

## AN ECONOMIC ANALYSIS AND AS- SESSMENT OF PUBLIC-PRIVATE PART- NERSHIPS (PPPs)

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IN RECENT YEARS GOVERNMENTS in countries like the UK, Germany, the USA, Australia and Argentina have implemented public-private partnerships, or so-called PPPs (Bennett and Krebs 1991; Molnar 1994; Myers 1997, Harding 1997). In South Africa implementation of PPPs is also being contemplated and being undertaken (Department of Finance 1996).<sup>2</sup> However, in many countries PPPs were implemented by governments who did not properly understand the nature of PPPs. A lack of understanding can lead to the failure of individual PPPs and a tarnished reputation for the PPP concept. Fallacies on the nature of PPPs still abound. Many times these fallacies are rooted in ideological biases, other times in ignorance.

This paper evaluates the general economic case for public-private partnerships. The focus is on the necessary

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<sup>2</sup> Other sources on the implementation of PPPs in SA include: Brynard and van Rooyen 1995; Nxumalo 1999; Hlope 1999; Michael 1997; Fine 1999; Headbush 1999; Department of Constitutional Development 1998; Arkwright and de Beer 1998; Labuschagne 1998; Gobodo and PriceWaterhouse Coopers 1999; Heymans and Schur 1999.

conditions for a successful application of the PPP concept. This requires a clear concept of what a PPP entails as distinct from similar institutional arrangements. We consider whether the economic characteristics of the kinds of goods and services typically provided by government affect the conditions for successful conversion to a PPP – or may point to necessary attributes of the contractual and institutional framework of a successful PPP.

A second main concern is the implications of PPPs for the budget (mainly at a national level) and for the analysis and implementation of fiscal policy. These issues are addressed in Fourie and Burger (forthcoming).

## 1. THE DEFINITION OF A PPP

Some confusion surrounds the definition of PPPs. At times it is confused with privatisation and at other times with subsidisation. The spectrum of different forms of a relationship between government and the private sector can be illustrated as follows (Corry 1997):

- (i) *Public* provision and *public* payment.
- (ii) *Private* provision and *public* payment, *e.g.* contracting.
- (iii) *Private* provision (including finance), *public* contract, *e.g.* a private finance initiative (PFI) deal.
- (iv) *Private* provision (including finance), *public* regulation, *e.g.* privatisation.
- (v) *Private* provision, *private* payment.

Given such a broad spectrum, for policy purposes PPPs should be clearly defined. It will also be shown below that the essential elements of a true PPP point to essential *conditions* for its success. It is not just a semantic matter.

To Mitchell-Weaver and Manning (1991) PPPs are a set of institutional relations between government, the private

sector and in some instances also civil society. Kolzow (1994) defines a PPP as an arrangement where both the public and the private sector *share* a commitment to pursue common goals that are determined *jointly* by the two sectors. A PPP is a *true partnership* where several parties combine in action to achieve a particular objective - they *share* an objective although their roles may differ. Therefore, if government is contracting out services, it does not necessarily constitute a partnership, because the objectives of the different parties may differ. Government may, furthermore, not really play any role after the initial phase of contracting out. Similarly, if one sector merely finances the activities of another it does not constitute a PPP. A second key ingredient of a true PPP is that risk must be transferred to the private operator. It will be shown below that risk transfer is the driver of efficient service delivery.

*To summarise:* A PPP is an institutional and contractual partnership arrangement between government and a private sector operator to deliver a good or service to the public, with as distinctive elements (a) a true partnership relationship and (b) a sufficient amount of risk transfer to the private operator.

## 2. THE ECONOMIC RATIONALE FOR PPPs: AN ASSESSMENT

A multitude of economic and social objectives tend to be mentioned when people discuss the benefits of PPPs, the most important of which is improved efficiency and effectiveness. In considering the economic rationale for PPPs, the challenge is to distinguish between false and valid arguments in favour of, or against, PPPs.

*(a) Ideological Pitfalls and Conceptual Complexities*

False arguments may flow from, for example, ideological biases or confusion regarding what constitutes a true PPP. The validity of arguments may be conditional upon circumstances, *i.e.* the probability of the success of a PPP may depend on the particular case and circumstances. In general it is important to develop a set of conditions, guidelines and criteria for the economic rationale for PPPs to be valid, and for a potential PPP to be successful and sustainable. This is likely to depend on the kind of product or service, amongst other things.

The debate on PPPs is inescapably linked to the broader debate on the role of government in the economy and in society. Therefore, it is likely to be influenced (or dominated) by prior ideological positions favouring a larger or a smaller role for the public sector. Especially in South Africa, where our often convoluted social-political history has been burdened by a rather unsophisticated contra-positioning of ‘capitalism *versus* socialism’, one should be extremely wary of ideological biases.

The approach taken here is to steer clear of ideological distortions, chiefly by being wary of any ‘argument’ that merely constitutes a rationalisation of a prior ideological position. Actually, PPPs provide an excellent means to break out of a simplistic market-versus-state mould, since it forces one to accept and implement a somewhat messy *partnership* between state and private sector.

By definition a PPP is a pragmatic approach. A case for or against PPPs cannot be settled once and for all by some ‘grand argument’, nor can it be settled by contentions (or implicit assumptions) that more or less government (or market) necessarily is better. The evaluation of PPPs will have to deal with the full economic complexity of the is-

sue, liberated from ideological shackles, also including institutional and practical considerations.

Part of the complexity of PPPs derives from the fact that these institutional arrangements blur the distinction (or border) between government and private sector. Standard concepts and measures of, for example, the public sector and government budget deficits are obscured, requiring rather clear-headed analysis. A spectrum of complex, composite relationships have to be considered and implemented to be successful.

#### *(b) Efficiency and Effectiveness*

Many of the arguments on the benefits of PPPs are variations on one theme: that PPPs will increase efficiency in the use of resources to deliver services. Apparently it is generally *assumed* that production ‘in the market’ by profit-maximising private sector institutions acting under competitive pressures is more likely to be efficient, whereas government production of goods and services is assumed to be less efficient (see below). Three kinds of efficiency usually are distinguished: allocative efficiency, technical efficiency, and X-inefficiency.

Formally the argument on the relative efficiency of government and markets is mostly based on neo-classical theoretical models of competitive markets, and also certain models of bureaucratic behaviour. However, the assumption about private sector efficiency noted above is not necessarily valid in all or most cases of private sector activity, and its validity depends decisively on the actual product and the context within which the production will occur. This is a key issue in assessing PPPs and will be discussed extensively below.

Effectiveness, as against efficiency, concerns the ex-

tent to which goals are attained. In the government context, for example, this relates to the extent to which social goals of public expenditure are attained (*e.g.* literacy or health), be it through efficient or less efficient processes.

Both efficiency and effectiveness are important in the delivery of government and public services and in increasing social welfare. Efficiency in its widest sense also implies that consumer preferences are served optimally, and effectiveness implies that social goals are maximally served. However, not in all cases can both efficiency and effectiveness be maximised simultaneously. Their interrelationship can be complex, and trade-offs may have to be considered.

The argument that profit-maximising private firms in a market environment will be efficient, is based on two core ideas. First, that the pursuit of profits and the promise of personal financial gain for owners and managers create powerful *incentives* to push the production and marketing processes to their most efficient and cost-minimising limits via good management and, secondly, that in a market environment the pressure of *competition* from existing competitors as well as potential entrants into the market, acts as a powerful disciplining force on firms to be efficient in order to survive.

Consumer freedom of choice between competing products, and consumer sensitivity for price and quality differentials, are essential elements of competitive discipline. This presupposes the presence of multiple sellers of the product or service. Under certain market conditions the forces of competition may be much weaker – the problems of monopoly, oligopoly and dominance.

Another key element in achieving efficiency is the presence of *risk*, and of risk-taking by private entrepreneurs, the reward for which is the profits earned by the

private firm (owners and managers). Only because the continued health and survival of the firm is at risk due to seller competition and consumer freedom of choice, are managers sufficiently 'incentivised' to deliver maximum efficiency. *Risk, coupled with the promise of reward, is the key to efficiency.*

(c) *Public Sector or Government Inefficiency?*

The crux of the credible argument has to do with the nature of incentives in government and a more general argument about bureaucratic behaviour.<sup>3</sup> This flows from the likelihood that government officials may be motivated not (only) by their duties towards government, but also by their own aspirations (*e.g.* to maximise power and status) and value systems. The bureaucratic behaviour may cause a misallocation of resources and an oversupply of public goods (*e.g.* behaviour described by Niskanen), principal-agent problems, and X-inefficiency (*e.g.* due to overstaffing) (Brown and Jackson 1990:199-207).

Thus, there are reasons to believe that inefficiency in government delivery is likely. Of course the potential for inefficiency might be overstated, and bureaucrats who do have a sense of public duty provide a countervailing power (Brown and Jackson 1990: 202). However, one should be aware of these potential problems.

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<sup>3</sup> Much of the argument that government is inefficient, appears to derive from a fairly unsophisticated projection of the 'efficiency of the market' argument to the non-private, non-market arena of government. Such an argument, in its crudest form, amounts to saying: '(Only) markets are efficient. Government is non-market. Thus government must be inefficient.' This reveals a biased disposition which is not a satisfactory basis for economic policy making. As noted initially, the issue cannot be settled by some 'grand argument' on governments and markets.

Problems of bureaucratic behaviour can also appear in private corporations, especially large corporate environments which are not all that different to the government environment. In this sense there are many bureaucrats in the private sector. Many of the same incentive problems exist and lead to inefficiency.

To argue that delivery by the private sector necessarily will occur without inefficiencies is an unwarranted and ideologically biased position. In selecting a private sector partner for a PPP, one should be equally aware of the potential for perverse bureaucratic-type behaviour in a private firm (causing, for instance, principal-agent problems, since efficiency and incentive problems easily occur in contractual delivery relationships).

Evidence on the efficiency differences between government and private sector are very difficult to establish empirically. In most cases the output produced by government is neither easily quantifiable nor easily sold in markets. Therefore it is difficult to determine whether government departments produce their output at minimum cost.

In South Africa only rudimentary and indirect evidence exists. For example, Stuart and Woodroffe (in Abedian and Biggs 1998: 492-3) refer to a recent provincial audit report on provincial government management practices, which note various problems and inefficiencies in public management.

However, one should be very mindful of crude generalisations in this regard. Not all cases of government provision are inefficient, and not all cases of private sector provision are efficient. It is not in the interest of the public to base a PPP policy and PPP implementation process on unsubstantiated generalisations (which often simply are expressions of ideology).



In addition, the *effectiveness* of service delivery in the particular case must also be brought into consideration. In short, each case and potential conversion to a PPP must be investigated comprehensively and evaluated on merit using appropriate criteria.

*(d) PPPs and Efficiency Gains?*

The general efficiency argument seems to have been carried over more or less unmodified to the prevailing assessment of PPPs, given that PPPs imply a greater involvement of private sector skills and incentives in the production of public services.

Various forms of the argument are encountered. In the literature and actual policy discussion, various benefits are claimed to flow from the introduction of PPPs (*e.g.* Corry 1997). These include, first, efficiency gains from using the private sector: more flexibility, better management and better ‘incentivised’ behaviour, better delivery of services for the same price, as well as more focus on output/outcomes, giving the private sector partner discretion and room for identifying and instituting optimal, cost-effective ways to deliver those services. There can also be benefits from integrating the efficient design, building and operation of an asset, *e.g.* assets are designed and built to ensure cost-efficient running and maintenance.

Additional benefits can flow from more innovative and full-capacity use of assets, or from better project identification to ensure long-run viability. Proponents also claim better value for money, leading to better and more services for the same prices, or savings which can be used for other services or investment. All this may contribute to higher economic growth due to the more efficient allocation and better use and management of resources. Politi-

cal-economic benefits are said to flow from a reduction of incentives for inefficient decisions within the public sector, of short-term interference by politicians (especially in the electoral cycle) and of power abuse by vested political interests. In an altogether different line of argument PPPs are also considered to be powerful development instruments.

It is important to stress the two conditions for the validity of the ‘markets are more efficient’ theoretical argument: the existence of *discipline* in the form of competitive markets (risk) and the presence of sufficient performance *incentives*. Both of these may not be present in sufficient intensity in situations where a PPP is being considered in lieu of an apparently inefficient present system of government delivery of a good or service. Often this relates to the reasons government became the provider of the good or service in the first place. Again, this may be decisively linked to the nature of the good or service being delivered (see the analysis of public goods below).

For a PPP to be successful, an important question will be the extent to which the case meets the efficiency conditions noted above, or to which the conditions can be simulated or proxied by contractual arrangements. This cannot be stressed enough.

*(e) PPPs and the dangers of Reduced Government Involvement*

On the other hand, several socio-political dangers may flow from a reduced government involvement coupled with an increased private sector role.

These include, first, loss of day-to-day democratic control and accountability, as well as the ability of government to be flexible and to respond quickly to new situations and public needs - the rigidity of PPP contractual delivery arrangements may inhibit flexibility and agility (Corry

1997:24). Another issue is the danger of short-termism by profit-seeking private enterprises or power abuse by powerful and perhaps monopolistic or dominant private interests. Private companies may only take part in PPP initiatives as a public relations ‘social responsibility’ exercise, to curry political favour, or to get a jump start on other competitors in the particular market (cf. Crowe 1998).

An additional danger is that the market will not reveal the true demands in many of the areas covered by public services (market failures which cannot be addressed by using PPPs). Insufficient provision of traditional public services such as basic health, education, welfare, and so forth, may occur as could inequitable and discriminatory access to basic needs and services due to selective delivery by profit-oriented private enterprises. Especially the poor may suffer in this regard (see Crowe 1998).

These dangers increase the attractiveness of partnership arrangements that are structured specifically to have the promise of a bit of the best of both worlds.

*(f) Which Service or Product Delivery can(not) be Achieved via PPPs?*

Any consideration of PPPs must not lose sight of the main reasons why government gets involved in the provision of certain services in the first place. In practice these include reasons deriving from the intrinsic nature of the State, *i.e.* constituting a public legal order, providing law and order, defence, and so forth, as well as public views on what should be provided on a non-profit and non-exclusive basis in a democratic society, *e.g.* basic health care and basic education. In addition there are reasons relating to so-called public goods, or due to externalities or market failure of some kind (*e.g.* the market – consumers – will not

reveal the true demands in many of the areas currently covered by public services). Health and education again are typical examples.

Other cases occur in an economic development context, where a historical lack of private initiative or sufficient private capital prevented sufficient private investment in key infrastructural areas (a railroad) or key basic industrial projects (a steel industry). In a broader development context, markets (private producers) may fail to deliver (sufficient quantities of) even essential goods or services simply due to a lack of sufficient income amongst major sections of the population to register a meaningful demand in the market (*i.e.* poverty). Public and political views on fairness and equity with regard to access to income, goods and services, and/or affordability of basic goods and services, can also be decisive.

A key question is: In which conditions, or for which of these goods or services, are (various forms of) PPPs appropriate or not appropriate? This requires more detailed analysis, which involves the formal definition of so-called public goods and externalities, and dimensions such as rivalry in consumption and excludability. In the analysis below these issues are handled within the context of risk transfer, considering only those aspects that are relevant for this particular purpose, rather than the complete theory of public goods.

### 3. RISK TRANSFER IN PPPS

The aim of this section is to establish how important risk transfer is in a PPP agreement. It analyses the relationship between risk, efficiency and effective services delivery. Section 4 identifies impediments to a smoothly functioning relationship between risk, efficiency and effective delivery.

(a) *Defining Risk, Uncertainty and Ignorance*

The attainment of efficiency depends on the presence of specific supply and demand conditions. When a private operator bids for a project, it is on the basis of expected (future) conditions. The definition of risk differs depending on the amount of information about the future available. The classes of risk are:

(i) *Certainty* - A case of full information on the future, so that an entrepreneurial decision would not be subject to any risk. However, full information is a limiting case which does not appear in reality.

(ii) *Risk proper* - A case where the range of possible outcomes and their objective (*i.e.* statistically determined) probabilities are known. This means that the future is, to a degree, susceptible to statistical measurement in terms of probabilities. If a statistical or probability distribution can be determined in practice, it could form the basis for entrepreneurial decisions with a 'statistically justified' degree of confidence (albeit still with risk).

*Formally risk is defined as the measurable probability that a particular actual outcome will deviate from the expected (or most likely) outcome.* Its measurement involves the calculation of standard deviations, which necessitates sufficient data on the past behaviour of relevant variables. This data requirement makes such 'statistically founded' decision-making less applicable to project analysis, including PPPs. Being more venturing in nature, the absence of sufficient past experience and data is typical.

(iii) *Uncertainty or immeasurable risk* - A case where objective (statistical) probabilities cannot be calculated but a range of possible outcomes are foreseeable. Usually an entrepreneur will be able to state expected, worst case and best case scenarios. Based on prior experience the entre-

preneur may personally ascribe subjective, non-statistical probabilities to each scenario, and decide accordingly. Such an entrepreneurial decision depends on less information and more enlightened guesswork ('guesstimates') than in the case where there is statistical foundation (risk proper). Most of the risks pertaining to PPPs fall within this category.

(iv) *Ignorance* - A situation where nobody has any idea about either the probabilities of different outcomes or the possible outcomes themselves. Since this case is even worse than gambling (where probabilities can be calculated), most private investors will shy away from projects with this level of risk. Some categories of potential PPPs fall in this category.

Several *types of risk* can be distinguished in an assessment of risk in a particular case. Demand risk derive from consumer preferences and tastes, substitute products, import competition, income patterns, demographic changes, *etc.* Supply risks relate to the ability to deliver, e.g. input and labour availability, input and labour costs, technical and production process risks, and so forth. Financial market risk derive from the cost of capital, interest rates, exchange rates, inflation rates, *etc.* Lastly, legal and political risks relate to the legal framework, dispute resolution, regulatory framework, government policy, taxation, expropriation, nationalisation, *etc.*

#### *(b) The Interaction between Risk and Efficiency*

There is a close relationship between risk and efficiency because risk is the driver of efficiency. The drive for efficiency stems from the fear and risk that actual and expected profit will not coincide. Risk transfer is absent in a case where there is no possibility that the profit of the pri-

vate operator will deviate from what he expected. This occurs, for example, in contracts where the sales or rate of return is guaranteed by government, or where the private operator is paid by government on a cost-plus basis. In such a case managerial efficiency cannot affect the profit level; it also means that the demand for the product is guaranteed. There will be little incentive to be efficient.

It is the possibility of a deviation of actual from expected profit that usually spurs an operator to work hard to estimate demand carefully, monitor product quality, minimise costs of production and sales, and ensure managerial (X-) efficiency. This attempt will ensure that he operates efficiently.<sup>4</sup>

All types of risk are important in this respect, and the manner and extent of risk transfer have to be stipulated in any PPP contract. However, demand risk typically is very important in ensuring efficiency gains. Hence careful attention must be given to mechanisms and contractual agreements that ensure demand risk transfer.

The transfer of risk to a private operator does not come free of charge. Normally private sector borrowers have to pay a higher interest rate than government because private borrowers cannot levy taxes or print money to repay loans. For the financier this implies a higher risk than in the case of a loan to government. A higher interest rate, due to a risk premium, is likely.

The higher interest rate paid by private providers is an added cost of PPP provision. As a result, the price of these goods to government will, *ceteris paribus*, be higher than had government borrowed the money to provide the service itself. From a government point of view this higher price

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<sup>4</sup> Under 'perfectly' competitive conditions this means that the operator must pursue maximum profits and set production levels at the profit maximising level.

may be warranted, since government will not be carrying the risk of the venture.

However, from an overall efficiency and social welfare perspective, the extra cost must be compensated for by sufficient efficiency and effectiveness gains. Before switching service delivery to a PPP, government must be satisfied that the efficiency gains will exceed the higher interest cost. If not, service delivery will be more expensive than direct government provision. (In practice it may be quite difficult to estimate the efficiency gains for determining this trade-off.)

#### 4. IMPEDIMENTS TO ATTAINING EFFICIENCY IN PRACTICE

There are several impediments to realising a beneficial relationship between risk, efficiency and effective delivery. These include difficulties in estimating the demand for some types of products, a lack of competition, the social importance of a product, insufficient equity in the capital structure of the private operator and some institutional aspects.

##### *(a) Type of Product, Risk and Efficiency*

The goods and services that government can potentially deliver can be classified on a spectrum ranging from pure public goods to pure private goods. The classification depends on the degree of rivalry and excludability of goods.

A pure public good is a non-rival and non-excludable good. Because of these qualities, the demand for public goods suffers from the free-rider problem.<sup>5</sup> Since their full

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<sup>5</sup> Intermediate cases can also be distinguished, *e.g.* (a) non-rival goods where exclusion is possible, albeit perhaps with some difficulty



demand is not revealed by consumers, a private operator cannot estimate demand, expected sales, profits, or viability. Private provision does not occur. Such ‘market failure’ is one of the main reasons why governments become involved in the provision (and financing) of public or semi-public goods.

What does this feature of public goods imply for the applicability of service delivery through a PPP? First, where service provision of a *pure* public good has to take place through a PPP the private operator will not be able to estimate the expected sum of individual demands because of the free-rider problem. Thus he will also not be able to determine how much to deliver, nor will he be able to determine the profit-maximising level of service delivery. Therefore, the risk involved will fall in the category of *ignorance*, since the private operator cannot foresee the likely profit outcome of the project, let alone the probabilities of each outcome. If society needs/wants this product, government will have to determine the social demand for the good and impart that to the private operator. This comprises the determination, in a PPP contract, of both a desired quantity level and a willingness to pay. The private operator will now have certainty about the demand. Demand risk as one of the main drivers of efficiency is eliminated.

Secondly, if *other* risks transferred to the private operator are *not* substantial enough to be drivers of efficiency,

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or cost, or (b) an intrinsically non-rival (and non-excludable) good where large numbers of users can lead to congestion, which implies a degree of rivalry in consumption sets in after some point. Goods with externalities can also be classified on the public-to-private goods spectrum because there is a degree of non-excludability with regard to the benefit/harm deriving from consumption of the product or service. The degree of non-excludability amounts to a free-rider problem, which, in turn, causes an insufficient supply of the good.

the potential efficiency gains will not be large. Then there is little sense in delivering the good through a PPP. Lastly, if the higher interest rate cost associated with private provision is added to the equation, it is even more likely that delivery through government would be more efficient.

In intermediate cases demand may be revealed to some extent; depending on which government will have to be less or more involved (*via* partial subsidies or some form of commitment) to ensure that demand is revealed. This implies a significant reduction – but not total absence – of demand risk as a driver of efficiency.

The same argument applies, although to a lesser extent, to goods producing positive externalities (or reduce negative externalities). The level of provision will be sub-optimal from a social viewpoint. To get output to the socially desirable level, government will have to subsidise part of the production and delivery of these goods. Health and education are generally regarded as typical examples of products that need subsidisation to secure the necessary levels of provision.

An example where government had to reduce demand risk is the case of British private operators who were unwilling to take on a PPP contract if they were supposed to charge a toll to consumers (Meacher 1995). The private operators did not know the extent to which road users would use the toll-road if faced by the full cost of a toll. Government had to guarantee the payment of a shadow toll, eliminating the direct cost to consumers and thus ensuring usage of the road.

Such arrangements mean a reasonably assured demand for the product and, therefore, the significant reduction of demand risk as an efficiency driver of the PPP. As with pure public goods the question is whether the other risks transferred to the private operator are sufficient.

The following cases can be distinguished in terms of the degree of ‘publicness’ and the implication for risk transfer, especially on the demand side:

(i) If the good is rival and easily excludable (e.g. seats on a public bus), a situation with significant demand-side risk, such as any private good sold in the market, can exist. Delivery through PPP can take place.

(ii) If the good is non-rival but congestion is likely (*i.e.* only partially rival) and the good is easily excludable (*e.g.* inter-city highway) the free-rider problem may not be large, since possible congestion and exclusion are incentives to consumers to reveal their demand before congestion sets in. Sufficient transfer of demand-side risk can be attained. Delivery can take place through PPPs (*e.g.* an inter-city toll road).<sup>6</sup>

(iii) If the good is non-rival but congestion is likely (*i.e.* only partially rival), while exclusion is difficult or impossible (*e.g.* municipal roads), demand-side risk transfer will be impossible, because no private operator would be interested. The free rider problem is large.

(iv) If the good is fully non-rival (congestion is not likely), but exclusion is difficult (*e.g.* a dam wall that prevents flooding), the free-rider problem is significant because consumers have no incentive to reveal their demand. Private provision will only be possible if government will pay for, or subsidise, delivery, *i.e.* only limited (or no) demand risk transfer will be attainable. Other risks will have to be present to achieve more efficiency.<sup>7</sup>

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<sup>6</sup> Congestion may be an indication of under-supply which may justify either a price increase or an expansion of capacity or both.

<sup>7</sup> A recent example of the absence of both demand and supply risks is the provision of AZT to pregnant women with HIV to prevent HIV to spread to unborn children. Because of poverty there is an insufficient demand for AZT, while the potential for cost cuts on the

To summarise: The more public a good is in the sense defined above - *i.e.* the less excludable and the more non-rival a good is - the more difficult it becomes to deliver it through a PPP in an efficient way (due to unavoidable insufficient risk transfer).<sup>8</sup>

*(b) Risk Transfer and the Importance of Competition*

Another key element in sufficient risk transfer to a private operator is the presence of competition or potential competition. Competition, in the form of alternative suppliers (demand risk), is crucial for ensuring discipline and efficiency. Efficiency gains are unlikely when production and provision shifts from a government monopoly to a private sector monopoly or tight oligopoly. Should a PPP agreement place a private operator in a position of monopoly or near-monopoly there is a significant loss of incentive to be efficient - unless some way (or proxy) can be found to cre-

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supply side is also limited. Thus, the lack of potential efficiency gains limits the rationale to provide the good through a PPP.

<sup>8</sup> All goods possess some form of externality. The provision of water is a case in point. The payment for the use of water can be limited to the immediate user and most of the benefits of the use of water accrue to the immediate users. So water can be classified as an almost pure private good. However, the absence of water has many negative externalities ranging from poor health and unhygienic conditions to increased production costs for factories. The same argument can be made for basic foodstuffs. The point is that government has to be quite clear on which PPP cases a subsidy would be justified. Since all goods possess some or another externality, private operators will in many cases be able to indicate the need for subsidisation. If government does not draw a clear line it will open itself up to extensive lobbying and rent-seeking from private operators. In the cases where government bows to the efforts of lobby groups and rent-seekers, the result will be an insufficient transfer of risk and a resultant absence of efficiency gains.

ate or simulate competitive discipline.

Depending on the intrinsic cause of the monopoly position, various forms of discipline may be available. Consider the following cases:

(i) The longer the term of a PPP contract the less the disciplining role of potential competition over the course of the contract. To ensure discipline and competition, the contract can be opened to competitive bidding every, for instance, five years.

(ii) The larger the contract, the larger the capital requirements in terms of equity and debt. This may pose significant entry barriers to potential competitors. Government may, therefore, have to consider to, where possible, break up the project in several smaller projects, each of which can be outsourced to a different private operator.

(iii) If there are just a small group of possible providers, it may happen that the same small group of companies tender for project after project. In effect the group ‘captures’ partnerships in a particular area of service delivery, thereby barring new entrants. Technology and scale economies may be major reasons for such a situation occurring. Government will be forced to institute a regulatory framework (see below).

To summarise: Risk transfer is the driver of efficiency and effectiveness, but competition and contestability (or proxies) ensures effective risk transfer. It is a key ingredient of a successful PPP. If competition or potential entry is absent, efficiency gains will be difficult – unless one can simulate a competitive environment and the required degree of discipline.

*(c) Managing the PPP Contract: Simulating Competitive Discipline*

It is not uncommon to find the typical PPP with a single private supplier and few if any competitors. In addition, in many cases a long-term contract is the only way to find a reliable private sector partner for a PPP. As a result, the *absence* of (actual or potential) competition and discipline very often typifies a PPP. This also means that there is ineffective risk transfer, since the single supplier retains the contract irrespective of his performance level. The whole purpose of the PPP is defeated.

The PPP contract must then simulate competitive discipline in the context of a regulatory framework. Such a framework would include elements such as price caps, rate of return caps, rate structure norms, cost norms, output targets, standards of delivery (quality standards), delivery schedules and penalties. This is similar to the regulation of a public utility. The regulatory framework of a PPP is open to the same problems encountered in regulation. These include (Greer 1980: 503) difficulties in designing satisfactory incentive systems to reward efficient operation and penalise poor delivery, the presence of incentives for perverse behaviour, and problems in measuring efficiency and effectiveness of delivery in practice.

In addition, the regulatory process tends to get ensnared in ever deeper difficulties, leading to an ever increasing number of more complex regulations (the 'tar baby' effect). This also decreases flexibility, a presumed benefit of private sector provision. Furthermore, high information and analytical capacity requirements are encountered. If a lack of management capacity in government is a prime argument for a PPP initiative, as is the case in South Africa, this poses severe problems. In addition, more regu-

lators (bureaucrats in the regulating government agency) are required.<sup>9</sup>

Most of these problems are manifestations of two fundamental problems in regulation: (a) the principal-agent problem and (b) the problem of regulatory capture.

The *principal-agent problem* arises when one individual, the principal, contracts an agent that performs tasks on his behalf, but cannot ensure that the agent performs them exactly in the way intended by the principal. The efforts of the agent are expensive or impossible to monitor and the incentives of the agent differ from those of the principal (absence of ‘commonality of purpose’).

The difficulty is to design an incentive system (contract) that motivates the agent to act in the principal’s interests, *i.e.* to establish commonality of purpose. A key problem exists when the agent’s actions cannot be observed, or cannot be inferred on the basis of observable variables. Essentially the problem is one of information asymmetry: the principal does not have access to the same information as the agent, hence cannot evaluate the agent’s performance. Even if the principal can observe the action, he may not know whether that action was appropriate or optimal - the principal does not know whether the agent undertook the action the principal himself would have undertaken, in the given circumstances.

The principal-agent problem is, thus, a problem of economic incentives. It arises whenever there is an attempt to ‘manage-by-wire’.

When a PPP partner is regulated in the absence of competition, these kinds of problems are extremely likely.

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<sup>9</sup> Regulation of a PPP partner may in itself inhibit the appearance of new entrants or alternative suppliers. The regulator may not like the appearance of alternative suppliers and a competitive environment, since that would obviate the need for the regulator.

First, the government bureaucrat (as an agent of government) may face incentives to run the PPP contract in a way which serves his own interests rather than the stated objective of the project. Secondly, the regulating government department (in the role of principal) is likely to be less knowledgeable of the intricacies of the particular service delivery process than the PPP partner, particularly over time. (This would be the case, especially, if the motivation for the PPP was a lack of management capacity or relevant expertise in government.) It would find it very difficult to monitor the performance of the private operator. It would thus be very difficult to devise and manage incentives schemes to elicit effective and efficient delivery.

This means that the use of a regulated PPP should be constrained to situations where the problem of information asymmetries largely can be overcome. Typically this would be where the type of service provision is subject to reasonably objective measurement, both in financial terms and actual service delivery. In addition, appropriate delivery information and accounting systems should be in place – and, of course, sufficient monitoring capacity in government.

Public or semi-public goods again provide a problem area: since output and effective delivery often are difficult to measure and monitor, it is difficult to design indicators that *directly* measure performance. It may happen that the PPP partner cannot be supervised adequately.

The problem of *regulatory capture* also stems from the information asymmetry, but primarily from the dynamics of the relationship between the government and the regulated PPP partner.

First, the regulator is very dependent on information supplied by the regulated partner. By selectively manipulating this information, the private operator can, over time,



‘capture’ the regulator so that his handling of the contract serves the interests of the operator he is supposed to regulate in the public interest. This risk is higher if the regulator is constrained in terms of management and analytical capacity.

Secondly, the regulator and the private operator tend to develop a symbiotic relationship, especially since the ‘bureaucratic interests’ of the former tend to be served by having a larger and larger entity to regulate – which creates an incentive for allowing inefficient oversupply and supra-normal earnings for the private operator. The original problem of incentives in the bureaucracy recurs, albeit in a different context.

This all shows that a regulative environment may be a very inefficient way to attain efficiency in service provision: ‘Regulation, at best, is a pallid substitute for competition. It cannot prescribe quality, force efficiency, or require innovation, because such action would invade the sphere of management.’ (Wilcox, in Greer 1980: 505). Moreover, given the very limited experience in South Africa in regulation, and the lack of sufficient capacity to regulate efficiently, the regulated PPP option should be approached with circumspection.

The ideal for a PPP is contractual arrangements that create sufficient risk transfer in a competitive environment and thus maximises efficiency without resorting to a regulatory set-up. In practice this may be quite difficult to achieve. A regulatory framework may become necessary, with all the concomitant challenges. If these are insurmountable, there may be no alternative to reverting to or retaining government provision, notwithstanding indications of less than optimally efficient delivery.

*(d) Risk Transfer and Inelastic Social Demand'*

The extent to which a good or service is regarded as essential can be crucial in obtaining sufficient risk transfer. The importance of effective service delivery differs from service to service. Government may be forgiven for ineffective telephone services, but the delivery of medical services is likely to be deemed more crucial by the electorate.

The more essential a service, the less government can afford the private operator to be ineffective or to go bankrupt. If a private operator is in financial trouble, government has three options: First, it can find a new private partner. Where there are several private operators delivering the same service, a competitor can take over the delivery of the service provided by the bankrupt or ineffective partner. Where competition is absent but where the market is contestable, a new partner can enter the market. However, when a private operator is delivering a service ineffectively or plays bankrupt, others may be scared away. This may eliminate this option. Secondly, government can take over the assets of the private operator and revert to delivering the service itself. However, government will then have to admit to the failure of the PPP agreement publicly. This is not an attractive option. Lastly, government may bail out the private operator financially, which in effect means that government has borne the risk all along so that no risk transfer took place in reality.

When the private partner knows that effectiveness of delivery is crucial to government, but that alternative suppliers or a government take-over is out of the question, he will know that government will have to bail him out should he run into financial trouble. This creates a *moral hazard* because the private partner knows that he is, in effect, not bearing the risk, no matter what the terms of the

PPP agreement state. This can encourage (or allow) inefficient managerial behaviour.

Thus, although the terms of the PPP agreement state the *de jure* transfer of risk, the *de facto* transfer of risk depends on the availability of alternative suppliers – given the inelastic social demand of an essential service.

(e) *Effective Delivery and Limiting Risk: the Debt-equity Mix*

While government wants to ensure a sufficient level of risk transfer to the private operator, it also wants to limit the possibility of bankruptcy and discontinuance of service delivery. One aspect that tends to be neglected, is the debt-equity ratio of the private partner. This is particular relevant given that internationally most PPPs are mainly financed through debt finance.

The higher the amount of equity in a venture, the less vulnerable it is to financial failure due to adverse income shocks. The shareholder then has a reduced exposure to risk (but accompanied by a reduced *rate of return* on equity capital). A relatively high amount of debt – which has a first claim on the income stream – implies that there only is a narrow capital base to absorb shocks.

One way to reduce the risk of PPP failure lies in requiring the owners of a private operator to invest a sufficient amount of equity relative to debt to absorb adverse movements in long term profits. When considering the bids for a PPP, government should evaluate the capital structure of the private operator in the context of the risk the project faces. The more the risk, the lower should be

the required debt/equity ratio.<sup>10</sup>

(f) *Institutional Aspects and Efficiency*

Efficiency may also be impaired by the different organisational cultures of the private and public sectors.

The differences in organisational culture is evident, for example, in the different values held in the two sectors. The private sector places the emphasis on flexibility, while the public sector emphasises accountability. The private sector is efficient when the return on capital is maximised, while the public sector is efficient if it maximises return *within the constraints* of public policy goals. Flexibility and accountability may at times be in conflict, causing a decline in efficiency and in some cases even a breakdown of the PPP.

In addition, some researchers have noted that, for example, public sector managers usually hold stereotyped views on their opposite numbers in the private sector and *vice versa*. This holds the danger of mistrust between the two sectors. Since efficiency depends on the partnership and not only on one partner alone, mistrust can lead to a decline in efficiency.

The lesson is that aspects relating to organisational culture should also be considered seriously, and not only economic and financial aspects. In fact it may be an equally (or even more) important ingredient of success.

## 5. CONCLUSION

Based on a critical analysis of the economic rationale for

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<sup>10</sup> This includes the use of home made leverage where shareholders finance their equity holding with debt. Home made leverage has the same effect on shareholder risk as normal leverage.

PPPs, we conclude that PPPs do have the potential to improve the efficiency and effectiveness of delivery of certain government services. However, the scope for successful PPPs should not be overestimated, and they do not constitute a panacea for all social service delivery in times of budgetary constraints. Larkin (1994) provides three main lessons:

- (i) No PPP should be dismissed automatically as inappropriate *or* accepted automatically as appropriate.
- (ii) There is no magic formula that will produce successful PPPs in all places under all conditions.
- (iii) Patient and careful analysis of each local situation is a necessary prerequisite to effective PPPs.

From the economic analysis flows a number of critical conditions for successful PPP design and implementation, to attain the desired efficiency and effectiveness gains. These mostly relate to (a) the requirement, and problems, of sufficient risk transfer to the private partner and (b) the presence of sufficient performance incentives and discipline.

A variety of factors affect the interaction between risk and efficiency, and various impediments to realising a beneficial relationship between risk, efficiency and effective service delivery exist. These include difficulties in determining or estimating the demand for some types of products, a lack of competition or a simulated competitive environment, the social importance of a product and the debt-equity mix of the private operator.

In practice these difficulties can create, in certain service delivery cases, a number of contradictory forces and conditions which can fatally undermine the viability of a public-private partnership (PPP) approach.

## 6. THE MAIN PPP LESSONS: A SUMMARY

The inherent potential and nature of a successful PPP are best illustrated by way of a rather blunt statement of the essence of a PPP policy.

*Why consider a PPP (and not government alone or privatisation alone)?*

Effectiveness of service delivery is essential and efficiency of delivery highly desirable. For some services neither government alone nor the private sector alone can deliver services effectively OR efficiently. This is due to, *inter alia*, the ‘public’ nature of the product, the bureaucratic nature of government, and the profit-orientated nature of the private sector. Therefore, one must consider a partnership model (*i.e.* a PPP).

However, benefits will only be realised if two key ingredients of a PPP are present. These are a true partnership and sufficient risk transfer. To get these ingredients active, it requires both commonality of purpose and an effective incentive, reward and competitive discipline framework (actual or simulated). The latter, *which is essential*, requires a carefully designed contractual and regulatory framework which can overcome many of the inherent problems of such a situation.

*The Crux of the PPP Fallacy*

Many inherent problems have to be overcome in a successful PPP. These are best illustrated by way of an equally blunt statement of the potential for intrinsic contradictions in a PPP policy.

PPPs require risk transfer, but private operators are

most likely to be most interested only in cases where they are protected against risk or where they can lock into cosy long-term contracts.

Efficiency requires demand to be revealed, but most of the products and services provided by government have a strong public character (the reason government was involved in the first place), so that demand would not be (fully) revealed. If demand is then expressed via government, this removes most of the demand risk that is so essential to achieving efficiency in the private operator. Unless there are sufficient other risks that are transferred, the gain in efficiency may be an illusion.

PPPs require an efficient regulatory and managerial framework to simulate competitive pressures and ensure correct incentives. Unfortunately a lack of sufficient management capacity in government is the main reason for considering PPPs in the first place.

PPPs attempt to circumvent inefficiency due to perverse bureaucratic behaviour and incentives. However, the regulatory and managerial framework that they require can easily suffer from the same incentive and inefficiency problems. The regulatory framework required by a PPP is vulnerable to serious principal-agent problems and regulatory 'capture', especially in the long run.

In short, PPPs do not constitute a magical panacea for social service delivery in times of budgetary constraints.

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