt levels may induce a government to make a genuine transfer of ownership risk to the private sector even when the private sector is less able to manage some of that ownership risk. (The issue of risk is discussed in 4.4 below). It might do so despite the higher capital cost if it allowed an important project to get off the ground more quickly and if it felt that the benefits from accelerating delivery of the service exceeded the extra capital costs.

If a Government had flexible access to revenue or borrowed capital such a situation would not arise.

But, rightly or wrongly, this is not the way most governments see it. The fiscal constraint - even in Queensland - is a real one.

4.4 Relative capacity to manage risk

It is time to discuss the relative cost of capital as it has an important bearing on the optimal involvement of the private sector in ownership. The issue largely boils down to relative capacity to manage and diversify risk.

This is extensively discussed in an IAQ paper (Argy 1996). In that paper it is argued that the higher credit rating of governments and hence their lower borrowing rates are irrelevant to the choice between public and private ownership and that subject to three conditions the cost of capital should be assumed to be the same for both the public and private sectors. These three conditions are:

(i) that the risks associated with the specific project (variance in returns) are mainly "commercial" rather than policy-related in character (the distinction is explained further below);

(ii) that the private capital market is reasonably efficient; and

(iii) that private sector financing transaction costs (being on a smaller scale) are not overwhelmingly large relative to those usually incurred by the public sector.

The IAQ paper then argued that these three conditions do hold for many new infrastructure projects. In such cases, provided the rewards match the risk, private ownership should not entail any extra capital cost (and indeed if the private sector is more efficient at managing the capital the capital cost would be lower).

The first of these conditions is difficult to define precisely and is subject to subjective judgment. Basically "commercial" risks are those which are well understood by all those who run a business and which commercial businesses are well equipped to bear. Such risks include those arising from defects in design, construction or service quality; cost over-runs and industrial disputation; insurable force majeure events; technological change and shifts in market tastes; movements in interest rates and exchange rates; and general changes in laws and taxes. Many of these risks are of course "external" to (outside the control of) the enterprise - in the sense that they cannot be completely insured against through hedging or diversification. But they pose the kind of uncertainty most businesses are expected to and have a capacity to carry and is within the normal experience of private managers.

The problem arises if in addition to these risks there are project-specific risks which are of policy or political character (such as the risk of governments changing conditions relating to land use or rights of way, network policy, licencing approvals, or project-specific taxes and regulations). If these policy/political risks loom large then it cannot be said that the risks of the project are predominantly commercial in character. The IAQ paper noted that in some cases, such as a new urban tolled road which is added to an existing network, the policy or regulatory risks dominate over the commercial risk because of the big potential impact of shifts in transport policy (future road developments) on traffic or market projections. In such cases the private sector would have to build in high risk premiums in estimating revenue if it had to assume the policy risk. The Government would be better able to manage and diversify such risk and so would require a lower premium.

As to condition (ii) - that private capital markets are reasonably efficient - the IAQ paper argued that this was broadly approximated in practice. There are two kinds of capital market deficiencies - those specific to infrastructure and more general ones. While the infrastructure financing market was imperfect in the late 1980's and early 1990's, it has since matured greatly with improvements in the level of competition, risk assessment techniques and financing/hedging instruments. And while private capital markets do not always behave efficiently, over the long term they do a good job of assessing risk.

The debate about capital market efficiency rages on. Some economists such as Professor John Quiggin are questioning the claim that in the long term private capital markets are efficient. They argue that an excessively high premium is demanded on private equity returns relative to government

debt, so that moving from government debt financing to equity financing involves a net economic cost. Since the IAQ paper, John Quiggin has further refined his argument (Grant/Quiggin1998).

Some economists also see evidence of market inefficiency in the apparent tendency for people and fund managers to invest too much in their home country even after allowing for transaction costs. That is, the beta factor (the risk premium on a diversified portfolio), which underlies the capital asset pricing model used in the private sector to evaluate investments, is not reflected in actual share prices and yields of individual investments (Economist 25/2/95 and 16/11/96).

Also since the IAQ paper was completed in 1996, international financial markets have shown erratic and often irrational behaviour, casting further doubt on the capital market efficiency thesis. The enormous variation in risk premiums required by investors in emerging markets before and after both the Mexico and Asian crises suggest a large dose of market irrationality, which may partly help to explain the equity premium riddle of Quiggin.

We accept that private capital markets have serious deficiencies but these relate more to systemic short term instability than efficiency in assessing relative risks over the long term. In any case, the political market for capital is itself far from perfect. As to Quiggin's complex 'equity premium' argument, which so far no one has been able to totally refute, it still invites skepticism among economists (see King/Pitchford 1998: 316).

If one accepts that private capital markets are generally efficient at pricing risk and that relative transaction costs are not of great quantitative significance, then the decision on risk sharing must depend on the relative strength of the public and private sector in managing infrastructure risk. If the private sector is less able to manage the particular mix of risks involved in a project e.g. because it involves considerable policy uncertainties, then it will assign too high a price to these risks (demand too high a return or too short a pay-back period). If the mix of risks is predominantly of the kind found in most commercial operations then the private sector will price it correctly and that price - and not the government borrowing rate - should also be assumed to apply to the cost of government capital invested in that project.

Relative ability to bear and manage risk can only be determined case by case and requires an elaborate risk assessment by line agencies as part of strategic planning. Some "best practice" assessment processes are discussed in Lindfield(i) (1998 pp. 67ff and appendix C) and Lindfield(ii) (1998 section 9.2) and the revised NSW Treasury Guidelines (1997).

4.5 Risk allocation options

If a judgment is made that the public sector is better able to bear the ownership risks of a particular project and that this outweighs any efficiency differences or any gains from accelerated project delivery, it does not necessarily follow that the project should be 100 per cent government owned. It may be possible to achieve the optimal risk allocation (one which allocates risk to those in best positions to manage these risks) while still retaining the other benefits of private ownership.

One way is for the Government to offer contractual contingency guarantees against project-specific policy risk, with provision for compensation in the event of breach, but otherwise let the private sector bear the full ownership risks. The second way is for the Government to take an appropriate equity stake in the project in partnership with the private sector. A third way is to break up the project. A fourth way is to go for a mixed leasing/ownership arrangement of the BOOT kind discussed below.

The first option has some drawbacks as it can reduce the flexibility of future network policy e.g. in the case of M2 and M3 in Sydney, the authorities may be deterred from future "optimal" modifications to the public transport network where these adversely affect the owners because it would involve payment of compensation (or at least high legal costs in proving no damage). Another danger is that, unless great care is taken, the rewards paid to the private sector will not match the risks (as the early NSW experience showed).

Nevertheless contractual guarantees on the part of government may make sense if (a) the guarantees do not extend to compensating private investors if they misjudge demand or over-invest; (b) they do

not create a serious risk of distorting future network policy and (c) the risks match the rewards. As to the danger of rewards not matching risks, it can be assumed that the capital market is now more mature in assessing risk and that officials learn from experience (Argy 1998, Lindfield 1998 chap. 9).

The second option (equity participation by government) has some appeal but does not remove the capital cost problem completely as the private shareholders will still demand a big risk premium in the absence of government guarantees. It raises difficult issues of how returns should match risks. Furthermore such partnerships are constrained by provisions of the Income Tax Assessment Act - specifically section 16D and Division 51 AD.

The third option - breaking up the project - could be the best as it could allow governments to take on the risk where appropriate and leave the more commercial risks to the private sector. It would be possible for example to assign the natural monopoly element such as the core network to the public sector and use private sector ownership in areas where competitive supply is feasible and risks are commercial in character. However this option may not always be feasible.

As to BOOT-type schemes they may still leave too much of the commercial risk with the Government, depending on the contract terms. We look further at such schemes in section 4.6.

In short, when deciding on the best method of allocating risk, each case must be looked at individually. Few cases will be clear-cut. Most risk sharing arrangements have good and bad features in varying degrees. They are seldom black and white.

4.6 Financial mechanisms for private sector involvement

There is a range of financing mechanisms available for private sector participation - each involving greater risk carriage by the private sector. The three most notable ones are:

BOOT - build, own, operate, transfer

BOO - build, own, operate

BTO - build, transfer, operate

Under all three schemes, the private sector designs, constructs and operates new facilities, providing services either to public authorities or direct to the final user, and leases the underlying assets for a limited period.

BOOT schemes differ from BOO schemes in that at the end of the period (often over 15 years) ownership of the facility reverts to the Government, whereas under BOO the private sector owns and operates the facility indefinitely.

BOO schemes involve the highest risk for the private sector and are indeed very similar to full privatisation. The main difference is that under BOO schemes the Government makes the infrastructure investment decision and imposes certain conditions under a contractual arrangement with the private sector, whereas under full privatisation the Government is removed from the detailed planning of projects and private firms are free to initiate investments at will (subject only to the overall regulatory and tax environment).

BTO schemes involve least risk for the private sector because it only builds the facility and on completion transfers it to the public sector, which is then leased back to the private sector to operate. They are in effect indistinguishable from public ownership with contracting out except that the contracting out is in bundled form.

BOOT schemes are in the middle in that some of the revenue risk is borne by the Government, depending on the nature of the contract. If a high proportion of the revenue risk is borne by government the BOOT scheme becomes closer to a BOO scheme in practice. This was the case with the infamous Sydney Harbour Tunnel Project (Harris 1996)

So it is possible to envisage a taxonomy with different levels of private sector involvement ranging from

- zero involvement under old, traditional public ownership arrangements;
- corporatized public entities with full freedom to contract out to the private sector; to
- BTO schemes;
- BOOT schemes;
- BOO schemes; to
- full private ownership

The choice between these various financing options depends on the appropriate risk allocation (which we discussed above). Beyond that it is a complex issue beyond the scope of this study to deal with adequately. Various reports and studies have indicated the issues involved. For example, EPAC (1995) points out that BOO schemes will be more efficient than BOOT schemes unless the period of the concession is at least as long as the economic life of the project, or there is a transfer of assets to the public sector at full economic value. It argues as follows:

"In considering the merits of BOOT schemes relative to the alternative of BOO, much depends on the length of the concession period. If this period is shorter than the economic life of the project, BOOT projects can introduce financing inefficiencies. This is because BOOT projects are typically transferred to the government at zero cost. Hence with short concession periods, private financiers will need to front-load charges to users to recover the costs of their investment over the short concession time.

Even if the period of the BOOT concession is set equal to the economic life of the project, the eventual transfer of the assets to the government can provide limited incentive to the private sector to undertake maintenance of these assets towards the end of the concession period.

By contrast, under BOO schemes where the private sector retains ownership, it has an in-built incentive to continue to manage assets in the most efficient manner"(pp. 83 ff).

The DFAT paper (1998) warns that in electricity, water and gas supply many of leasing arrangements (especially those that sell the bulk to power authorities under take-or-pay contracts) have certain disadvantages. For example, they enable a government utility to enhance supply but "postpone reform of major internal managerial and operational inefficiencies" (55). The paper therefore advocates privatisation in the long term once competitive conditions can be established.

It contends that the best practice approach to introducing competition and private participation into the electricity sector is effectively to go the way Victoria has gone i.e.:

- unbundle the monopoly high tensile transmission network from generation and distribution;
- operate the generation and distribution/retailing competitively;
- if you privatize the transmission network do so within a tight regulatory framework, controlling rates of return, prices or gross revenue; and
- establish an independent regulator that controls the wholesale electricity market, prevents cross-ownership of generation, transmission and distribution/retailing assets and ensures access to the monopoly transmission and distribution networks.

But this is a judgmental conclusion and opinions may differ markedly on it e.g. see opposing view on electricity privatisation in Australia Institute report on ACTEW - the ACT Electricity and Water corporation (1998).

Michael Lindfield, who is part of the consultancy group, has dealt extensively with the various forms of private sector participation in infrastructure provision and the experience so far with these various techniques (Lindfield (i) 1998, pages 48-61 and appendices B and E). The paper by Lindfield is available on request. As well, these issues are fully discussed in DFAT (1998: chapters 2, 4,5) and EPAC (1996:79-88).

4.7 Best practice policies

The DFAT report (1998) sets out a few best practice principles. These include:

- unbundle infrastructure assets, separating competitive from non-competitive elements;
- contract out or sell unbundled services to competitive suppliers;
- prevent cross ownership of unbundled assets;
- where the scope for competition in the market is limited, lease public assets to the private sector and create competition for the market through mechanisms such as fixed term concessions, franchises and BOOT-type schemes;
- remove artificial constraints to access and ensure competitive suppliers have unrestricted access to residual monopoly network assets;
- create an independent regulator where monopoly elements remain;
- ensure government and private firms compete on an equal footing; and
- organizational restructuring, corporatisation and unbundling should precede full private sector participation.

We would add that:

- a corporatised government entity should ideally be given full freedom to bid competitively for new infrastructure investments in its industry - something the Victorian Government has not always done (Argy 1997);
- rewards should always match risks - something the NSW Government did not ensure in the early days of private participation;
- where monopoly elements remain (because it is hard to create additional competition) and the service is one which is vital to the community, it is better to err on the side of public ownership even if it appears that regulation and contractual arrangements can effectively curb monopoly power; and
- public debt constraints should be interpreted more flexibly than in the past, as indicated in chapter 2.

Conclusions

It has been argued that the private sector is better placed to assume the ownership risk of a project (even where it involves some cso's and externalities) provided:

(i) a truly competitive bidding process can be assured and the market for the infrastructure services is (or can be made) reasonably competitive, so that concerns about monopoly power, accountability, supply reliability etc. do not arise;

(ii) the ownership risks are largely "commercial" in character (even though the project may not be commercially viable);

(iii) wider economic, environmental and social concerns can be effectively accommodated through means such as regulation, tight contractual arrangements, direct payments to target groups etc.; and

(iv) there are stringent fiscal constraints on government which inhibit the optimal deployment of public funding.

If these conditions exist, the private sector should be able to deliver better results because:

(i) it is likely to be technically more efficient;

(ii) it should be able to manage the risks more effectively;

(iii) the public interest is fully safeguarded; and

(iv) the project can be implemented earlier.

However these four pre-conditions do not always exist so there is a large "grey area" where the appropriate public/private mix can only be decided judgmentally on a case by case basis. Take urban roads. Not only is the risk of a kind better borne by governments but the efficiency benefits of private sector financing of urban roads are thin and may even be negative because of the possibly distorting effect of tolls on usage of other roads in the networks, the high costs of collecting the toll and the risks of pre-empting future government decisions on the network (John B. Cox, AFR 25/12/95). The only strong argument for private ownership of urban roads (through BOOT or whatever) is the cumulative welfare gain from early delivery of an important roadwork. If the fiscal constraint is severe enough, accelerated delivery could prove a decisive consideration. This is unlikely to be the case in Queensland, where the fiscal constraint exists but is not overwhelming.

This chapter has also reviewed the various vehicles for private sector participation and noted that the choice depends a lot on the appropriate sharing of risks, how the leasing arrangements blend with the economic life of the infrastructure, what effects the vehicle has on the incentive to reform etc. We have also pointed to some best practice principles in this area.

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