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Author(s): Jean-Etienne de Bettignies and Thomas W. Ross

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The Economics of Public-Private Partnerships

JEAN-ÉTIENNE DE BETTIGNIES AND THOMAS W. ROSS

Sauder School of Business

University of British Columbia

Vancouver, British Columbia

Les gouvernements, à l'intérieur du Canada et à travers le monde, cherchent de nouveaux moyens de fournir aux contribuables et aux usagers des services publics à moindre coût. Beaucoup d'entre eux ont choisi de former des partenariats secteur public/secteur privé qui impliquent le secteur privé dans une bien plus large mesure. Ce choix est souvent controversé et les débats se constituent régulièrement à partir d'une idéologie plutôt qu'à partir d'une analyse consciencieuse. Cet article ajoute notre contribution au petit nombre d'études d'universitaires consacrées à ce partenariat, en examinant les facteurs économiques qui sont à la base de ces relations, de manière à découvrir leurs véritables coûts et bénéfices. L'objectif est de nous aider à mieux comprendre où et comment ce système de partenariat peut constituer une méthode efficace pour le développement des services publics.

Governments across Canada and around the world are looking for new ways to deliver public services at lower costs to taxpayers and users. Many have chosen to form public-private partnerships (P3s), involving the private sector to a much greater extent. This choice is often controversial, with the debates routinely driven by ideology more than careful analysis. This paper adds to the limited academic literature on P3s by reviewing the fundamental underlying economics of these relationships to get at their real costs and benefits. The goal is to help us better understand where and how P3s may be an efficient mechanism for the provision of public services.

INTRODUCTION

As governments around the world struggle to provide more and better services to their citizens on limited budgets, organizational innovation has come to the delivery of public services. Just like their private sector counterparts, public sector decisionmakers are now asking just what services they should provide themselves and for which should they contract with private sector partners. This search for new methods for the production and delivery of public services has given us new concepts (or at least new labels) such as the more general

“alternative service delivery” (ASD), and the more specific “public private partnerships” (PPPs or P3s). ASD refers to the full set of alternative arrangements that can supply goods and services that would otherwise have been provided directly by public enterprises alone. This will include P3s, but also contracting-out of services and outright privatization. The effort to find better ways to produce government services is not mere nibbling around the edges of government — to some it represents a sea change in the very nature of government; it has even been referred to as “reinventing government” (see, e.g., Osborne and Gaebler 1993; Trebilcock 1994).

Our goal in this paper is to work toward an understanding of the underlying economics of P3s such that we might be better able to advise governments with respect to where and how they might represent better ways to deliver public services.

The term public-private partnership is used in slightly different ways with the result that a precise definition to which all will agree is elusive. The BC Ministry of Finance offered a straightforward definition that focused on the use of P3s to replace traditional public provision: "Public-private partnerships (P3s) are contractual arrangements between government and a private party for the provision of assets and the delivery of services that have been traditionally provided by the public sector" (2002). Allan (1999) reports seven definitions he has uncovered.¹ The central element reflected in these definitions and others is the sharing of decision-making authority, which contrasts with the "supplier" relationship in which government decides exactly what it wants and buys it and the "public enterprise" model in which the government produces the services with no private sector involvement. Many definitions also mention the sharing of rewards and of risk. The sharing of rewards is clearly necessary if the private sector is to be involved voluntarily,² and the idea that P3s permit the optimal allocation of risk is pervasive in the P3 industry's literature and will be addressed in detail below.

While some examples of P3s go back decades or more, there can be little doubt that interest grew rapidly in the 1990s.³ The United Kingdom particularly embraced what were called "private finance initiatives" (PFIs) to get private participation in the provision of public services beginning about 1992. Initial British PFIs were concentrated in the transportation sector, but more recently they have been used in a variety of areas, including roads, hospitals, and schools.

Recent high-profile examples of public-private partnerships in Canada include the Confederation

Bridge connecting New Brunswick and Prince Edward Island, completed in 1999; the 407 ETR highway in Southern Ontario (first stage completed in 1998); and the Charleswood Bridge in Winnipeg, completed in 1995. It is clear, however, that even in Canada P3s have gone beyond roads and bridges to include, for example, airports, schools, incineration facilities, water and wastewater treatment, medical facilities, recreation facilities, property management, and utilities.⁴ In a number of countries and even some Canadian provinces, special offices have been created within the governments to collect P3 expertise and promote the use of P3s in certain classes of projects.⁵

While holding out the promise of a more efficient allocation of society's resources and a better "value for money" for taxpayers, P3s are not without their critics. Public sector unions are particularly opposed to what they see as attempts by governments to shift their work to private sector firms paying lower wages and offering an inferior quality of service (see, e.g., CUPE 2002). And there is no disputing the fact that some P3s have not worked out as well as projected by the partners. In their examination of P3s, which included reviews of a number of specific projects, Boase (2000) and Daniels and Trebilcock (1996) recognize both the potential benefits and costs of P3s. The costs they cite include lack of transparency and accountability, and the potentially serious problems that can arise when contracts are not well-designed.

This paper is at once an introduction to an important, and increasingly so, area of government-business relations and a call for research. We argue that basic economic theory is extremely helpful in understanding the potential for costs and benefits from these new arrangements. While even a short library or Web search will uncover literally thousands of pages written on P3s, there is a surprising shortage of what we might call objective research on the topic, or independent evaluations of the successes and failures. Most of what is available comes

from firms that earn their incomes from P3s or government agencies charged with promoting and implementing such projects. While some of this is enormously helpful, there can be no doubt that independent analyses of the strengths and weaknesses of P3s are warranted.⁶

THE SCOPE OF PUBLIC-PRIVATE PARTNERSHIPS

A Simple Framework: Tasks and General Policies

The process through which a project is developed to create goods and services might, for our purposes, be roughly broken down into four principle “tasks”:⁷

Task 1: defining and designing the project,

Task 2: financing the capital costs of the project,

Task 3: building the physical assets (e.g., road, school, etc.), and

Task 4: operating and maintaining the assets in order to deliver the product/service.

One of the government’s duties is to decide to whom these tasks should be allocated; and in this they have essentially three general policy options. Most commonly, they let free markets do all the work — people earn income (usually in private labour markets) and go to output markets to buy the goods and services they value from private sector sellers who perform tasks 1 to 4. The government’s role in these cases is limited to providing the framework laws and enforcement that make private markets work well, including contract law, criminal law, and competition law.

At the other end of the spectrum is pure public enterprise, in which the government produces the good or service itself, with no particular private sector involvement except perhaps through the provision of inputs sold in standard markets. Refuse

collection provided by municipal employees would be an example. The private sector’s involvement here is limited to selling collection trucks and gasoline to the local government sanitation department.

For a number of goods and services governments would be unsatisfied with the quantity, quality or distribution of the outputs resulting from purely private provision, and so they take a more active role. It could be, for example, that there is a significant social value to a more equal access to some goods than fully private markets would provide — health care and education come to mind as possible examples. In other cases, it may be that the good cannot be provided effectively by the market because of public good and excludability problems. Here the classic example is national defence, but roads would be a related example.⁸ It may also be the case that the free market outcome, in the presence of significant economies of scale relative to market size, will break down into a monopoly, as was the expectation with respect to many public utilities.

Government intervention in these cases can come in a number of forms, differing in the allocation of responsibility and control over tasks 1 to 4, between government and private sector. When it assumes all the tasks, we have pure public provision and when some tasks are delegated to the private sector we have various forms of contracting-out and P3s.

Public-Private Partnerships and Optimal Private versus Public Involvement

Even standard public provision of services has traditionally involved partnerships with the private sector to at least a limited extent.⁹ However, as mentioned, in recent years many governments have begun to consider expanding the use of the private sector in the production of public services. In the broadest sense of the term this is privatization, that is, the assignment, to the private sector, of control over some decisions previously made by the public sector.¹⁰ It is common for the public sector to perform tasks 1, 2, and 4, possibly leaving task 3

(construction) to the private sector. Construction of public buildings, for example, is usually done by private contractors.¹¹ And it is not uncommon for the government to “contract-out,” refuse collection; that is, to put a collection contract out for bids and to pay for the services on behalf of local citizens. In such a case, the government specifies a required level of service, solicits bids or proposals and selects a “winner.”¹² The private sector provider then has considerable control over how the service is provided: for example, what routes will be operated, what equipment will be used, who will be employed, etc.¹³

P3s lie somewhere between simple *contracting-out* and a *fully private market* in the spectrum of private versus public involvement. The more private relative to public involvement, the more “private” the public-private partnership.

We suggest there are three main characteristics of the new wave of P3s. First, all P3s are really extensions of contracting-out to a larger number (and different set) of the tasks listed above. Thus, the contracting-out relationship is the foundation of the P3.

The second main characteristic has to do with the “bundling” of responsibilities, or the allocation of two or more tasks to a unique (consortium of) partner(s). It is very typical to have the same partner in charge of the construction and the operation of a bridge, for example; indeed that partner may well have previously developed the design for the bridge and provided the financing.

Finally, the third notable characteristic of many modern P3s is the allocation of the financing task to the private partner. The recent increase in interest in public-private partnerships has been focused on projects involving a significant capital investment — typically needed to cover the construction costs of some new building or piece of infrastructure. The novelty of P3s is the government’s recourse to private funds to structure these investments. Specifically, governments around the world have been

using private sector financing and experimenting with P3s to provide roads, bridges, hospitals, airport terminals, schools, prisons, passenger rail services (heavy and light rail), and water services, to name some of the most common. These kinds of projects, and the private funds used to finance them, have so dominated the P3 landscape that in some circles this arrangement has become the very definition of a P3, and they will be our focus here.

In the next three sections, we discuss in detail these three characteristics of P3s: contracting-out, private financing, and the bundling of tasks.

CONTRACTING-OUT: THE FOUNDATION OF P3S

In the last 20 years, dissatisfaction with the costs associated with government production has led many governments to consider expanded use of the private sector in the production of certain public services.¹⁴

Construction is the task most often delegated to the private sector, in fact it is the norm in North America. While governments may retain crews to maintain, repair, and renovate physical facilities, seldom do they undertake large-scale construction projects. Whether the project involves the construction of a bridge, school, hospital or prison, the norm is that private contractors will do the work. It is worth remembering this, as it reminds us that the current wave of P3s is not really so revolutionary — the private sector has always been engaged in many parts of the provision of public services, including architectural work and construction. What is newer is the larger number of tasks assigned to the public sector and the way they are bundled together. Contracting-out remains the foundation of modern P3s.

While the experiences of governments with contracting-out are certainly varied, the evidence suggests that it can reduce costs and/or provide for superior levels of service relative to public provision.¹⁵

Ex Ante Competition

A key reason for the success of contracting-out at reducing costs appears to be competition: while there will ultimately be only one provider of the service for a certain period — and therefore no competition “in the market” — the bidding process allows competition “for the market.” As pointed out by Demsetz (1968) years ago, *ex ante* competition for the project can replace competition in the market to force bidders to lower costs, raise quality and be innovative. Unhappiness with the private contractor can be punished the way the private sector punishes: termination for cause, lawsuits for contract breach, damage to reputation, and loss of future business, etc. This does not happen with public sector provision of the service (where each department has monopoly power within its sphere of influence).¹⁶

High-powered Incentives and Optimal Risk Allocation

The other key reason for the success of contracting at reducing costs is incentives-related. The private sector is generally regarded as having a greater ability to deliver more innovative products more quickly, with more flexibility, and at a lower cost (not necessarily at a lower price) thanks to its access to higher-powered incentives.¹⁷

The oft-cited claim that P3s allow for a better allocation of risks is but an example of the benefits of higher-powered incentives. The idea is that some kinds of risks are best assigned to one party or another.¹⁸ In our view, optimal risk allocation is all about incentive management, parties should be exposed to risk to the extent they can best manage that risk, where by manage we mean measure and, through their actions, minimize the risk.¹⁹ If all risk were purely exogenous, like the weather, it would be hard to argue that there is any advantage in shifting it to the private sector (given that governments are likely to have deeper pockets) except perhaps to insurance companies. The advantage to shifting, say, construction risk to the private sector partner is that bearing this risk gives it a strong incentive to control those risks through careful and high quality construction.²⁰

Scale and/or Learning Economies

In addition to *ex ante* competition and optimal allocations of risks, there are other good reasons to hire private contractors to construct facilities. The most important relates to economies of scale. Governments typically do not have enough work to generate the volumes of business needed to allow a full-service construction company to get unit costs down to their minimum, through scale or learning economies.²¹ As Williamson (1979) pointed out with reference to the choice firms have to make between internal and external (i.e., market) provision of goods and services, the advantage goes to the market when there are significant scale or learning economies that cannot be achieved by the volume of business required by the buyer (in this case the government).²²

Contracting-out Theory, Efficiency, and Incentives

Much of the theory on contracting-out has focused on the relationship between ownership structure, efficiency, and incentives, and in that sense relates to, and formalizes, the ideas described earlier. Here we present the main directions of research on the topic in recent years.

Relationship-specific Investments and Contractual Incompleteness

Ex Post Inefficiencies. Consider the design, construction, and operation of a bridge, hospital, or school.²³ What do these projects have in common? One commonality is that once the provider (the government employee or private sector company) and the customer (the government or taxpayer) start to trade, that is, start to work together toward the completion of, say, a bridge, they are better off completing the project together than terminating the relationship and starting to trade with other parties. The reason is that both the provider and the customer make relationship-specific investments that are more valuable if the project is brought to completion than if trade breaks down. The provider invests in building a bridge that corresponds specifically to that particular customer's request (in terms of location, design, equipment, timing, etc.).

If the negotiations between the provider and the customer break down, the provider may indeed have trouble finding another customer for that bridge.

The initial customer also makes relationship-specific investments (e.g., search effort, time, design effort) that are worth more with the current provider than with another designer/builder/operator for the bridge. The investment to find the provider, or to collaborate on the design, may be worth little if a new provider must be found, and that new provider may have completely different technological capabilities and require a very different design.

Thus, the consequence of relationship-specific investments is the formation of a surplus from trade. Transaction costs arise because both the provider and the customer want to appropriate that surplus from trade, and the bargaining and opportunistic behaviour that is generated may in itself be costly.

One way to mitigate these so-called *ex post* inefficiencies is to limit opportunities for negotiations and bargaining by writing long-term contracts. We limit transaction costs by reducing the number of transactions. In our example, the government can mitigate transaction costs by writing a long-term contract with the (private) bridge operator, and by encouraging long-term contracts between the operator and other suppliers, such as the designer and/or the contractor, for example. *This is the P3 scenario.*

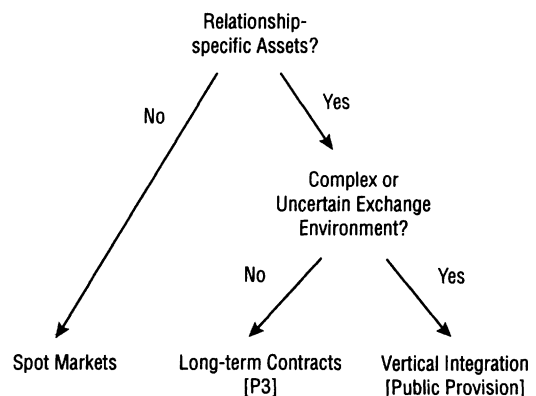
However, trade relationships are often very complex and uncertain. This level of complexity implies that first, it is impossible to plan for every potential contingency, and second, even if every contingency could be predicted, it would probably be difficult to write down these plans in a contract between the customer and the provider that is enforceable by law. In that case, long-term contracts such as the ones just described are less helpful because they cannot be made to bind in some circumstances: we say that the contracts are incomplete. Coase (1937) was the first to recognize the economic consequences of

contractual incompleteness, and his ideas, as well as those of Williamson (1975, 1979, 1985), and Klein, Crawford and Alchian (1978), sparked a new literature on the subject. It was argued that because of their incomplete nature, contracts must constantly be revised and/or renegotiated as time goes on (long-term contracts are infeasible), and the problem of *ex post* inefficiency generated by relationship-specific investments cannot be easily mitigated.

Hence when contracts are highly incomplete, vertical integration, by avoiding renegotiation altogether, may offer the best alternative. In such cases it may be optimal to put the same party (the government) in charge of the different tasks, such as design, financing, construction, and operation. It avoids the bargaining cost that would be generated if the tasks were allocated to different parties. *This is the public provision scenario.*

Crocker and Masten (1996) make this comparison between long-term contracts and vertical integration in the context of franchise bidding versus regulation. They summarize the choices very clearly in Figure 1, which we replicate below, adapting it slightly to fit our P3 versus public provision context.

FIGURE 1
Optimal Procurement of Public Services



Without relationship-specific investments, there are no transaction costs and spot market provision is the better solution: it allows more flexibility relative to long-term contracts and it permits the efficiencies associated with competition and private provision. A good example of this would be food stamps: the government provides a product (food) that requires no specific investment, via the spot market (supermarkets).

When there are switching costs, two sub-possibilities arise: long-term contracts offer the best alternative when the relationships remain relatively simple (e.g., building a bridge) such that writing effective contracts is possible, but vertical integration is sometimes necessary when transactional complexities make *ex post* inefficiencies too large (e.g., perhaps, some types of health care).

Ex Ante Inefficiencies. Note that although the theory on *ex post* inefficiencies provides powerful insights into the advantages of long-term contracts relative to spot markets, and of integration relative to long-term contracts, respectively (the mitigation and/or elimination of *ex post* transaction costs), it remains more vague as to their disadvantages (inflexibility, bureaucracy). The following discussion of *ex ante* inefficiencies should clarify these issues by formalizing the trade-off between benefits and costs for each organizational structure.

Recall that with relationship-specific investments, a situation of bilateral monopoly arises, in which a surplus from trade is created; and that when contracts are incomplete, the trading parties behave opportunistically in their attempt to appropriate that surplus. The ability to behave opportunistically depends greatly on *ex post* bargaining power, which itself depends on the party's outside alternative, that is, that party's payoff in the event negotiations break down. When a party has an attractive outside alternative relative to a trading partner, he or she is in a better bargaining position, suffering a smaller penalty for leaving the relationship than does the other party.

In the late 1980s Grossman and Hart (1986) and Hart and Moore (1990) gave new impetus to the literature by underlining the importance of property rights. Property rights over an asset confer *ex post* bargaining power, because the owner of the asset keeps control over the asset, and can prevent the other party from using it, should negotiations break down. In other words, property rights increase one's outside alternative relative to that of one's trading partner, and that puts one in a better bargaining position. Consider again the relationship between the customer (the government) and the provider involved in the development of a bridge. If the provider is an independent firm/consortium (the private sector) trading at arm's length with the government (e.g., P3), he or she has some bargaining power in renegotiation because they keep access to assets if trade breaks down, and thus have an attractive outside alternative. In contrast, if the assets used by the provider are owned by the government, the public sector essentially builds the bridge (public provision), with the provider as government employee. In case of disagreement the government can just fire the individual, and thus the provider's outside alternative in that case is much less attractive, and he or she is in a weaker bargaining position.

Bargaining power in renegotiation, and hence asset ownership, is important because it affects investment incentives. The more *ex post* bargaining power the provider anticipates, the less likely he or she is to be "held-up," the larger the fraction of the surplus created they will be able to appropriate, and the greater incentive they have to make relationship-specific investments in the first place. Of course, more bargaining power to the provider means less bargaining power to the government, and thus less incentives and less investment by the public sector customer. Thus, when the government chooses a P3 contract with a private provider for the design and/or construction of a bridge instead of public provision, it transfers property rights and bargaining power to the provider. This increases the provider's incentives to invest, but reduces its own incentives.

The insight of Grossman and Hart (1986) and Hart and Moore (1990) is that property rights over an asset should be allocated to the agent whose marginal product of *ex ante* investment is the highest. The government should use a private sector provider for a particular task (e.g., design, financing, construction, or service provision for a hospital) only if the marginal efficiency of the provider into this “relationship” is higher than that of the customer (government), because the transfer leads to a net efficiency improvement.

Public versus Private Ownership

In the description of the literature on incomplete contracts offered earlier, we adapted the theory to the relationship between the government and the provider. These models, however, were originally developed to explain the boundaries of *private firms*. In the past few years, economists have started to apply incomplete contract theory more specifically to policy surrounding public versus private ownership.

Schmidt (1996) was among the first to investigate the trade-off between public and private ownership in an incomplete contracts framework. His model is based on the following assumptions: (i) the manager can exert an unobservable effort to reduce production costs, (ii) the manager receives a private benefit from production, and (iii) property rights confer better information: the government knows about costs and profits in the case of public provision, but not in the case of private provision. These assumptions yield two interesting results.

First, with private provision, the associated lack of information enables the government to *credibly commit* to an incentive scheme for the manager. Based on a revelation game, this incentive scheme punishes the manager with low production when production cost is revealed to be high. In contrast, with public provision, the government cannot credibly commit not to renege on production decisions, and thus the manager has lower incentives and ex-

erts lower effort. Public provision thus leads to lower productive efficiency.

Second, with private provision, the government’s commitment to cut production when costs are high leads to too low a level of production compared to public provision. Public provision thus leads to higher allocative efficiency. Schmidt thus defines the trade-off between public and private ownership as follows: although private provision generates higher productive efficiency, public provision generates greater allocative efficiency.

Hart, Schleifer and Vishny (1997) focus on the much debated trade-off between lower cost and lowering quality of service provision. Indeed, they provide the formal foundation for the argument that private provision may lead to more efficiency in reducing the cost of service provision relative to public provision, but this must be traded off against a lower quality of service.

Their result hinges on two assumptions: incomplete contracts and a positive relationship between cost of service provision and quality of service; that is, lowering cost has a negative effect on the quality of the service provided. The incomplete contracts assumption makes ownership important: private provision implies that the provider owns its production technology and therefore has more bargaining power relative to government than if the service was provided by a government employee. Thus, if the service provider is the private sector, it will have a greater incentive to invest in cost reduction *ex ante*, and in equilibrium service is provided at a lower cost by the private sector. On the other hand, the private sector fails to internalize the negative effect that cost reduction has on service quality, and therefore has too much incentive to reduce costs, to the detriment of service quality. In Hart, Schleifer and Vishny (1997), the private sector has more incentive to produce more efficiently, but so much so that it tries to “cut corners,” which affects quality. The choice between private and public provision depends

on the importance of production efficiency relative to this “corner-cutting.”²⁴

The Special Case of Public Goods

Besley and Ghatak (2001) focus on the provision of a public good. They ask whether a public good should be provided by the public sector, or by a private entity such as a non-governmental organization (NGO), for example. The two parties invest in the production of the good and negotiate over the surplus created. In the simplest framework provided by Grossman and Hart (1986) and Hart and Moore (1990), if negotiations break down, the owner gets some benefit while the other party gets nothing. Because of that, the owner of the asset has more bargaining power and higher incentives, and transferring ownership to the agent with highest marginal efficiency in investment maximizes the total surplus and is optimal.

When the good is public, however, *both* parties enjoy some benefit if negotiations break down. Even if trade breaks down between the NGO and the government and the NGO is no longer involved in the development of the good, it still gets an “alternative” benefit, due to the public nature of the good. For example, the NGO with an educational mandate may get a benefit from the creation of a new school even if it is not involved with its operation.

Besley and Ghatak develop a model where an increase in the alternative benefit (due to investment by one or both parties *ex ante*) raises the caring party’s valuation of that alternative benefit more than the non-caring party’s valuation. Consequently, an increase in the alternative benefit improves the caring party’s bargaining position and expected payoff, relative to the party that cares less, whose bargaining position and expected payoff have worsened. To maximize the total benefit in equilibrium, the allocation of property rights must therefore maximize the marginal impact of investment on the alternative benefit for the more caring party, and minimize the marginal impact of investment on the alternative benefit for the least caring party.

The key assumption in this model is that giving ownership to a party maximizes its marginal product of investment on the alternative benefit, and minimizes the other party’s marginal product of investment on the alternative benefit. In other words, “a part of the return of the investment of a player is embodied in human capital and cannot be realized if the individual is fired” that is, if negotiations break down and the individual does not own the asset.

It then follows that ownership should be allocated to the party with the highest valuation. If the NGO values the school more than the government, it should be granted the ownership right to provide the service. An interesting implication of the model is that the efficiency result argued by Grossman and Hart and Hart and Moore may not hold with public goods. Indeed, if the government values the public good more than the private provider, it is optimal to have public provision even if the government is less efficient than the private provider.

COMPLEMENTARITIES ACROSS TASKS

Delegating Design and/or Operations to the Private Builder

As mentioned previously, one of the key characteristics of P3s is that responsibility for two or more tasks may be given to the same partner. In particular, the design of the project prior to construction, and/or the responsibility for operation and service provision after construction, may be allocated to the builder.

The advantages of privatizing tasks 1 and 4 may be similar to those associated with contracting-out construction, which were described earlier. Consider scale and/or learning economies, for example. It is certainly true that a number of P3s (e.g., highways with new electronic tolling) involve projects that are novel for the government in question but may be familiar to a large multinational contractor that has worked on similar projects in other jurisdictions.²⁵

In such a case, the government can choose to pay to be educated and then perform the operations itself, or it can just contract that service out. Contracting-out will be particularly attractive under two conditions: (i) when the government will not be able to amortize the expense of the education across multiple projects; and (ii) when the operations activity will benefit from ongoing research and development that cannot be effectively replicated by government.

Another possible advantage from handing design and/or operations over to the private sector derives from the greater efficiencies that may be attainable with private sector production, through *ex ante* competition, improved incentives, and the presence of a market for corporate control.²⁶ The extensive literature, referred to above, comparing public and private provision of services and the effects of contracting-out, has generally found that the private sector will deliver services at a lower cost. However, the most commonly cited advantage of allocating design and/or operation to the builder derives from complementarities associated with combining design, construction, financing, and operation within one firm (or consortium). The idea is that by combining these functions, the consortium will have an incentive to minimize the full lifetime costs associated with providing the service.²⁷ This may involve spending more in construction to reduce maintenance or operation costs later, an effect the consortium can internalize.

There is likely to be a certain technological complementarity or economy of scope between building and designing, and between building and service provision.²⁸ The complementarity is enhanced by the incentive advantages of combining these tasks — if you have to build the project and your reputation depends in part on the quality of the outcome, you have a strong incentive to see it well designed.²⁹ Similarly, if the private partner doing the construction is also going to operate and maintain the facility, it will be bearing all the costs of the service and so will have an incentive to minimize those costs. It makes sense in a case like this

to bring this partner into the design process as well, since otherwise it risks living with a poor design.

Contrast this situation with the one in which the government designs, finances, and arranges the building of the facility, but lets someone else operate and maintain it. The facility can be built so as to require higher or lower levels of maintenance and it is far from clear that with decision-making separated between the parties that efficient decisions will be taken. Construction firms bidding on the contract to build the facility, in an effort to appear to be providing their services at lower costs, will not necessarily advocate for more durable and expensive construction. If, on the other hand, they are bidding to provide the services they have an incentive to propose a design and plan for construction to minimize the costs of the service over the full life of the facility (or at least the length of the contract).³⁰

Privatizing Operation and the Government's Loss of Control

Operating the asset and providing the service are the public face of a P3: the highly visible attributes to which people most frequently respond.

The major concern of opponents of contracting-out in general, and P3s in particular, is typically about the loss of control associated with giving private providers certain contractual rights. The fear is that the perfect contract can never be written and that, even if it could, performance cannot be perfectly monitored. Two negative implications follow: first, the incompleteness means that when changing circumstances necessitate changes in the behaviour of the private firm, this will have to be negotiated (in a small numbers bargaining situation, i.e., without benefit of competition) and this could be costly; and second, the imperfect monitoring means that the private partner can cheat on quality or some other non-contractual element.³¹ It is concern over the quality of services that will be provided by the private sector in say, jails, hospitals or schools, that is the major hurdle P3s have to overcome to gain public confidence in their ability to meet public needs.

The challenge, when the private sector is to use the facility to provide the service, is in carefully specifying the characteristics of the service that the government cares about so that there is no misunderstanding (or deliberate exploitation of incomplete contracts) between the parties. As with many aspects of P3s, the contracting challenges here are significant — important characteristics of service quality must be measured and verifiable standards of acceptable performance established.³² For this reason it is not surprising to see that many jurisdictions have created specialized agencies to review proposals and lay out contract terms for P3s. These groups often function as within-government consultants on P3s, and as repositories of knowledge and experience that provide governments with the skills they need to structure P3s to their maximum benefit.

Theoretical Literature on P3s as the Privatization of Both Construction and Operation

The recent research dealing *specifically* with P3s has defined them, really, as the delegation of two or more tasks, “bundling,” to the private sector. Here we review the main articles and present their key results.

Bundling and Incomplete Contracting

In a recent article, Hart (2003) adapted the Hart, Schleifer and Vishny (1997) model to analyze P3s specifically. The government is concerned with the building and the operation of an asset, say a hospital or a prison. The builder can make two types of investments at the time of construction which affect the operation of the asset. The productive investment increases the benefit and reduces the cost of operation (e.g., investment in building quality), while the unproductive investment reduces operating cost but also its benefit (e.g., investment in “corner-cutting,” similar to Hart, Schleifer and Vishny).³³ With “conventional provision,” the government contracts separately the building and then the operation of the prison. The builder is thus paid before the fruit of his two investments are realized. Anticipating this, the builder invests nothing in the first place. In contrast, with a P3, the government

contracts with the builder to both construct and operate the prison.³⁴ The builder anticipates he will be able to reap some benefits from investing — in terms of lower operating costs — and thus makes positive investments in both building quality and corner-cutting. Therefore, relative to P3s, conventional provision leads to more underinvestment in productive effort building quality, while P3s lead to overinvestments in corner-cutting. Hart concludes that P3s may be optimal when building quality cannot be well specified and corner-cutting investments are relatively easy to monitor, because in that case both overinvestments in corner-cutting and underinvestment in building quality are relatively low.

Bundling and Asymmetric Information

In contrast with the previous models, which started from an incomplete contracts framework, the most recent paper on P3s takes a *complete contracting* approach where agency problems between the customer (government) and the provider (the agent, the private sector) stem from asymmetric information and non-observability of effort. Bentz, Grout and Halonen (2002) consider the construction and service provision related to a product such as a school. They analyze whether a government should opt for “conventional delivery” — in which case it contracts with a builder, takes possession of the school, and then writes a separate contract with a service provider — or for a P3, in which case there is a unique contract between the government and a “consortium” that builds and manages the school.

Bentz, Grout and Halonen assume that the builder can exert effort to improve efficiency of service provision, and that this efficiency is observable only to the service provider but not to the government. With P3s, there is a unique contract and the model simplifies to a standard adverse selection set-up in which the builder/service provider is induced to truthfully reveal whether service provision efficiency is high or low. The information rent given to the agent to induce truth-telling also generates incentives to exert effort at the building stage, and thus

providing incentives is relatively cheap with P3: it allows the government to “hit two birds with one stone.” Conventional delivery does not have this advantage and therefore the payment made by the government to induce high effort is higher with conventional delivery.

On the other hand, compensation has to be paid less frequently with conventional delivery than with P3. Indeed efficiency may be high due to the builder's effort, or simply due to the forces of nature. With conventional delivery, the agent/builder must be compensated only when effort has been exerted, whereas with P3s the payment from the government is made whenever efficiency is revealed to be high, which includes the case where high efficiency is the result of nature. Thus is the trade-off between conventional delivery and P3s in this paper: compensation to the agent is higher but less frequent in the former than in the latter.

PRIVATE FINANCING AND THE TRUE COST OF CAPITAL

Traditionally, governments financed public projects themselves, either from current tax revenues or by borrowing. Perhaps the most striking aspect of the new wave of P3s is the extent to which the financing is being handled by the private sector. Indeed, one of the most frequent reasons governments employ to justify their use of P3s is that they are cash-strapped and too debt-laded already, and therefore need an infusion of capital from the private sector if the project is to proceed. While almost certainly true for many underdeveloped and developing economies (where P3s have been used for some time), the argument is made more and more frequently by governments in developed economies as well.³⁵

Critics of P3s ask how it can be better to let the private sector finance projects when governments (at least those in Canada and most of the developed world) can borrow at lower rates of interest than

private firms. They argue that such P3s are a trick employed by governments wanting to fool taxpayers into thinking they are holding down levels of public debt while continuing to offer desired services.

We agree that the use of P3s to “hide” debt is a concern. Here we just make the fairly obvious point that under certain assumptions there is a financial equivalence between a policy in which a government borrows to pay for a project and then repays the loan over some period and a policy in which a government lets a private party pay for and construct the asset and then pays that party back through “lease” payments over several years. In both cases, the government gets the benefit of using someone else's money (the lender's or the private developer's) to secure construction, and then pays it off over time. Depending on how the accounting is done, however, the P3 may not show up as debt on the government's books and for governments looking to convince taxpayers that they are not overspending, this may be a good thing, if the taxpayers can be so fooled.³⁶

However, there are a number of reasons why it may make sense for the financing to be done by parties other than the government. A careful response addresses two points: first, that it is not at all clear that governments can borrow more cheaply; and second, that there may be complementarities between financing and the other tasks such that we should look at the combined costs of having those tasks performed, not the cost of financing in isolation.

Can the Government Borrow More Cheaply?

To begin, we note that a comparison between the borrowing rates charged to governments and to private partners is not necessarily comparing apples with apples, as the private borrower is acquiring a put option with its loan and this must cost it something. To see this, assume that because of its very low probability of bankruptcy, the government can borrow at the risk-free rate of interest, say this is 5 percent over 20 years. If a private borrower had an equally low probability of bankruptcy it would also

be able to borrow at 5 percent, but in fact over the course of 20 years there is a not-insignificant chance it will be unable to meet its debt obligations. Thus, a loan contract with this private borrower, say at 7 percent, is actually a combination of a loan plus an option to “put” the remaining portion of the debt back to the original lender.

The important observation here is that the government does not get this put option when it pays 5 percent, it must repay the loan in full, no matter what. This is not to say that the cost of borrowing has to be identical when we take the put option into account, it is just to point out that the listed rate exaggerates the difference.³⁷

The second point we would make about the rates at which government and private parties can borrow, is that with a solid, long-term contract from a government buyer a private borrower can most likely secure a very good rate from private lenders. Here the government’s reliability as a buyer substitutes for its reliability as a borrower, with the result that the rate at which the private party can borrow is very low.

Third, the private borrower is able to deduct interest payments and so reduce its tax burden. While some of this saving may just be a transfer from the very government with which it is partnering, some could be from other levels of government. For example, in Canada the tax savings come, in part, at the expense of the federal treasury, while the public sector partner might be a provincial or local government. While from the standpoint of national wealth these are not real savings in resources, from the perspective of the partners (including the provincial or local government), some portions of them are, and they function as a form of subsidy from the other level of government available only if the project is privately financed.

Fourth, when we recognize that governments, particularly subnational (e.g., provincial) ones, can get themselves into serious financial trouble and even possibly face bankruptcy, we know that they

will often not be able to borrow at the risk-free rate.³⁸ Importantly, they may face an upward-sloping supply of capital curve such that the more they borrow the higher the interest rate they must pay. For example, as a provincial government increases borrowing it runs the risk of having its debt-rating downgraded and having to pay higher rates on all of its borrowing. The implication is a familiar one from monopsony theory — the cost of borrowing for the next project is higher than just the interest rate you pay for that project if it also increases the rate you pay for all your other borrowing. For a government borrowing considerable sums of money regularly, the chance of a downgrade leading to the need to pay even a quarter percentage point more is a very serious matter. Thus, we can have a situation in which even if the interest rate charged to the government borrowing for the next project is lower than that which a private sector partner would have to pay, the “full” marginal cost to the government could be much higher.

We conclude from this review of the issues that it is not at all clear that the government will be able to borrow at a lower cost than the private sector. A full evaluation of the relative costs will have to consider such factors as: (i) the credit-worthiness of the private borrower and the protections offered in its contract with the public sector partner; (ii) the extent to which tax savings may come from other levels of government; and (iii) the degree to which the supply of funds to the public sector borrower is upward sloping.

Complementarities Between Financing and Other Tasks

Possibly more important than the relative costs of public versus private sector borrowing are the effects that being the debtor has on one’s incentives to high-level performance.³⁹ It is very likely that there will be important complementarities associated with combining the financing task with the construction and possibly also the operation/maintenance task.⁴⁰

If a private partner charged with constructing the facility must also provide its own financing, it will

suffer the costs of delays. Since, of all the parties, the builder has the greatest control over the time-to-completion, this provides strong incentives for the builder to finish on time and on budget. While governments can also provoke delays, through permitting (e.g., environmental, zoning, etc.) problems and design changes, the public sector decision-makers are so far removed from their principals (taxpayers) that whether or not the government is providing the financing may not matter to them. Add to this the fact that inordinate delays created by governments might give the private partner the right to recover damages and it would not appear that any strong incentive loss is felt on the government side by moving financing to the private partner.⁴¹

SUMMARY AND DISCUSSION: LESSONS LEARNED TO THIS POINT AND QUESTIONS FOR FUTURE RESEARCH

Our review of the relevant theory and experience has suggested a number of lessons regarding the conditions under which P3s become a particularly desirable alternative to traditional methods for the provision of public services. To briefly repeat the most significant here:⁴²

Ex ante competition. A substantial fraction of the benefits from private provision comes from marshalling the pro-efficiency forces of competition. Since the ultimate provider of any services will almost certainly become a monopolist, this competition will have to be *ex ante* — at the bidding stage. If there are not enough competent bidders or bidding consortia to make the process competitive, there is less of a guarantee that taxpayers will get value for money.⁴³

Scarce skills. In many cases the private sector will have skills not available in the public sector. If these skills will be required throughout the life of the project and it is hard to separate the provision of these skills from the operation of the project, the government may need to allocate these tasks to a

private partner who not only has the skills, but (because of its “ownership” of the project) also the incentive to perform at a high level.⁴⁴

Poor labour relations. Where the public sector labour-management environment has not produced an appropriately-skilled, efficient and flexible labour force, the private sector (again through the forces of competition) may offer considerable advantages.

Innovation. When the project calls for innovative thinking and new approaches, most would turn to private providers. Of course, it is possible that only some parts of the project, say the architecture, need be innovative. In such a case it may be best to contract out only that part. The extent to which the whole project should be a P3 will depend, in part, on the complementarities between the tasks (see the points on complementarities).

Risks. When most of the major risks are things the private sector can manage as well or better than the public sector, P3s become more attractive. For example, construction-delay risk is something that the contractor can manage better than the public partner and a P3 in which the contractor (or a consortium partner) also becomes the operator gives it the incentive to minimize such risk. On the other hand, “political risk” is better managed by the public sector.

Economies of scale. If the private provider can take advantage of economies of scale (and perhaps scope) from the operation of similar projects in other (perhaps nearby) jurisdictions, the P3 option becomes more attractive.⁴⁵

Observability and measurability of quality. Much of the opposition to private sector provision of public services revolves around concerns that the quality of service will fall. In order to protect against such quality erosion, the partnership agreement should specify the required quality, provide for the measurement and verification of quality, and provide for enforcement of the contract’s requirements.

In some cases, however, it will be very difficult to define, measure, and verify quality levels, making the private participation problematic.

Complementarities. When physical facilities such as bridges or buildings need to be constructed, it is pretty much standard practice for governments to turn to private contractors to do the work, taking advantage of their economies of scale. In some cases, the construction is the only task contracted out, but when there are strong complementarities with other tasks it becomes efficient to have one provider (or tightly organized consortium) responsible for the set of connected tasks. This is most frequently observed with the design task (or parts of it) tied to the construction, but increasingly other complementarities are being recognized.

Constraints on public sector borrowing. We have seen that if further borrowing risks a deterioration of a government's credit rating, the marginal cost of borrowing can become very high. In this case, allocating the financing tasks to the private sector, which might face a lower marginal borrowing rate (even though its average borrowing rate might be higher), may lower borrowing costs. Cases in which the government simply cannot borrow at all (as with some developing countries carrying enormous debt loads) are obvious, if extreme, examples.

While we would argue that partnerships should be embraced only when they allow governments to provide services of an acceptable quality at lower cost to taxpayers/consumers, other — sometimes less noble — objectives are frequently attributed to governments adopting P3 programs. It may be argued, for example, that P3s are a way for governments to avoid public sector labour unions, to move debt off the government's balance sheet, to hide information from the public, or to deflect blame.⁴⁶

Despite this learning there is much we do not know about the optimal design of P3s and their true efficiency benefits or costs. To stimulate further research in this important area we suggest a few

important questions which we feel warrant attention. Some are directed at solidifying our confidence of the lessons already discussed, others push into newer areas.

First, there is considerable experience with contracting-out in Canada and elsewhere; does this experience support the theory described in this paper? Then a similar question must be asked for completed P3s, where there is much less independent research.

Second, when is the cost of borrowing, properly evaluated, truly lower for the public sector? A full analysis here would have to consider elements such as: (i) tax issues and tax shifting between levels of government; (ii) the marginal versus average cost of borrowing for governments; (iii) the value of the put option; and (iv) bankruptcy costs.

Finally, more detailed modelling of the basic P3 trade-off — that is, with a P3 structure the public sector gets greater efficiency but exercises less control — could provide additional insights about the conditions under which the P3 will be the preferred approach to public service provision.

Supporters claim that P3s represent a true organizational innovation for the efficient delivery of public services. Opponents argue that they are an ideologically driven plan to reduce wages to public sector workers; one that threatens the quality of public services citizens have come to expect from their governments. It is time for more independent research to determine the true benefits and costs of public-private partnerships.

NOTES

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¹Two of the more representative definitions: (i) "A public-private partnership [is] a cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards" (Canadian Council for Public Private Partnerships). (ii) "The term "public-private partnerships" has taken on a very broad meaning. The key element, however, is the existence of a 'partnership' style approach to the provision of infrastructure as opposed to an arm's-length 'supplier' relationship ... a P3 involves a sharing of risk, responsibility and reward, and is undertaken in those circumstances when there is value for money benefit to the taxpayers" (BC. Ministry of Finance and Corporate Relations 1996, 8).

²It is worth noting that the rewards need not be measured in direct profits. Some "private" partners may be not-for-profit enterprises which measure rewards in terms other than direct profits. For example, a number of airport authorities in Canada today are operated as not-for-profit corporations in "partnership" with various governments and government agencies (e.g., Transport Canada).

³Under some definitions, regulated privately owned utilities (e.g., electricity) might be seen as P3s, or at least as examples of an ASD.

⁴See, for example, the information provided on the Web site of the Public-Private Partnership Office of Industry Canada, <http://strategis.ic.gc.ca/epic/internet/inupr-dpr.nsf/vwGeneratedInterE/Home>

⁵For example, the United Kingdom created "Partnerships UK" in 1999, British Columbia created the Crown corporation, "Partnerships BC" in 2002, and Ontario created a special agency "Ontario SuperBuild Corporation" in 1999.

⁶A number of government auditors have produced very useful reviews of P3s in their jurisdictions. The UK office is particularly strong in this regard. See also Grout (1997) for an excellent "economic" account of P3s in the United Kingdom. A useful collection of papers on public

policy partnerships is contained in Rosenau (2000).

⁷A complementary discussion focused on P3s for infrastructure is found in Daniels and Trebilcock (1996).

⁸With the ability to costlessly assess tolls for road or bridge use, these problems need not arise. However, at least until recently, the cost of collecting tolls in terms of manpower/administration and lost time to travellers was substantial.

⁹If what the public sector is buying is a more or less standard product, buying construction services is not really different from buying office supplies in the regular market, with the implication that the term "partnership" is probably not appropriate.

¹⁰Of course, if it is a new service not previously offered by government it is privatization only in the sense that it involves greater private sector decision-making than the public enterprise alternative.

¹¹In some cases, the public sector may even do the construction: some governments have road crews for building and maintaining roads, for example, and many will have crews capable of at least small-scale construction and renovation projects.

¹²The surveys, for American large cities by Dilger, Moffett and Struyk (1997) and for British Columbia municipalities by McDavid and Clemens (1995) show that the most commonly contracted-out services include: solid waste collection, vehicle towing, street repair, janitorial services, and legal services.

¹³In principle, all of these could be specified in the contract with the sponsoring government, but certainly some decisions will remain with the private provider.

¹⁴While still not without some controversy, there is a considerable literature comparing the costs of public versus private provision of goods and services, and the mass of evidence would seem to suggest that the private sector can produce at lower cost. See, for example, Vining and Boardman (1992).

¹⁵See, for example, McDavid and Clemens (1995) on the experience of local governments in British Columbia; Dilger, Moffett and Struyk (1997) on the experience of the largest US cities; and Domberger and Jensen (1997) who review studies from a number of countries. Some of these studies are summarized in McFetridge (1997).

¹⁶However, in some cases, the traditional public sector provider may be permitted to bid for contracts against the private sector providers. For example, United Kingdom (2003b) reports that, for the management of prisons in the United Kingdom, the Prison Service has recently accepted in-house bids (in competition) to replace private sector management at two prisons. These bids were successful, in part because more flexible staffing permitted the in-house bidder to lower its price.

¹⁷There is some evidence that the private sector does in fact deliver projects more quickly, as proponents claim. Two UK studies are worth mentioning in this regard. The first, by the National Audit office is discussed further below (UK 2003a). The second, prepared for HM Treasury by Mott MacDonald (2002) studied "optimism bias" ("the tendency for a project's costs and duration to be underestimated and/or benefits to be overestimated") and found less bias in P3 projects.

¹⁸Examples of the kinds of risks to be allocated in infrastructure projects, as described in Poschmann (2003), include: (i) technical risk (e.g., engineering or design failures); (ii) construction risk (e.g., higher than expected costs); (iii) operating risk (e.g., more costly or difficult to operate than expected); (iv) revenue risk (e.g., lower than anticipated levels of demand); (v) financial risk (e.g., inappropriate debt management); (vi) force majeure risk (e.g., acts of war, natural disasters); (vii) regulatory/political risk (e.g., changes in laws that make continued operation less profitable); (viii) environmental risk (e.g., risk of significant environmental damage and liability); and (ix) project default risk (e.g., failure through any combination of these risks).

¹⁹We are hardly the first to make this point, though it is often more implicit than explicit in materials produced by the P3 industry. Nova Scotia (1997) is quite good on this point. In preparing a financial case for a P3 it clearly becomes important to put a value on risks transferred and this can be contentious. See, for example, Pollock, Shaoul and Vickers (2002) who claim that the financial case for a number of hospital P3s in Britain was based on suspect valuations of risk transfer.

²⁰In a world of imperfect commitment, of course, some risks cannot be transferred completely to the private sector, even if that would give the private partner strong incentives to effort. Project default risk may be an example. Private partners can typically walk away from projects

that have become unprofitable (though if they have posted a bond of some sort, this too will carry a cost), but at the end of the day it is the public partner that has to see the service provided. Thus the private partner cannot credibly commit to provide the service in all circumstances and the public partner cannot credibly commit to not provide the service under any circumstances.

²¹It is important to recognize that there is a "local" component to construction markets. It would not be easy to move crews and equipment across vast distances just to keep them busy. Thus, even if a government had enough business in total to allow a firm to achieve efficient levels of production, the costs of moving the capacity to where it was needed could well be prohibitive.

²²There is the possibility, of course, of a government-owned construction company achieving its scale or learning economies by taking on additional business in the private sector. (This was the concept behind the British Columbia government's ill-fated attempt to build high-speed ferries for its own Crown corporation, BC Ferries, and also for markets around the world.) This is a good way for a government to make enemies in the private sector as those firms are likely to find it unfair that they compete against a firm for private sector work, but they are not allowed to bid on public projects.

²³See Hart (1995), Hart and Holmstrom (1987), and Holmstrom and Tirole (1989) for excellent surveys of this literature.

²⁴See King and Pitchford (2000). They too deal with optimal (public or private) ownership in a framework related to that of Hart, Schleifer and Vishny. King and Pitchford's contribution comes from the generality of their model which enables them to determine optimal ownership as a function of (i) the marginal impact of effort on asset value, which can be positive or negative, and (ii) positive or negative externalities.

²⁵This role of the private contractor — bringing expertise — is especially critical in less developed and developing countries where the necessary expertise may just not be easily acquired within government (or anywhere within the country). Fourie and Burger suggest that in South Africa, "a lack of management capacity in government is a prime argument for a PPP initiative" (2000, 715).

²⁶In the private sector, firms that are underperforming can be sold to other owners who can profit by fixing the

problems. This is not possible with public sector provision.

²⁷See, e.g., United Kingdom, National Audit Office (2003a, 1) and McFetridge (1997, 43-44). This is one of the reasons the contract has to be for a large fraction of the useful life of the constructed assets. McFetridge claims that minimizing the combined costs of construction, maintenance, and operation is the benefit most recognized by the privatized prisons in the United States.

²⁸The theoretical literature has studied the "bundling" of construction and service provision as a defining characteristic of P3s. See our discussion of Hart (2003) and Bentz, Grout and Halonen (2002) below.

²⁹This incentive effect is magnified if the same firm is providing the financing for the project. We return to this below.

³⁰Most of the operation contracts of substantial facilities are very long term — 20 years and longer is not unusual. In part the reason is that this allows the government a longer period to pay off the capital expense through lease payments. However, this point also illustrates the advantage of making the contract length roughly equivalent to the useful life of the facility.

³¹Related is the concern that if the private partner ever found itself in financial distress, it would be tempted to cheat even on contracted levels of quality. As the failure of the private contractor can be chaotic for customers, the public partner will be reluctant to enforce contractual obligations that put the contractor at risk of failure. This is like a situation in which both sides began with "hostages" to enforce mutual contract compliance, but the hostage held by the public sector (profits from continued operation under the contract) lost its value. The use of hostages to support exchange was described by Williamson (1983).

³²It has been suggested that some aspects of quality may be very difficult to make enforceable parts of a contract and, if they are very important, this may mitigate against using the P3 form. See, e.g., Hart, Schleifer and Vishny (1997).

³³The parameters are chosen such that in the first-best the unproductive investment should be set to zero.

³⁴See also King and Pitchford (2000), and Bennett and Iossa (2003) for more general analyses of bundling of two

activities, which share similarities with Hart, Schleifer and Vishny (1997) and Hart (2003).

³⁵The World Bank has an active P3 program supporting partnerships for infrastructure projects.

³⁶Independent government auditors may not be fooled and can represent a check on this behaviour.

³⁷In the simplest case, there should be no difference in the "true" cost of capital between the public and private sector. This point was made by Grout (1997) with a very elegant example. However, if there is a difference in the cost of liquidating a failed project depending on who provided the financing, this could create some difference in borrowing costs between public and private borrowers.

³⁸Indeed, in less-developed countries, large private corporations may be more reliable debtors than the nations in which they are working.

³⁹This was also very clearly noted by Daniels and Trebilcock (1996, 409).

⁴⁰A related issue, which we do not take up here, involves the question of how the private partner should finance a P3; that is, what proportions of debt and equity are optimal from the public's perspective. The answer is not as simple as it might be for private firms in unregulated markets. For example, if a P3 providing an essential public service runs into serious financial trouble, the government will be under considerable pressure to bail out the private partner so that the service flow is not interrupted. A cushion provided by substantial private equity reduces the probability that risks will be shifted back to the government in this way.

⁴¹In its survey of P3s in the United Kingdom (2003a, 3, Table 1), the National Audit office reported that 22 percent of surveyed PFI (P3) construction projects exceeded projected costs (some with good reason) while in an earlier study it had found that 73 percent of government construction projects managed in traditional ways had gone over budget. Further, in their samples, about 76 percent of PFI projects were delivered on time (or early) compared to about 30 percent for traditional methods. Without a clear idea of how the estimates of cost and time-to-completion are prepared we cannot conclude from this that PFI projects were really less costly or more quickly delivered, so this question needs further work.

⁴²One lesson not listed below, because it has more to do with political than economic considerations, may be worth noting nonetheless. To the extent that voters will accept user-pay systems such as tolls more readily if the toll revenue is going to a private concessionaire rather than their government, public officials committed to user-pay to finance the project may determine that a P3 structure will meet less public resistance.

⁴³Of course, if the private provider can produce the service more efficiently, there is still a social gain to allocating it the task, even if its price is high. In this case, while taxpayers may not save any money, the economy still conserves resources.

⁴⁴The need for the continuing application of scarce skills likely has much to do with the popularity of P3s in developing countries.

⁴⁵For example, the French water giants like Vivendi, which provide services to many municipalities in France and elsewhere, can spread some of the fixed costs of design, R&D, and maintenance across a large number of projects.

⁴⁶Spackman's review of the British experience with P3s leads him to believe that "the main drivers appear still to be ideology and accounting" (2002, 283). That said, he sees potential benefits from P3s and believes a number of important lessons have been learned in Britain (e.g., 297-98).

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