

**AN ECONOMIC AND FINANCIAL ANALYSIS
OF PUBLIC PRIVATE PARTNERSHIPS**

BY

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Submitted to the Faculty of Graduate Studies
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**Department of Economics
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An Economic and Financial Analysis of Public Private Partnerships

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Adriana De Luca

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of
Master of Arts**

ADRIANA DE LUCA © 2000

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ABSTRACT

In response to the rising concerns of a growing debt-to-income ratio, governments have begun to shift or re-define their priorities. It is becoming increasingly difficult for governments to continue to use traditional financing methods, such as deficit financing or tax increases, to pay for public services. Consequently, the challenge facing governments is to find new methods that would allow for the completion of these projects as efficiently as possible, without jeopardizing their credit ratings any further. This challenge has led governments to the use of Public Private Partnerships (PPP's).

More often than not, those who are seeking to promote the use of PPP's take the superiority of the private sector over the public sector for granted. A decision to use a PPP because of unsubstantiated claims could have disastrous consequences for governing bodies and taxpayers alike. Therefore, a complete analysis of the economic and financial effects associated with PPP's must be done to check the uninformed usage of PPP's.

In this thesis an effort will be made to gain insight into the economic and financial implications of PPP's. This will be done by first examining the different types of PPP's and the reasons for their increased acceptance. This is followed by an explanation of the relevant economic theory in an effort to understand the economic consequences of increased PPP usage and the budgetary entanglements and the differences in borrowing costs when using a PPP instead of the more conventional financing approaches. Finally, two case studies will be examined to delineate the fundamental differences inherent in every PPP and the resulting after-effects.

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1.0 INTRODUCTION

Public-private partnerships, or PPP's, are a relatively new means of providing public infrastructure. PPP's are agreements between the public and private sectors to allow for private provision of a good or service, which has, or would have been publicly provided in the past. PPP's split the obligations faced by the public and private sectors in the furnishing of traditionally public responsibilities. PPP's have become an instrument capable of circumventing the constraints faced by both the public and private sectors.

Governments have begun to shift or re-define their priorities in response to the rising concerns of a growing debt-to-income ratio. They are attempting to redirect funds from renewing (or creating) infrastructure to other more pressing concerns, such as the provision of public services and incurred tax financing (Colman, 1989, pg.6). The result is that much of the needed infrastructure development, such as the construction, replacement, or rehabilitation of roads, bridges, sewage treatment plants, libraries, schools, and so on, is simply not being realized. It is becoming increasingly difficult for governments to continue to use traditional financing methods, such as deficit financing or tax increases, to pay for public services. Consequently, the challenge facing governments is to find new methods that would allow for the completion of these projects as efficiently as possible, without jeopardizing their credit ratings any further.

Concurrently, there have been tough restrictions placed on private firms who are seeking to develop new growth opportunities (Colman, 1989, pg.6). For example, the availability of ample public facilities will determine the number of development permits granted. The challenge facing private institutions is to find a means of cultivating new

development possibilities, whether they are private or public projects. PPP's seem to offer both sectors a solution to their respective challenges.

Accordingly, there is increased willingness on the part of governments to utilize PPP's for an expanding array of projects. As a result, PPP's have become the most popular alternative to the conventional financial approach of providing various forms of infrastructure. They are being viewed by the public and private sectors alike as the vehicle that will rescue them from the deteriorating status of roads, bridges, correctional institutions, and other public facilities and the costly and doubtful status of current public works projects. PPP's are also being used in the building or maintenance of bridges, buildings, utilities, treatment plants, correctional facilities, airports, and so on.

1.1 Historical Perspective

The term "privatization" is a relatively new economic term. It was introduced in 1968 by Peter Drucker and popularized in 1972 when Anthony Pascal presented a paper on the private provision of public services to a conference in North Carolina (Hirsch, 1991, pg. 4). Since then, the term has become a household word, being used consistently in most European and North American countries. There has never, however, been a clear dichotomy between the public and private sectors.¹ The director of the privatization division of the Rothschilds merchant bank in London, Oliver Letwin, affirmed that "Economies have...been mixed since time out of mind. The 'public sector' and the 'private sector', in many ways different and often hazily distinguished forms, have been

¹ For the purposes of this paper, "private enterprise" or "private sector" shall refer to both profit and nonprofit organizations and individuals acting in a private, nongovernmental capacity (O'Looney, 1996).

present together throughout history” (Martin, 1993, pg. 21). This dichotomy has become even less distinct with the introduction of privatization, and more recently, PPP’s.

With the tremendous desire of most countries around the world to quell the rising tide of governmental involvement in the marketplace, privatization has come to be seen as the new tenet in public sector economics. Indeed, Colman (1989) asserts that “it is not only logical but inevitable that in a democratic system governmentally and a capitalist, free enterprise system economically, the general goals and interests of public and private sectors be compatible and mutually supportive most of the time” (pg. 174).

Governments from around the world have begun to redefine their responsibilities within the market place. By modifying their policies on privatization and deregulation, it seems that governments have attempted to remove themselves entirely from the marketplace. This shift in priorities is mainly the result of advice given by experts, such as economists, accountants, the World Bank, the International Monetary Fund, and the like, who share the same basic outlook. “Their...outlook is that the free market knows best and the private sector does best, that the state’s main task in economic and social development is to minimize impediments and maximize inducements to private capital accumulation” (Martin, 1993, pg.6). The experts believe that the structure of markets allows for greater revenue generation, the creation of incentives, and the maximization of efficiency, and that these benefits that accrue from market operation are reduced if or when, governments intervene in the marketplace.

While most first-world country governments were considering the implications of privatization as early as 1959, when West Germany arranged the sale, to the public, of a block of shares in a mining and electricity company called Preussag, they took no

definitive action until the late 1970's (Letwin, 1988, pg.8). In 1975, a pamphlet entitled Why Britain Needs a Social Market Economy delineated the opinion that was to become the benchmark for mass-privatization: "There is now abundant evidence that state enterprises in the UK have not served well either their customers, or their employees, or the tax payers. For when the state owns, nobody owns; and when nobody owns, nobody cares" (Letwin, 1988, pg. 10).

The act of privatization really gained acceptance when, in the early 1980's, Margaret Thatcher, then the leader of the governing Conservative Party, sold several corporations held by the British government, such as British Telecom, British Airways, British Gas, Jaguar, and part or all of its shares in British Sugar, British Aerospace, British Steel, and British Petroleum to private interests (Hirsch, 1991, pg. 2). Spurring this increase in privatization of public corporations was a growing acceptance of private enterprise. Conservatives began to expound the benefits of the private provision of goods and services. T.E. Borcharding argued that

The literature seems to indicate that private production is cheaper than production in publicly owned and managed firms... The public choice approach not only recognizes the differences in behavior between publicly owned and managed firms and private ones [which result from] limited transferability of ownership. It also considers the likely oversupply of public services due to the lack of competition in their provision and production (Hirsch, 1991, pg. 5).

In addition to this, the need was, and is, being felt for a reduction in government spending. In many first-world countries, business people and governmental officials alike came to believe that current government spending levels were unsustainable, and as such were the primary contributor to ever-increasing federal deficits, the financial strain

on all levels of governments, and a sustained taxpayer revolt. William T. Gormley, Jr. (1991) writes, "After the end of World War II, governments all over the world assumed increasing responsibilities for the welfare of their populations, thereby affecting the lives of more and more people. In this process, governments may have overreached and after more than forty years of activist government, a reaction was to be expected" (p. 26).

Gormley believes the motivation behind the trend to privatize public corporations originates from government's over-involvement in social welfare programs. This resulted in continuously escalating tax levels and, accordingly, people's desire to quell the rising tide of governmental involvement, both within and outside, of the market place.

By the late 1980's, many countries had followed Britain's lead and had begun to sell off crown corporations. Japan privatized Japan airlines, Nippon Telegraph and Telephone, and many other public corporations. Italy sold Alpha Romeo, Turkey sold the Bosphorus Bridge, France privatized Saint-Gobain and the Paribus bank, and Singapore, Mexico, Argentina, Brazil, and Spain all sold important public enterprises (Hirsch, 1991).

Collaboration between the public and private sectors toward a common, public objective had intensified. By the mid 1990's, governments began to seek alternatives to the mass privatization of national companies, typical in the 1980's and early 1990's. They began instead, to search for innovative financial techniques that would support private involvement in typically public domains. This search led to the creation of PPP's. PPP's afford both governments and private firms the means of overcoming their respective obstacles.

The public sector began to realize the possibilities that existed with an alternative monetary source, available to them through public-private partnerships. At the same time, the private sector was excited by the development opportunities that a partnership would bring them.

The public sector has begun to utilize PPP's as a new interpretation of privatization. When governments privatize companies or services, they usually receive a one-time, lump sum pay-off for the ownership rights of the good or service in question. PPP's allow governments to extract more capital for a longer period of time. By the same token, most private firms are experiencing "a crisis in productive capital" which has led them on a search for profits (Marshall, pg.4). Through the use of PPP's, private firms seem to have found a source for those profits in the provision of public services.

These collaborative efforts, or PPP's as they came to be called, encompassed everything from the provision of sector-to-sector advice, to the relinquishment of public responsibilities to the private sector (O'Looney, 1996).

1.2 A Growing Trend

During the past fifteen years, public services have come to be associated with deficit financing and tax increases due to the fiscal repercussions of persistent high unemployment, high interest rates on the debt, and pervasive stagnation in the macroeconomic arena (CAW, 1995). Consequently, the social programs and services, which were introduced during the post-WWII era, seem unaffordable. Contrary to political propaganda, however, this was not due to the expansion of the social safety net.

In fact, over the past fifteen years, these programs and services have faced continuous cutbacks (CAW, 1995).

There has been a sizable amount of political indoctrination that has lead many people to believe that the scope of the public sector has reached some form of intrinsic limit and continued expansion of public services will only add to the already heavy burden carried by the government. This has been the rationale used by governments and private firms alike, to support the increased use of PPP's. Their rationalization, however, is simply untrue. As explained above, there has been a contraction, rather than an expansion in revenue reserved for public services. The constraint on our finances comes not from the deterioration in society's economic ability to maintain our public services. but instead from the control and distribution of our wealth.

“Rather, it was because of the terrible impact of chronic recession, and the high interest rates which have largely caused that recession, on government finances. Tax revenues declined, expenses on income security programs exploded, and -- worst of all -- huge amounts of public revenue were transferred into the pockets of well-off bondholders and financiers, thanks to the dramatic and permanent rise in real interest rates. For the provincial government, fiscal dumping in the form of cutbacks in transfers from the federal level has exacerbated the problem” (CAW, 1995, pg.3).

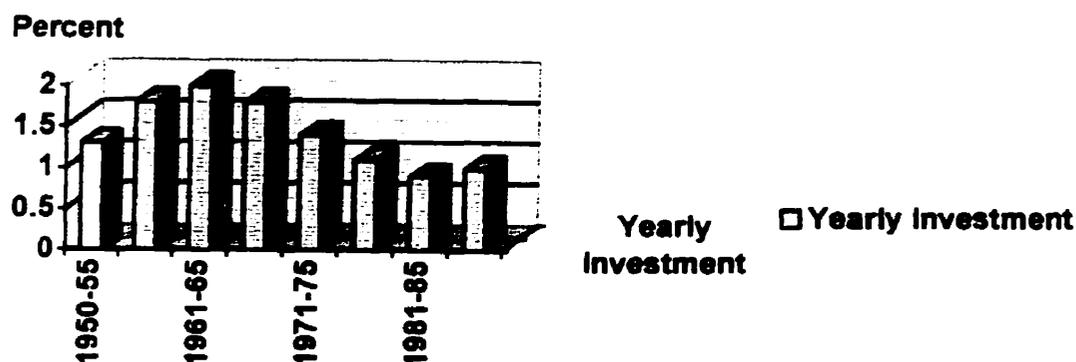
It is for these and other reasons that our government has been experiencing fiscal difficulties. “Some of the public sector's failings can be attributed to outmoded structures and methods, some to chronic underfunding and some to government decisions to cut them or prepare public opinion for privatization” (Martin, 1993, pg. 6). Governments seem willing to allow the citizens to believe that the reason PPP's have become so important and utilized is because the funds no longer exist to support the

established social programs and infrastructure. In reality, however, the truth may be that the people within governments *choose* to follow the agenda's of private firms, and as such, look for ways in which to limit government involvement in areas deemed market-based.

This can be seen if one examines the attempts by the government to increase taxes, apparently as a means to increase available revenue. The implementation of tax increases, however, has not typically been used to fund new programs. Instead, they have been implemented to maintain the same level of existing services and to pay for increasing dollar costs (CAW, 1995).

Of particular relevance to this thesis is the trend of public infrastructure investment relative to the gross domestic product (GDP). This comparison delineates the amount of funding allocated to public infrastructure as a proportion of GDP thereby giving us an idea of how government spending on public infrastructure has changed in recent years. It is evident that the trend in government spending on infrastructure as a whole has decreased steadily during the past twenty years. This can be seen in the graph below. While spending levels have fallen, however, the amounts required to maintain infrastructure levels, have not. This is one of the most obvious reasons why the use of PPP's has become so popular. The government must find new sources of revenue to maintain existing infrastructure levels, in addition to creating new infrastructure projects, and hence, has turned to PPP's for a seemingly economical source of revenue.

Public Infrastructure Investment Relative to GNP



Source: Price Waterhouse, 1993

1.3 *The Changing Balance*

Most of the goods that are currently provided publicly could also be provided privately. With the advancement of technology, even goods that were previously considered pure public goods can now be provided privately. There has also been a convergence of the interests of local and provincial governments and the private sector, which has acted to increase the usage of PPP's. These emerging common interests are summarized in a 1982 Committee for Economic Development (CED) report:

America's urban communities possess the resources of an advanced and affluent society: highly educated and skilled individuals, productive social and economic institutions, sophisticated technology, physical infrastructure, transportation and communications networks and access to capital. Developing this potential will require cooperation.

Local governments will need to define their role and manage their operations in new ways. They will require active assistance and appropriate legal, financial, and administrative tools from their state governments. To make full use of the private sector's potential, local

governments will need to adopt an entrepreneurial approach that anticipates needs, seeks out opportunities, and encourages an effective coalition of public and private efforts (Colman, 1989, pg. 127).

Many governments see privatization as an omnipotent tool that will relieve their financial distress. By privatizing crown corporations or service provisions, governments believe they can relieve some of the associated financial strain. In reality, however, the actual act of privatizing a business or industry is extremely difficult to carry out. Privatization is different than employing a PPP since, in this case, the government simply sells its interests, and all resulting responsibilities, to the private firm. With a PPP, the government would retain some form of responsibility. As described below, the problems associated with privatization led to the further appeal of utilizing PPP's.

The definition of privatization is the “transfer of an enterprise from public to private ownership, either partially or totally” (Bos, 1986, pg.31). Any given group of individuals in that area, however, may repudiate this ‘transfer’. As with the privatization of the Manitoba Telephone System (MTS) in Manitoba, Canada, in 1996, the New Democratic Party obstructed the sale for many months by utilizing political loopholes in the Legislature. They were convinced that the sale of MTS would result in increased user costs for consumers. Moreover, they believed that any financial benefits gained from the sale of MTS would only be temporary, since it was a one-time payment. Consequently, the province would be adversely affected by the sale since they would no longer be in a position to collect profits from the company.

Once the decision is made to privatize, many public obstacles, such as concerns about distributional effects of the kind described above in the case of MTS, must be

overcome. It is important to understand that the reasoning behind the push to privatize is the ideology that private mechanisms more readily achieve cost minimization and profit maximization, and are therefore more efficient, and hence, more desirable, than public sector delivery of the same goods or services. As such, governments and private industries alike are increasingly suggesting that the public sector concentrate on altering their mandates so as to increase profits and, more importantly, decrease costs. Hence, the development of PPPs is an attempt to capitalize on the strengths of both the public and the private sector, without experiencing the difficulties, such as undesirable distributional effects, associated with complete privatization.

Underlying the transfer of infrastructure provision from public to private through the creation of PPP's, are three key assumptions. These assumptions provide the basis and rationale for the actions of governments across Canada and the United States. They are:

- Governments believe that they are simply no longer able to fund social services using traditional financing mechanisms such as deficit financing or tax increases.
- Governments believe that PPP's have the potential to create new economic opportunities.
- Governments believe that PPP's have the potential to improve service delivery to the public (Nova Scotia Deputies' Committee, 1995).

Underpinning these assumptions is the belief that the creation of a private market for the provision of public goods is a feasible and desirable substitute for their public provision (Fosler, 1990).

Until recently, the traditional method for implementing such projects was that the government would contract out the design and construction portion of the project and finance it through a combination of initial capital payments taken from tax revenues,

borrowed funds, and the assumption of debt-load by government. Upon completion of the project, the government would assume responsibility for all operating and maintenance tasks. Under the alternative PPP delivery approach, the implementation method usually differs dramatically from this traditional method.

1.4 Current Situations

The government has been the traditional supplier of infrastructure and its development for many reasons (Hodgson, 1996, pg.3). Firstly, the planning required to establish something of this magnitude must be carried out at the macro level. Secondly, the economic scale of these types of projects necessitates the availability of vast financial resources. Thirdly, the degree of risk experienced requires a long-term commitment from the project sponsor. Finally, infrastructure development can be classified as a public good in that it indirectly benefits every member of society. As such, it is impossible to exclude some persons from enjoying these benefits. Traditionally, this meant that private firms were extremely reluctant to provide these types of infrastructure. However, with the advent of PPP's, a system has been developed that allows private firms to reap some form of financial reward in exchange for providing certain traditional public goods. This system is comprised of many different forms of PPP's and will be explained in depth in section 2.3.

Public and private enterprises are becoming increasingly interested in the private provision of infrastructure. "The Bush Administration's proposed fiscal year 1991 budget document, for example, touted a proposed private toll road in Virginia as an example of the kind of creative public/private partnership needed to address the nation's

transportation problems. The Environmental Protection Agency (EPA) has launched a major initiative designed to foster public/private partnerships in environmental infrastructure, such as water and wastewater treatment plants” (Gomez-Ibanez et. al., 1990, pg. 143).

Currently, most infrastructure funding still comes from public sources. This, however, is quickly changing. Every province in Canada has at least some form of PPP already operational.² It seems evident that the trend towards PPP usage will only get stronger. It is important to note, however, that the concept of PPP’s has “more to do with efficiency, pricing, technology, and shifting burdens among users, taxpayers, and wage earners and among economic and financial sectors”, than with the total quantity of infrastructure provided (Fosler, 1990, pg. 179).

1.5 Thesis Motivation and Overview

More often than not, those who are seeking to promote the use of PPP’s take the superiority of the private sector over the public sector for granted. A decision to use a PPP because of unsubstantiated claims could have disastrous consequences for governing bodies and taxpayers alike. Therefore, a complete analysis of the economic and financial effects associated with PPP’s must be done to check the uninformed usage of PPP’s.

In this thesis an effort will be made to gain insight into the economic and financial implications of PPP’s. Chapter 1 will provide an introduction to PPP’s. It will also examine the growing trend of PPP usage. Of particular interest are the current situations facing governments and private businesses. Chapter 2 will examine the

² See Appendix D for a complete listing of PPP’s within Canada.

different types of PPP's and the reasons for their increased acceptance. It will also provide a description of the characteristics associated with PPP's as well as the advantages and disadvantages that go along with this form of privatization. Chapter 3 will address the economic theory in an effort to understand the economic consequences of increased PPP usage. Everything from their impact on efficiency to environmental implications will be covered. This will be followed in Chapter 4 by a financial analysis of PPP's. Most important are the budgetary entanglements and the differences in borrowing costs when using a PPP instead of the more conventional financing approaches. Chapter 5 presents two case studies of PPP's found in Canada. This chapter will attempt to delineate the fundamental differences inherent in every PPP and the resulting after-effects. The final chapter, Chapter 6, is a concluding summary that includes some viable alternatives to the widespread use of PPP's.

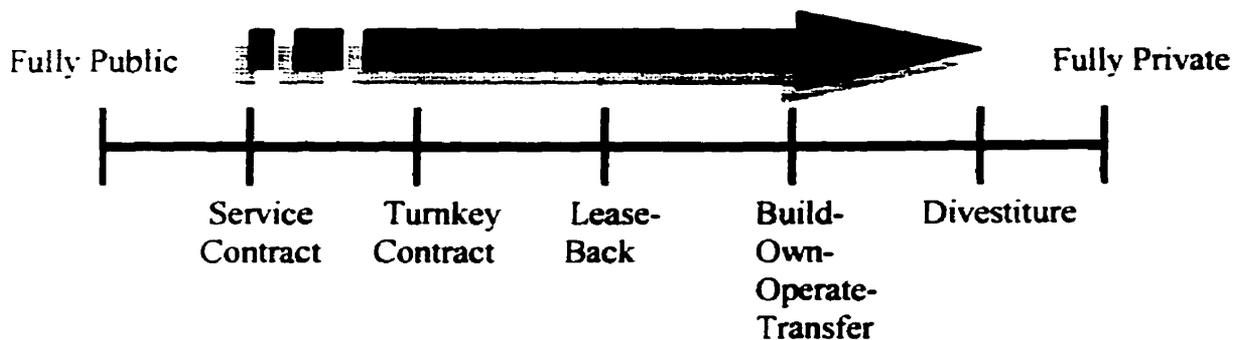
2.0 DESCRIPTION OF PPP'S

2.1 *Types of Public-Private Partnerships*

The term public-private partnership (PPP) describes a project in which there is a mixture of public and private responsibilities. What the responsibilities of each member of the partnership entail is unique to each project and depends on the terms agreed upon by the parties. PPP's include a wide range of different projects – everything from the restoration and maintenance of old buildings and prisons to building and operating new highways and water treatment plants.

PPP's can encompass the entire spectrum of levels of public and private involvement, as shown in diagram 1 below.

DIAGRAM 1



On the extreme left, the government assumes sole responsibility for all aspects of service delivery and infrastructure provision. The other extreme sees all of these responsibilities delegated to the private sector. Between these two extremes, there lie varying degrees of public and private responsibility, which are explained below.

The key to understanding the many forms of PPP's is to understand that any PPP has many characteristics that could change, thereby changing the PPP itself. The variable characteristics of a PPP are:

- *Design Methodology* (Who does it and how is it done? Eg.'s: Are new technologies employed in the design process and which partner is responsible?)
- *Construction Responsibility* (Which partner is responsible for this aspect of the project?)
- *Financing Arrangement* (Which partner secures the financing? How are payment schedules set up? What interest rates will be used?)
- *Operating Responsibility* (Which partner is responsible for the operation of the facility or project?)
- *Maintenance Responsibility* (Which partner is responsible for the maintenance of the facility or project?)
- *Revenue Source* (Which partner will provide the required revenue? Is it provided jointly or only by one partner?)
- *Ownership:*
 - *Private* (Is the facility privately owned and leased to the public sector?)
 - *Public* (Is it publicly owned and leased to the private sector?)
 - *Other* (Is it publicly owned but 'on loan' to the private sector who collects its profits through user fees?)

A change in any one, or several, of these characteristics changes the nature and form of the PPP. Therefore, the nine types of PPP's explained below represent only a sample of all of the different combinations of variable characteristics that make up PPP's. Accordingly, it can be very difficult to categorize PPP's into a finite and manageable number of types.

One of the main problems encountered throughout the research of this thesis was the lack of information available describing the differing types of PPP's. Consequently, I was forced to develop explanations of some of the different forms a PPP can take.

Service Contracts

Beginning on the extreme left-hand side of diagram 1, there are operations and maintenance service contracts. This is the most fully public type of PPP and the most common area in which PPP's have been used to date. The operation and maintenance of infrastructure is typically contracted out by the public entity to private interests. This form of service contract is also referred to as outsourcing. Typically, a private firm is hired to operate a publicly owned facility as specified in a prearranged contract. Contracting, however, can also be applied to governments that work with each other and voluntary and nonprofit organizations (Bish, 1986).

Outsourcing occurs for many reasons, the main one being cost savings. Most governments believe it is more efficient to contract out operation and maintenance services than it is to have them done in-house. This is usually the case because when a project is outsourced, typically non-unionized labour is used which translates into a savings in the production costs incurred by the contractor. The services provided can include anything from road and bridge repairs to solid waste and/or snow removal.

Municipal governments throughout Canada have a long history of contracting out those types of projects that do not occur on a regular basis (Kitchen, 1994). For instance, the construction of buildings, construction, maintenance and operation of water and sewer lines and treatment plants, and the enlistment of professional services such as structural design and legal advice have been among the traditionally outsourced services. Subsequently, this list has grown to include such project headings as waste management, personal and property protection, social and cultural services, transportation services, and administrative services (McDavid, 1988).

The ideology behind the use of outsourcing is that it improves the competitive arena, thereby generating lower operating costs per unit produced (Kitchen, 1994). The increased competitive environment also creates positive incentives for contractors to become more efficient and penalties if they do not.

Ordinarily, contracts are judged using a competitive tendering system where private firms or other governments try to out-bid each other, each attempting to present the lowest bid. In addition, some municipalities have developed a system of dividing regions into subdivisions (Kitchen, 1994). Services for which economies of scale do not exist are then contracted out in an attempt to encourage the participation of smaller firms to bid on contracts, which would otherwise not have occurred if the contracts were too large.

User Fees

The level of private involvement increases as we move towards user fees. User fee employment, also known as user-based financing (UBF), is steadily growing in frequency because it enables the public entity to transfer some of the operation costs to the consumer. Moreover, user fees are typically able to generate an amount of funds sufficient not only to recover the capital costs of the project, but also to furnish, most, if not all of the project costs associated with operation and maintenance (Colman, 1989, pg. 134).

Theoretically, user fees can be applied to almost any public service. Tuition fees for schools and universities, charges to use libraries, public swimming pools or national parks are all common examples of user fees.

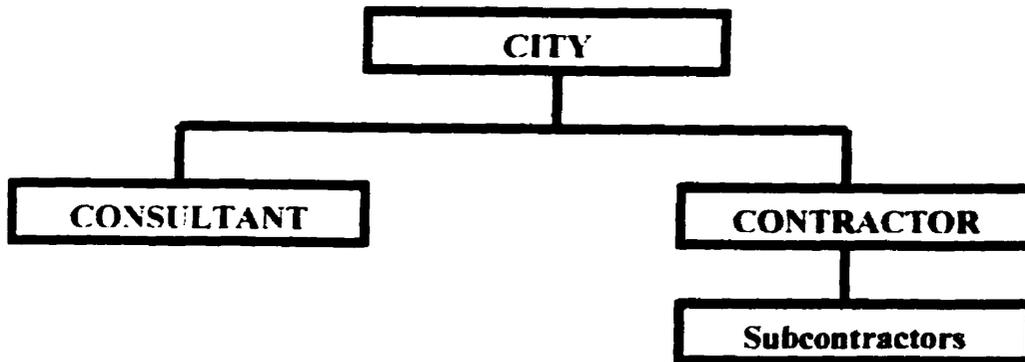
There has been a lot of opposition to the application of user fees because they essentially limit the number of people who are financially able to take advantage of the services offered. For instance, in Canada, pay-for-service medical support has been vehemently opposed but is being increasingly utilized by provincial governments who are looking for an easy means of confronting rising debt levels. Toll roads are a more common and less controversial way to decrease the costs incurred by governments.

Design Build

Design/build or turnkey arrangements follow with even greater levels of private involvement. These types of projects can encompass varying degrees of involvement from the basic design and build contract to the much more complex finance, design, build, own, and operate model. Each of these has varying components and consequences.

In the past, when public entities have made the decision to initiate an infrastructure program, they have used a more conventional system than those associated with PPP's. Initially, a consultant was hired to design the structure given certain parameters, draw up tender documents based on the design and to monitor construction. Contractors would then be invited to submit proposals for the work and the successful bidder would acquire the responsibilities associated with the construction of the project in question. In turn, the contractor would usually hire subcontractors who would obtain the necessary labour, typically but not exclusively unionized. This process is shown in the diagram below.

CONVENTIONAL APPROACH



The advantage of this approach is that the design is completed in advance so the budget is reasonably fixed through the process of competitive bidding. The engineering consultant is responsible to the owner and maintains an independent quality control over the contractor. In turn, the contractor bids on a reasonably fixed design.

The disadvantage of this approach is that it stifles creativity in the sense that the contractor is not involved in the design process and simply bids on a given design. Both the consultant and the public entity tend to be wedded to the design because it may be inconvenient or risky to change any given element once approval has been secured. Often, consultants and contractors find themselves at odds over specifications, quality, method or timing of work. This might lead to lengthy, time-consuming conflicts that might end up costing the public entity money in time lost and conflict resolution agreements. Finally, the public entity has little control over factors which may lead to cost over-runs in the conventional approach.

PPP's have the potential to overcome these problems by addressing those factors that engender the difficulties experienced with the conventional approach. There are, however, many different kinds of PPP's and the suitability of each PPP for individual projects must be decided ahead of time to ensure the best result possible.

The term design/build, or turnkey arrangements, is used to classify projects in which a single private firm is contracted to design and construct a facility for a guaranteed price, according to specifications required by the public entity. The private firm then hires consultants as well as subcontractors, at its own discretion. The contractor guarantees a specified level of performance, is responsible for scheduling and coordination and becomes the single point of responsibility. In this instance, construction and completion risks are borne by the private firm while ownership and operations are the responsibility of the public entity. One of the largest turnkey operations awarded occurred in 1993 in Bangkok, Thailand, where a British company won a \$260 million design/build contract for the city's wastewater treatment plant and the infrastructure associated with it.

Many proponents of PPP's believe that this method will assure a better quality facility at a lower price than could be accomplished in-house. It encourages creativity in the design process since the design need not be completed when building begins, but rather can proceed along with construction. This allows for fast tracking of construction and for cost-saving innovation. Incentives can be built into the arrangement so that any cost savings can be shared. If the contractor provides financing too, then the possibility may exist for the project to start earlier than otherwise.

The disadvantage of the design-build approach is that the owner loses some control over quality since there is no longer an independent consultant to rely upon. Contractors and consultants also complain that they must do considerable up front work at their own risk developing proposals for preliminary design with no guarantee of getting the business. From the point of view of transparency and democracy, the PPP arrangement shifts much information, which would otherwise be in the public realm, into the realm of confidentiality on the ground that the private sector must retain competitiveness. The Charleswood Bridge in Winnipeg, Manitoba is an example of this form of PPP.

Design Build Operate

With the design-build-operate (D-B-O) arrangement, the private partner uses its own funds to build and operate the facility for a prearranged number of years before it is turned over to the public partner for a predetermined fee. Ownership of the facility remains in the public entity's hands. In effect, then, the private partner is simply hired to build and operate the facility in place of the public partner. This is the model for the fixed link between Prince Edward Island and New Brunswick. It was designed and built by a private firm. The private firm will retain ownership and operate the bridge for a period of 35 years, after which ownership, and all related operations, will be transferred to the Province of Prince Edward Island.

Design Build Transfer Operate

Another arrangement is design-build-transfer-operate (D-B-T-O). The difference between this arrangement and the previous one is that, upon completion of the project, legal ownership is transferred to the public sector. The facility is then leased back to the private partner who takes over operations, thereby recovering its investment and profit margin through user fees and commercial enterprises. Alternatively, the public sector themselves could operate the facility and pay the private partner out of operating fees or general taxes. The California Department of Transportation employed this PPP model in its partnership development with private toll road operators (Price Waterhouse, 1993, pg.5).

Lease Develop Operate

In the instance of lease-develop-operate (LDO), the private partner designs and builds the capital project and then leases it to the public partner for a predetermined period of time. This form of PPP may also be applied to existing facilities in which case the private partner would operate and expand a pre-existing facility under a long-term lease agreement. At the end of this period, ownership of the facility reverts to the public partner.

The difference between this method and the D-B-O method lies in the tax implications for the private partner. With a lease agreement, the private firm is able to claim capital cost allowances from taxes which translates into the ability to write off in excess of 100% of the cost of the facility. The taxpayers are then responsible for the difference in lease costs from what it would have been had the D-B-O method been used.

In addition, this method alleviates the legal difficulties associated with private-ownership of a publicly financed facility. Under this form of PPP, Johnson Controls has operated and made improvements to Teterboro Airport in New Jersey (Price Waterhouse, 1993, pg.4).

Sale Lease Back

A comparable PPP is the sale-lease back method in which the public sector sells the assets to the private sector and then leases them back. This arrangement can apply to almost any form of asset, including libraries, swimming pools, arenas, etc. The public sector gives up ownership of a fixed asset in return for an immediate cash payment and then incurs an annual lease charge to have ongoing access to those assets. The private sector usually borrows to purchase the asset and finances its borrowing and profit margin out of the lease payments, in the process depreciating the asset for tax purposes.

The attraction to the public sector is the access to cash, which can be used to finance new capital projects or to reduce outstanding debts. The disadvantage to the public sector is that lease payments then become contractual obligations on the budget and usually at implicitly high borrowing costs. Federal and provincial governments may, however, end up 'subsidizing' lease payments through asset depreciation provisions of income tax arrangements.

Build Own Operate Transfer

Build-own-operate-transfer (B-O-O-T) arrangements are one of the most fully private forms of PPP's. In this case, a private entity is selected by the public sector to

build and own said facility. The private firm will also be responsible for operating the facility for a specified length of time (generally 25 to 30 years), after which ownership will be transferred to the public sector. The private firm will usually provide the financing for this form of PPP, which separates it from a more conventional form of PPP in which the financing comes from the public sector. This is done in an attempt to remove some of the risk and burden associated with borrowing tremendous sums of money. However, this method is not always beneficial for the public partner, as shown in Case Study 1. The public entity could end up paying more for the facility through higher interest charges and may not experience the tax relief correlated with removing the debt charge from the balance sheet as it may not be completely removable and could be represented as annual lease or subsidy payments. Terminal 3 Airport Development Corporation at the Pearson International Airport is a B-O-O-T model.

Value Capture

The last typical form of PPP is called value capture and can apply to almost all of the aforementioned PPP's. Under this arrangement, the public sector attempts to profit from the benefits derived by the private partner because of the public investment in infrastructure. This would occur if development possibilities arose due to the construction of a new bridge or road or if private land increased in value.

Each of these forms show the differences that can exist within PPP's. There are numerous characteristics of PPP's which cannot be neatly bound into specific categories. Each arrangement has its own set of attributes that can vary, often in many directions.

Consequently, it is hard to type any PPP. The nine types discussed can be used as a guideline to the development of a PPP, which best suits the project at hand. They can be manipulated and combined according to the needs and specifications of the parties involved.

2.2 *Why are Public-Private Partnership's used?*

It is often argued that the 'infrastructure crisis' most governments face today is the direct result of the expansion of public programs and services (CAW, 1995, pg.3). In addition, it has been implicitly suggested that an intrinsic limit on the size of the public sector has been reached (Hirsch, 1991, pg. 9). What must be stressed is that as a result of the economic situation we find ourselves in today, new and more creative means of the provision of these services must be developed. This should be done, however, in conjunction with a search for the solution to the deeper economic problems that gave rise to our current economic situation. That said, PPP's are clearly one of the possible creative approaches to take in providing services and infrastructure. Moreover, they are being formed with increasing frequency. As of 1996, there were 219 major PPP's undertaken, being developed, or under serious deliberation within Canada. The reasons for the use of PPP's include the lack of revenue available to governments to finance new or renewing infrastructure programs, the increasing public acceptance of user fees in place of taxes, and the ideology that private sector businesses are more efficient, and therefore more desirable, than the public sector.

The view inherent in any PPP that the private sector can help in the provision of what were historically considered public goods comes from the precarious situation of

government finances. Many first-world governments have found themselves at their financial limits (Martin, 1993, pg.35). Moreover, the traditional methods of financing infrastructure, such as deficit financing and tax increases, are no longer viable options for governments given the high debt and tax levels of most first-world countries. Thus, governments must seek new ways of raising the necessary revenues. Many cities and countries are finding that there is a widening gap between available public funding and their infrastructure needs (Jardine, 1993, pg.2). The consequences of this growing gap can be seen in collapsing bridges, increased traffic congestion, unrepaired roads, and ruptured water mains. PPP's are being considered increasingly frequently as the solution to the broadening insufficiency in infrastructure, decreasing opportunities for private businesses, and problematic public endeavors (Hodgson, 1996, pg.3). PPP's can offer a new revenue stream, which was previously unavailable to the public sector, to invest in repairs or new infrastructure development.

There has also been an increase in public acquiescence of direct user fees in lieu of taxes. This can be attested to through the increased number of toll roads and bridges as well as the introduction of pay-for-service medical clinics. Traditionally, governments have used tax revenues to support many facilities, such as hospitals and roadworks. When the monies do not exist to continue to fund these services, people seem to become increasingly willing to pay user fees to support the infrastructure. Most cities are looking to creative development strategies which would allow for a financial arrangement that would not put additional stress on already constricted public budgets and that would not add to the weight carried by the taxpayers.

There has been considerable pressure from the political 'right' to move toward less government responsibility for the supply of goods and services since it sees PPP's as a way of allowing the public sector to be included in the profits enjoyed in the private sector. Conservatives also argue that it has been empirically proven that the same level of output could be achieved at a fraction of the cost if it were produced by the private sector instead of the public sector (World Development Report, 1994, pg. 89).

The private sector is also pushing governments into PPP's as a means of securing municipal works projects which bring with them a guaranteed revenue stream from either lease payments or user fees (Hardin, 1989, pg. 118).

There seems to be a general consensus that it is unlikely that PPP's will simply be a passing fad. The Canadian Council for Public Private Partnerships has released a collection of 219 distinguished PPP's which are either being implemented or carefully considered for implementation. The areas that PPP's can be found range from energy and the environment, waste disposal services, and transportation needs, to hospital services, correctional facilities, arenas and museums (Canadian Council for Public Private Partnerships, 1996). The reasons behind this belief are three-fold. Firstly, governments are no longer able to use conventional financing methods such as deficit financing and/or tax increases to fund the services people anticipate. Secondly, it is believed that PPP's will open the door to new development possibilities. Finally, the proponents of PPP's believe that public-private partnering will lead to improved service delivery to the public (Public-Private Partnering Discussion Paper, pg. 1).

Moreover, there seems to be a growing acceptance of the idea that less government is better. Proponents of PPP's believe that the public sector is simply not as

qualified as the private sector to undertake the role of provider. In addition, there is a pervading atmosphere of distrust that surrounds public figures and their motivations. Many PPP advocates believe all levels of governments are interested in shifting the burden for public services from the general tax-base onto the shoulders of individuals.

2.3 *Features and Goals of PPP's*

To be precise, PPP's are unique, cooperative arrangements between governments and the private sector, which serve to develop or improve public services or infrastructure projects (Hodgson, 1996, Pg.1). There are three features that can identify PPP's from other forms of partnerships or cooperative arrangements.

The first is risk sharing between the public and private sectors. Traditionally, the public sector was the sole provider of the good or service in question. Consequently, only the public sector bore the risk associated with the initiated projects. Likewise, the private sector was generally the one to bear the risk of projects initiated and developed internally, although this was not necessarily always the case. With the collaboration of the public and private sectors, the degree of risk borne by each of the sectors is now less because of the dual responsibility generated by the PPP.

The second common feature of PPP arrangements is the amalgamation of multidisciplinary teams. With a partnership of this kind, each sector is able to use its expertise to the best of its ability while simultaneously taking advantage of the expertise of the other sector. Traditionally, there was no form of expertise sharing between the government and private firms.

The final feature is the long-term contractual agreements that exist between the partners. Due in most part to the magnitude of the projects initiated, the agreement will have to be laid out over a long period of time. In other words, because most of the PPP's involve a great deal of money and responsibility on both sectors parts, the terms of the agreement usually stipulate a long-term payment schedule in addition to the long-term responsibilities procured by the private sector.

Ideally, the main goal of using PPP's should be to capitalize on the strengths of both parties while minimizing their weaknesses.

2.4 *Potential Advantages*

There appear to be many potential benefits to be gained from adopting a PPP. They can be both ideological and economic. For instance, by increasing the use of PPP's, the role of government becomes smaller, thereby moving towards a more market oriented economy. Conservatives have long argued the advantages of an economic system based on the market, namely the presence of competition, in contrast to one that is heavily reliant on government services. They also believe that the more capitalist the economy, the more democratic it is because of the wider ownership of shares. Since private firms are not concerned with the issue of income redistribution or economic stabilization, there will be less interference with microefficiency (Bos, pg.32, 1986).

Economically, there seems to be the potential for many advantages to be gained from PPP's. These benefits stem from the emergence of competition into the bidding process to provide the good or service. The presence of competition in PPP's brings many, potentially advantageous, consequences.

Competition introduces the possibility of choice. When PPP's are utilized, designers of the program have options afforded them by the presence of competition, such as new development techniques or production methodologies, not available to public entities that lack any form of competition. In other words, by introducing choice, competition provides a means of reducing the inefficiencies identified with public enterprises (Hirschman, 1970).

Competition also introduces an incentive structure. "Competing firms, in their attempt to attract clients [or win a contract], try to find a mixture of services that best meets customer needs. More generally, competition provides a *basis for comparison*" (Stiglitz, 1988, pg.200). When there is only one agency involved in designing or providing public infrastructure, or anything else for that matter, it may be difficult to determine whether that agency is providing the most efficient and efficacious good or service. Conversely, if there is more than one agency involved, a basis for comparison exists that will help determine efficiency levels.

The above are two general ways in which competition adds to the advantages of utilizing PPP's. Competition also provides the basis for more specific advantages associated with PPP's.

Firstly, PPP's are assumed to reduce the cost of production.³ This can occur because of the innovation resulting from multi-disciplinary teams who are assumed to employ better management techniques, greater access to leading-edge technology, which anticipates better and more productive equipment, and fast-track construction (Hilke, 1993, pg. 15). Likewise, PPP's promise to offer a more efficient deployment of labour,

the inclination to use more part-time and temporary employees, and the increased scheduling of off-peak work hours. This is due to the fact that private firms have more flexibility to use new technologies, such as a fast-track design process, which allows them to build the facility more quickly than the public sector (Gomez-Ibanez, 1990, pg.154).

Secondly, greater efficiency may follow from private sector motivation to maximize profits, which necessitates keeping costs to a minimum. This will only benefit users, however, if the private owners of a facility are forced to pass those cost savings on. In addition, the mantra of emphasizing revenues usually translates into a better quality facility or service, which will decrease future expenditures.

Thirdly, there is a reduced level of public sector risk because, typically, development and market risk is assumed by the private sector. Moreover, it is assumed that assessments of the projects are no longer politically motivated but rather, are based on the market. Furthermore, PPP's can be arranged in such a way as to create risk protection for the public sector in areas where there had been none in the past. For instance, a PPP can be negotiated so that all construction and design risks become the responsibility of the private firm, thereby eliminating risk traditionally sustained by the public entity.

There is also the possibility of an improved financial position for the government due to its neoteric access to "private" sources of capital, the potential to move the cost of such services or projects off its balance sheet, and the more efficacious use of public sector resources.

³ See Appendix B for a compilation of various findings.

Finally, there are the benefits received by consumers in the form of lower out-of-pocket expenses. This can occur because of shorter construction times, newer technology, and/or the ability of private firms to take advantage of economies of scale, as explained in the following chapter. There are also a host of other benefits such as an increased tax base, new job and career opportunities, the transfer of information and knowledge, and the creation of new businesses, which can be the direct result of PPP's.

2.5 *Potential Disadvantages*

While there seem to be a plethora of potential benefits originating from PPP's, we must not neglect the fact that there are also many potential disadvantages. "First, while the private sector may be able to build facilities faster and operate them at a lower cost, particularly when competition is present or potentially available, cost is neither the only important barrier to infrastructure provision nor the only consideration in the choice between public & private providers. Local neighborhood and environmental opposition to the siting of new roads or solid waste facilities, for example, is often as much of a bar to infrastructure investment as cost" (Gomez-Ibanez, 1990, pg.144).

Moreover, by delegating certain private firms to supply public goods and/or services, the public sector runs the risk of creating a monopoly if the PPP is not regulated and with the appropriate incentives in place. There may be serious economic and social repercussions if the PPP is not structured properly.

PPP's may also be met with a great deal of resistance from different sources. People may not relish the idea of having to pay a user fee for a service that was previously free, or at least heavily subsidized. Public employees could understandably

fear pay cuts and job loss because of the tendency for private firms to use non-union labour or cut workers' wages and/or benefits in order to decrease production costs.

There are many difficulties corresponding to establishing the process of accountability. PPP's can threaten the accountability generally present in traditionally funded infrastructure programs by limiting the ability of the public to hold the providers of that service responsible (CUPE Research, September 29, 1995). "Privatization makes it easier to fire people, to hire for less, or charge more, to elevate the interest of profit over the interest of consumers. And it cuts the ties of political accountability; once privatized, public complaints are referred to a private bureaucracy, even more faceless and unresponsive than the public one, a bureaucracy without fear of political oversight for intervention" (Dalton Camp, Toronto Star, August 9, 1995). If decision-making is taken out of the hands of the government and given to private enterprises, how can the government ensure that public policy objectives and delivery standards are met? In addition, the absence of accountability generally results in higher provision costs for the consumer (CUPE Research, September 29, 1995).

Facility users could be harmed by the implementation of a PPP in two ways. First, if the nominal cost of public sector financing were *less* than the nominal cost of private sector financing, the user will likely make up the difference by paying increased user fees. Secondly, private owners may be able to charge user fees that are *greater* than the operating and building costs incurred by the private company. Private firms are able to do this because PPP's increase the opportunity to exploit any monopoly or market share (Gomez-Ibanez, 1990, pg. 170).

Of course, the real cost to the taxpayer may not be evident at the onset, or even many years into the project. Private firms cannot usually borrow money as cheaply as the public sector can, which intrinsically raises the cost of capital projects. Furthermore, the public sector will most likely be unable to remove the monetary commitment to the project from their balance sheets, even where a project is financed by the private sector. For example, in a lease arrangement, the future lease liability ought, properly, to be capitalized and shown as a liability on the balance sheet, in much the same way as borrowing to finance projects by more conventional means, would be treated.

PPP's also present the problem of disregarded public policy requirements. The widespread use of PPP's may not expedite the commissioning of public policy objectives. PPP's are also likely to sacrifice the public interest for the exhaustive pursuit of profits because private firms are facing limited profit levels in the more traditional private arenas. Conventionally, public services and infrastructure had to meet the criteria of accessibility, universality and quality. With private provision, there is a good chance these criteria will simply be disregarded in the search for higher profit margins.

3.0 ECONOMIC ANALYSIS

As illustrated in chapters 1 and 2, the main perceived difference between the public provision of goods and services and the private provision of those same goods and services is cost. It is believed by the proponents of PPP's that the private sector can produce these goods and services at the same, or greater, measure of quality but with decreased cost levels. In view of this, we need to use economic theory to study the behavior of the producers to establish how firms organize their production efficiently and how they are able to change their costs of production as their input prices and levels of output change. In so doing, we should be able to determine whether one firm or sector is more efficient than another.

During the production process, firms take inputs, or factors of production, and turn them into outputs or products. The main inputs in any production process are labour, materials, and capital. The cost of acquiring and using these inputs converts into the cost of production. An input combination is economically efficient when "it has the lowest opportunity cost of those input combinations that can be used to produce the desired output" (Katz and Rosen, 1994, pg. 281). That is, a production process is efficient, in economic terms, if it produces the desired output (at the desired level) at minimum cost.

Economics is the study of how people and societies cope with scarce resources. Each society must determine the most effective and efficient way to utilize the finite resources available to them. The growing consensus in North America and parts of Europe is that the private provision of traditionally publicly supplied goods and services is now the more efficient means of production. This belief is supported by the assumption that the private sector is both economically and financially superior to public

sector provision. Occasionally, this assumption is supported by the evaluation of certain projects that delineate this superiority by measuring its performance. More often than not, however, this belief in the superiority of private provision is taken for granted by advocates of PPP's, a claim that is most often made on the grounds of efficiency. This practice could result in the perpetuation of incomplete information thereby resulting in ineffective conclusions. To remedy this, practical assessments of project performance need to be conducted in such a way as to measure the entire range of economic and financial effects of PPP's.

This chapter presents an economic foundation from which these assessments should be considered. It illustrates the economic theory required for understanding the various implications of PPP's. In order to understand these implications using economic theory, it is important to explore some components of microeconomic theory. These include production and efficiency, economies of scale, and economies of scope. Each of these areas will give greater insights into the theoretical pros and cons of PPP's, particularly from the standpoint of the efficiency claims on which are based arguments in favour of further proliferation of PPP's.

Throughout this and the next chapter, key questions will be raised that will be applied to the two case studies that follow in chapter 5. These questions will be the determining factors in the desirability of a PPP. They will be asked of each PPP to determine its potential benefit or harm.

3.1 Impact on Efficiency

The purpose of this paper is to determine whether the increased usage of PPP's is

providing the purported gains in efficiency. It is therefore important to assess exactly what a gain in efficiency consists of and whether PPP's actually create a situation in which these gains can occur. This section details the measurement process of a gain in efficiency by examining cost minimization, economies of scope and economies of scale.

When assessing the impact PPP's may have on efficiency, the first step in that decision-making process is to establish parameters on the set of socially acceptable choices for infrastructure, service delivery, and maintenance. Measuring efficiency can provide information on whether the desired output is being produced at a minimum cost. However, efficiency can tell society nothing about whether cost minimization is socially acceptable or not, given the resulting consequences. For instance, a PPP project may be deemed efficient because it utilizes non-unionized labour, which is considered to lower overall labour costs for the production company. This 'cost savings', however, may lead to higher economic costs, (such as a decrease in consumer expenditures, increased savings levels, and other drains on the economy) in the future. Therefore, before deciding conclusively whether PPP's have a positive or negative impact on efficiency, boundaries must be set for defining society's choice set.

Once this choice set has been defined, the second step in the decision process is to measure a PPP's impact on efficiency by examining its ability to minimize costs. As previously mentioned, costs minimization is affected by the production inputs, labour, materials, and capital. The relationship between these inputs and the production process is described by the production function. The production function denotes the output (Q) that a firm would produce for each designated combination of inputs and a given technology. Production functions are usually expressed using two inputs, capital (K) and

labour (L) for simplicity and is written as

$$Q = F (K, L).$$

From this equation, we can define two partial derivatives, $\partial Q/\partial K$ (or Q_K) and $\partial Q/\partial L$ (or Q_L). The partial derivative Q_K represents the rates of change in output with respect to infinitesimal changes in capital, while labor input is held constant (Chiang, 1984, pg.176). Q_K is also referred to as the marginal physical product of capital (MPP_K), or the additional output obtained by employing one more unit of capital. Similarly, the partial derivative Q_L represents the rates of change in output with respect to infinitesimal changes in labour, while capital is held constant, and is referred to as the MPP_L , or the additional output obtained by employing one more unit of labour.

If we wish to know how the MPP for a factor behaves as we increase the amount of that factor, while holding the amounts of the other factors constant, we take the derivative of the MPP. The production function exhibits *increasing marginal returns* to labour if the MPP_L increases as the amount of labour employed increases:

$$\partial MPP_L / \partial L > 0.$$

Likewise, it exhibits *constant marginal returns* if $\partial MPP_L / \partial L = 0$, and *diminishing marginal returns* if $\partial MPP_L / \partial L < 0$.

The marginal rate of technical substitution (MRTS) indicates how much more of one factor the firm needs if it is to produce a constant quantity of output as it reduces its use of another factor. The MRTS is calculated by taking the ratio of MPP

$$MRTS = MPP_L / MPP_K.$$

Finally, the degree of returns to scale is the rate at which the amount of output increases as the firm increases all factors proportionately. The return to scale is

determined by seeing what happens to output when the firm increases all inputs in the same proportion. Let B be a constant greater than 1. Then returns to scale are increasing, constant, or decreasing depending on whether $f(BL, BK)$ is greater than, less than, or equal to $Bf(L, K)$.⁴

The production function is designed to indicate the differences resulting from varying combinations of labour and/or capital. As technology changes, so too does the production function for each firm.

It stands to reason, then, that in order to determine whether the private sector is indeed economically superior to the public sector, in the provision of goods and services, we must first examine the production functions of both sectors for a given project and given technology level. A comparison must be made of the varying inputs and the resulting outputs to determine exactly how output levels and the ensuing production costs are being arrived at. Subsequently, it must be determined whether the differing levels of inputs are really what we, as a society, want. In other words, if production costs are dropping due to a capital intensive, labour minimizing production function, society must determine if that combination of inputs, and its consequences, is acceptable. Of course, it is entirely possible that one sector, presumably the private sector given the vast amounts of dollars spent in research and development, would have a technological edge over the other sector, and that must also be taken into consideration.

To illustrate, PPP's might affect efficiency by making labour more productive, through increased training programs, by altering the production technique, by rearranging the organization of the production or delivery process, or simply by becoming more

⁴ This section also applies to economies of scale that is explained later in this section.

innovative over time. Due to budget constraints or other factors facing the public sector, the private sector may also be in a better position to ameliorate labour with special training programs and/or introducing newer technology not readily available to the public sector. Unlike the private sector, public enterprises are commonly bound by unionized labour and civil services provisions, which can affect both labour quality and wages. These provisions established methods that were designed to help eliminate political sponsorship, instead, affirming and remunerating the workers productive enhancement rather than their racial, political, or other non-financial state. Yet, by the very act of establishing equal treatment for all workers, these guidelines have, in some instances, led to increased wages and lower caliber workers.

The private sector may also be able to use more effective organizational methods (i.e. production technologies) unavailable to the public sector because of constraints imposed by these bureaucratic procedures or civil service. A change in the organizational structure resulting from the implementation of a PPP may affect the level of efficiency (Bos, 1986, pg.32). To illustrate, a PPP could increase competition within the market for inputs and/or outputs. In turn, this may lower the consumers purchase prices thus giving them greater buying power and, consequently, a higher utility range from a given level of income. Economists believe this characterizes an improvement in efficiency in the consumer market. Alternatively, the introduction of a PPP could lead to cheaper input prices and therefore, greater production efficiency. This means that more inputs can be purchased with the same amount of money, or the same number of inputs could be purchased with a lesser outlay of capital, thereby increasing efficiency as defined by economists.

The management of public firms are often unable to make the appropriate technological decisions because they are fettered by public unions, prevailing wage laws, residence laws which unnaturally contract the labour supply, and/or limitations set forth by civil service prerequisites that do not constrain private enterprises to the same extent. A PPP may have the effect of increasing organizational efficiency if it allows management to retain greater control over the workers than would otherwise be the case. By not being bound by unionized labour, management would be able to move labour from job to job or city to city without having to compensate labour for its inconveniences; it might be able to loosen its commitment to on-the-job safety or health benefits; it might be able to intensify the pressure on workers to increase the production effort. However, most empirical studies have shown that the restrictions faced by public enterprise, on the decision making process, do not inhibit productivity (Hirsch, 1991, pg.83). This may be because public unions may generate many benefits, including more organized budgetary processes, the centralization of authority, and superior personnel practices.

Efficiency levels tend to increase with the adoption of technological improvements. In turn, innovation tends to increase proportionately with the number of firms competing within a given arena. Moreover, the greater amount of creative control a firm retains over its own production technologies, the more original it is inclined to be. Public sector enterprises generally experience less freedom of control over their production systems due to high levels of bureaucracy, in addition to insignificant or non-existent competition. Over time, this could lead to lower levels of technological innovations.

Cost Minimization

Cost minimization is an important aspect of PPP's for more than the obvious reasons. While it is true that one of the most crucial components of efficiency is reducing production costs, by studying the behavior of a cost-minimizing firm, we are able to model the production response by a firm which does not face competitive output markets. This is a key feature of PPP's and, as such, must be given the appropriate consideration.⁵ Moreover, it allows us to examine the long run input decisions of a private firm.

For the purposes of this paper, only the basic components of algebraic approach to cost minimization will be examined.⁶ Suppose that there are two factors of production, L and K. The prices of these are w and r, respectively. The objective is to determine the most inexpensive way to produce a given level of output, y. If the production function of a firm is $f(L, K)$, then this objective can be expressed mathematically as:

$$\text{Min } wL + rK \text{ such that } f(L, K) = y.$$

$$w, r$$

The firm minimizes its factor expenditures, $wL + rK$, subject to the requirement that it produce y units of output. The firm minimizes cost by producing where MRTS equals the ratio of the factor prices

$$\text{MRTS} = w/r.$$

⁵ It is important to note that although profit maximization and cost minimization go hand in hand, for the purposes of this paper, I will discuss only cost minimization. I do this because I believe that although cost minimization is extremely important when arranging any infrastructure project, I am not convinced that profit maximization should also be an objective. Granted, for private firms, this objective is paramount, however, I think that when arranging a public infrastructure project specifically, profit maximization should fall far down the list of priorities.

⁶ The topic of cost minimization contains many components and conditions. To explain everything would fall out of the scope of this paper and, as such, I will confine this discussion to the necessary elements.

By substituting the firm's corresponding MRTS into this equation and solving for either K or L, we find the cost-minimizing level of either capital or quantity of labour to employ. As we would expect, the cost-minimizing quantity of labour decreases as the wage rate rises, and increases as the cost of capital or amount of output rises. Similarly, an increase in either of the factor prices raises total cost.

One necessary condition is that the cost of the observed choice of inputs is no greater than the cost of any other level of inputs that would produce at least as much output. This condition is known as the "Weak Axiom of Cost Minimization" (WACM) (Varian, 1992, pg.61).

The minimum costs necessary to achieve the desired level of output will depend on w_1 , w_2 , and y . In view of this, we can write the solution to the firm's cost minimization objective as:

$$c(w_1, w_2, y).$$

This function is known as the cost function, or the unit cost function, and it measures the minimal costs of producing y units of output when factor prices are (w_1, w_2) . In general, the derivative of the cost function with respect to a factor price is the cost-minimizing quantity of that factor.

When examining whether a private firm can provide an infrastructure project at a lower cost than the public sector could, this method of determining the combination of factors, and their respective prices, to come up with the lowest cost, is crucial. What makes the difference between private and public firms is the ability of each to obtain those factors that are instrumental in making up the cost function. By way of illustration, let's assume there is a private firm that has access to a new technology, which would

lower costs significantly, that it has gained through its own research and development program. The public sector, on the other hand, does not have a research and development program for infrastructure development and so must rely on second-hand news. This situation translates into a cost function that is lower for the private firm than the one that characterizes the public sector, until the public sector learns about and adopts the cost-lowering technology. In the meantime, the private firm would be said to be more efficient than the public sector firm.

Another way to reduce the cost of producing a given output level would be to reduce workers' wages and benefits. This could happen if the PPP replaces or undermines any existing collective agreements. If the PPP took the form of contracting out or transferring work from unionized public workers to non-unionized workers or those with lower-paying agreements, the PPP, in achieving lower costs (and thus higher efficiency), effectively becomes a tool for the government to use to 'open up' public sector agreements without facing the opposition levels they otherwise would have had to contend with.

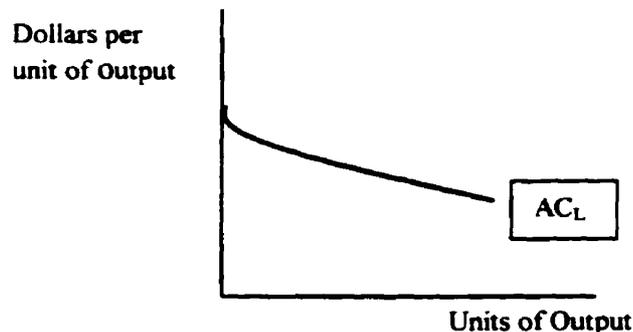
If the quantity and quality of the output has not been reduced when wages and/or benefits are cut, then 'orthodox economists' would consider the PPP to have increased efficiency. Input costs were reduced, relative to output. However, reduced wages and benefits may have the effect of reducing the quantity of the work performed, thereby generating less efficiency gains than expected. Moreover, if the quality of output declines, efficiency gains may simply be illusory, with consumers paying the same price for a product of inferior quality, even though production costs may appear to have decreased. The earning of profits by a private supplier of previously publicly supplied

goods is not, in and of itself, proof of increased efficiency in service delivery. In actuality, consumers might be receiving a different service than the one they received prior to the creation of the PPP.

Economies of Scale

The increases in efficiency postulated by the advocates of PPP's can also occur because of the ability of private firms to take advantage of economies of scale. A firm enjoys economies of scale when they are able to double their output for less than double the cost. In other words, it is the cost-saving benefits resulting from a larger volume of output or of a purchase of supplies in bulk.

Economies of scale occur when the long-run average costs fall as output rises. It *only* occurs in the long run, however, because that is the only time period in which a firm can change the *scale* of its production. This can be clearly seen in the graph below.



Since there is the potential for private firms to take advantage of economies of scale, the idea for centralizing services is frequently proposed. The rationale is that instead of each school or hospital having its own laundry or kitchen, these services could be centralized in larger production units owned and operated by the public sector with no

private sector involvement. Many PPP's are based on the notion of economies of scale, but in units owned and operated by the private sector.

In contrast to private firms, public enterprise is frequently held back from reaching a peak scale because of the differing services, each with their individual optimal level. Moreover, few, if any, of these services have the ability to perform at their optima within the constraints of the political jurisdiction. For the private sector, the scale of each firm are determined by economic criteria. Conversely, however, the scale of the public corporations is based on the proportions of the political domain. Thus, unless government industries are characterized by constant returns to scale, it is unlikely these industries will reach their optimum size in terms of realizing economies of scale. Municipalities are typically either too small to enjoy the advantages associated with scale economies or are too large and consequently encounter diseconomies of scale, in which a doubling of output will require more than twice the cost. This could occur if only one hospital, bridge, or school in a network was built, owned and operated by a private company instead of being constructed by a public enterprise. In this instance, society does not gain the benefits they would otherwise have enjoyed had the entity been part of a much larger public sector. This means that it may well be more efficient to maintain schools when supplies and expertise are purchased in bulk, as with the case of a centralized service, than when a private firm controls just a few schools.

However, private companies tend to possess a competitive advantage over public firms because of their innate flexibility to alter plant size according to established production technologies. The actual configuration of the cost function and the variance between the optimum scale and the existing size of the municipality will determine the

importance of that advantage. For instance, if the shape of the cost function is U-shaped, the government may experience significant losses in efficiency. When this type of cost function is encountered, diseconomies of scale are occurring, which means that the long-run average costs are increasing as output increases. For many private firms, economies of scale exist so they are able to take advantage of decreasing long run average costs as they increase output levels. It therefore becomes very important to determine the shape of the cost function when determining the applicability of PPP's. If a public firm is subject to a U-shaped cost function while the private firm experiences a decreasing long run cost curve as output levels increase, it is most likely more efficient to institute a PPP than to have the good or service provided by the public entity.

Economies of Scope

In addition to cost minimization and economies of scale, economies of scope also impact efficiency conditions. In contrast to the previously mentioned factors, however, economies of scope can impact efficiency both positively and negatively.

Many firms produce more than one product. Occasionally, the production techniques of these products are closely linked – an automobile manufacturer produces cars and trucks or a ceramic company creates dinnerware and ornaments. Conversely, a firm could produce two products that are visibly unrelated. In either case, however, a firm is likely to experience cost or production benefits from the production of more than one product. In other words, economies of scope occur when the collective output of a single firm is greater than the potential output of two distinct firms, if each were producing a single product. On the other hand, the production process involves

diseconomies of scope if the joint output is *less* than the output generated by a single firm. This would be the case if the production process of one output in some way contradicted the production process of the second output.

The magnitude of the existence of economies of scope can be calculated by the examination of a firm's costs. It would cost less for a single firm to produce two products than for two separate firms to produce those products if the combination of outputs used by the single firm generated a larger output level than did the production process used by the two independent firms. Thus, to gauge the extent to which there are economies of scope, we must determine what percentage of the cost of production will be saved if the two products are produced jointly as opposed to individually. To measure this, we must use the equation for the degree of economies of scope (SC):

$$SC = \frac{C(Q_1) + C(Q_2) - C(Q_1, Q_2)}{C(Q_1, Q_2)} .$$

$C(Q_1)$ represents the cost of producing output Q_1 . $C(Q_2)$ represents the cost of producing output Q_2 . $C(Q_1, Q_2)$ is the joint cost of producing both outputs. When a firm is experiencing economies of scope, SC is greater than zero because the joint cost is less than the sum of the individual costs. Generally, the larger the value of SC, the greater the economies of scope. If, on the other hand, SC is negative, the firm would be experiencing diseconomies of scope.

Economies of scope may be the impetus behind some of the losses in efficiency associated with PPP's. It is often cheaper to centralize the supply of complementary

services, such as emergency assistance, because of the economies of scope which result from the coordination of these services. For instance, during a crisis such as a shooting, policemen and ambulances need to be at the same location at the same time. It is logically more efficient to have the supply of these services coordinated from under one roof. If one of these services is contracted out, efficiency gains will undoubtedly be lost due to the additional cost of reconciling the various services. Thus, the joint supply of these services could increase the efficiency level of their provision, which would be lost if only one of the services was supplied by a PPP.

However, PPP's may possess the ability to generate economies of scope where none existed beforehand. If the private partner were already supplying one or more of these complimentary services, it would make economic sense to integrate the two services. More generally, if complementary services were already divided between providers, it may make economic sense (on economies of scope grounds) to consolidate their provision to a single firm, either private or public.

Timing

In addition to cost minimization, economies of scale and scope, timing can also impact efficiency conditions. One of the contentions for the increase in PPP's is that they facilitate a shorter completion time. The argument is that design-build projects are less time-consuming than the more traditional means of product delivery, which would be regulated by the public sector. The assumption underlying this argument is the belief that time is money and the savings in time would translate into a savings in money. This occurs when, for example, delays in construction increase the costs of the final product.

However, the savings may be less apparent when the value of the product is questionable and then, the taxpayers find themselves beginning payments earlier than anticipated for a product that may be uncalled for.

Monitoring Costs

The costs of monitoring, particularly with regards to shirking, can greatly affect the organizational efficiency of a firm's production process. This is because the different incentive structures within private and public firms cause a difference in the costs associated with monitoring and shirking. Within the public sector, ownership is dispersed, voters are unable to exercise any significant level of control, and compensation is not always directly linked with effort. In private firms, on the other hand, ownership is much more concentrated, production more obviously driven by profit levels and remuneration more closely associated with effort. It is precisely this difference, suggests a new institutional economics, that would give workers more of an incentive to shirk within the public sector, thereby increasing the monitoring and, more specifically, the shirking costs. If more services were to be contracted out, it would be expected that monitoring costs would fall since monitoring will become more optimal. Of course, public sector workers might find fault with this rationalization, believing instead that lower monitoring costs are simply a euphemism for the intensification of the production process at the expense of labour.

It has also been suggested by new institutional economics that once PPP's become more common-place, the public sector might experience new forms of monitoring costs as private partners endeavor to avoid or distort contractual obligations as a means for

raising their profit levels over those predicted in the PPP agreement.

Competition

When the government is the sole provider of relevant goods and services, competition does not exist and some abuses consistent with monopolies are probable. Accordingly, PPPs attempt to alleviate this hegemony by introducing a new component, namely the private sector.

The introduction of the private sector introduces competition into an arena that was primarily monopoly-based. The private sector is able to initiate competition through the bidding process, which initiates most PPP's. A call for proposals is given to selected organizations who then must submit a high-end estimate on final production costs and techniques. Immediately, competition is established. These firms must try to out-bid each other, ideally by using new technologies and innovative financing techniques.

These methods for lowering costs make up the secondary means through which competition is established. The private firms that are endeavouring to find the most efficient way to complete the project must look at the material and building costs and the time interval necessary to complete the job. Anything that decreases these factors is of particular importance to the bidder. Consequently, competition comes into play here since the bidder is looking for lower labour costs, newer technology, shorter time periods, etc. All of these originate from competition of one sort or another.

The presence of competition is viewed as essential for the efficient production and provision of most goods or services to occur. As mentioned earlier in this chapter, efficiency is one of the most important economic considerations when making decisions

on the 'best' provision method. Consequently, introducing competition into the equation through the use of a PPP can have an immediate impact on the efficiency level.

Throughout this section, the focus has been on how the various economic aspects of PPP's can affect efficiency conditions. For instance, production technologies and management techniques can help improve efficiency levels by reducing input costs. Cost minimization is the main determinant of efficiency. Economically, achieving the lowest input cost means the firm is operating efficiently. By examining the production functions of each alternative, society may be able to choose the most suitable provision type, given a defined set of socially acceptable parameters for infrastructure, service delivery, and maintenance. If a firm is able to take advantage of economies of scale and scope, efficiency levels can generally be lowered. More over, if a PPP introduces the element of competition, the efficiency level of the project implicitly increases.

If it can be demonstrated that the utilization of a PPP, over a more conventional means of product or service delivery, will lower costs and experience economies of scale and scope, the PPP would then become a more efficient means of provision. However, as mentioned before, society must initially make decisions on how the PPP will affect the levels of production inputs, such as labour and capital. These decisions will then provide the measuring sticks against which the PPP's will be gauged.

This discussion suggests the following questions about any PPP that is under consideration:

1. Has society defined a set of socially acceptable choices?
2. Is the production function defined? If so, what are the input levels of labour

and capital?

3. Does each firm (both public and private) experience economies of scale and/or scope?
4. Does the PPP promote competition?

In chapter 5, these questions will be asked of each of the 2 case studies presented. The following sections will examine the impact PPP's may have on distribution, economic development, information flows, risk, competition, and the environment.

3.2 Impact on Distribution

PPP's can have significant implications for the distribution of income and wealth. Distributional issues involve a more delicate examination since they involve the placement of value judgements on the gains and losses experienced by different groups within society when efficiency changes occur. However, if efficiency changes are to be evaluated completely, it is important not to neglect the distributional effects resulting from those changes. For the evaluation of PPPs to be accurate, it is important that the potential impact on consumers be examined in its entirety, both before and after implementation, as plans and expectations are not always realized. Essentially, there are three groups within a society, consumers, workers, and private partners, who are influenced by these changes. It is necessary to explore the changes experienced by each of these groups from their perspectives.

Consumers

The adoption of PPP's can affect consumers in many ways. With increased private sector participation, consumers may find that the purchase price of services has gone up or down, the quality level of that service has increased or fallen, and/or the range of services available has expanded or contracted. They may experience greater or lesser convenience in the frequency, timing, or location of the service. In all likelihood, consumers will experience a change in the amount of taxes that they pay, either immediately or at some time in the future. They may also be affected by variations in the availability of information, the degree of risk they will face, and in the quality of the natural environment.

Labour

While the repercussions felt by consumers are broad, it is the impact on labour that has the greatest distributive impact. The private partners are most concerned with the bottom-line when instituting a project and, as such, use any means possible to reduce the cost of production, thereby increasing potential profit levels. Many of the described efficiency gains come at the expense of labour. By using PPPs, private partners can increase efficiency by reducing the workforce or the wages and/or benefits received by workers. The private sector can also increase efficiency by using non-unionized labour, which is generally less costly than unionized labour, or by diluting existing collective agreements. In addition, efficiency gains can be achieved through a reduction in health and safety standards, an increase in the vigor of the production process, or a change in the location of the work. In some instances, a switch from public provision to a PPP may

serve to protect unionization if strong successor rights legislation exists. Moreover, there may be situations in which the implementation of a PPP will actually benefit labour. Thus, if the community stands to lose the commission of a good or service, a PPP may be considered a next-best solution.

Private Partners

As mentioned above, the motivating factor of the private sector for their involvement in PPPs is securing a profit. This profit can occur immediately or at a point in the future and, as such, it is important to look at both the short and long term implications when evaluating a PPP. If expected future profit levels are high enough, it may be remunerative for the private partner to offer generous, possibly even loss-making terms to the public sector. Private capital benefits in the short or long run, from contracts which give them a share of public funds spent on the service in return for delivering that service at a lower cost to the public sector. The lower cost can be in terms of operating costs or it can take the form of a reduced need to borrow for capital spending by the public sector.

Private sector profits can originate from efficiency improvements in the deliverance of the service or from charging the public sector a margin on borrowed funds used to replace public sector debt. If higher debt charges are the source, profits may accrue not only to the private sector partner but also to banks doing business with the PPP.

As previously mentioned, PPP's can have a distributional impact on consumers, workers, and the private partners. In order to understand the complete impact a PPP will

have if implemented, these effects must be acknowledged. The question “What is the potential distributional impact on consumers, workers, and private partners before and after the implementation of a PPP?” will be addressed in the case studies in chapter 5.

3.3 Impact on Economic Development

Each PPP agreement will have a different impact on economic development. The concern here is that the shift from one degree of public sector involvement in service delivery to another changes the impact of the project on economic development. In these terms, the implementation of a PPP could possibly offer enhanced opportunities for the city, neighborhood or work force. By bringing in other aspects of the private firms business or by promising expansion of the company’s operations at some time in the future, the PPP could generate more jobs in the particular locality. It may also offer more job opportunities by changing the way in which inputs are derived, or by creating new forward linkages, in which the product is further processed, transported or handled within the locality. In addition, the presence of one private firm may act as an inducement to other private firms to establish themselves within that district. The introduction of a PPP could also have the effect of luring more skilled labour into the region through the use of improved training programs or the introduction of new production processes.

Conceivably, it is also possible for the PPP to result in decreased input from the public sector into the operations of the service. Consequently, local linkages and derived economic activities could be reduced and subsequently transferred to other municipalities where the private partner’s center of operations is based. The efficiency gains realized by PPPs, however, have potentially dichotomous repercussions. The improved efficiency

could result in lower wages and decreased supplies purchased locally, neutralized entirely by increased private sector profits that are remitted outside the geographic area. These impacts on economic development will be examined in the case studies in chapter 5.

3.4 *Information Flows*

When a good or service is publicly provided, there exists a certain degree of accountability to the people, usually in the form of access to information. It is important to preserve this access to information, inadequate though it may be, to maintain accountability. Of course, in theory, the right to obtain information is also considered fundamental to the efficient working of private markets, although, in practice, access is often denied on the basis that it might threaten the commercial profitability of individual companies. Consequently, the substitution of a PPP for public provision could result in a loss of information to the public. Naturally, this could severely impede efforts to determine the comprehensive applicability of PPPs or assess their performance. Alternatively, the deliberate act of negotiations and arrangements between the private and public sectors necessary for the realization of a PPP could have the effect of bringing more information into the public domain than previously existed.

In the case studies in chapter 5, the question “Are the information flows being maintained with the PPP?” will be posed.

3.5 *Impact on Risk*

When converting from an entirely public sector provision system to provision through a PPP, the risks perceived by the public, in the environment, occupations, and/or

finances, could implicitly change. The new level of risk must be properly identified and assessed. For instance, some financial risks could be covered by insurance, so it is important to know beforehand who will maintain the normal insurance costs associated with each project. If the PPP is such that the private partner is constructing the capital project, it should be clearly specified who would bear the financial risk of construction cost overruns. In addition, it must be determined which method of delivery will be the most beneficial for the public in terms of risk. If the asset were to revert to public ownership upon termination of the agreement, as is typical in build-lease-transfer agreements, the financial interests of the public would need to be safeguarded throughout the life of the lease. New financial risks emerge for the public sector with the initiation of a PPP due to the possibility that the private partner cannot deliver the service at the agreed price. The private partner, for instance, may threaten to declare bankruptcy, or defaults on the loan, which financed buildings, infrastructure, or other fixed assets.

In other cases, though, PPPs could transfer risk to the private firms. Such is the case of interest rates. Both sectors would require borrowed funds from a financial institution to construct the capital project. With the introduction of a PPP, the public sector could effectively transfer the risk of rising interest rates to the private firm.

A key consideration for assessing each case study is whether the risk level has changed and if so, has the public been informed of this change and has it been approved as acceptable?

3.6 *Environmental Implications*

While it is becoming an increasingly important component, environmental

considerations are not always taken into account. Here again, as with the impact on economic development, the concern is whether the progressive stimulation of moving from one type of service provision to another will change the environmental impact of the project. Choosing a PPP over the more conventional method of public delivery could either increase or decrease the use of environmentally hazardous inputs, depending on the project at hand. It could reinforce, undermine or even maintain regulations or controls designed to safeguard the environment. It could, again, either extend or diminish the risk of consumers being exposed to environmental or public health hazards. It could alter the occupational health and safety conditions to which people are exposed on a daily basis.

Naturally, these concerns will be more relevant in some situations than in others and, as such, it must be remembered that each PPP must be evaluated and assessed on its own merits and implications. In this instance, it is important to establish to what extent the private firm will be held liable for the resulting negative environmental impacts and what provisions will be made to tackle the problems.

This section brings to the table the question of whether the PPP impacts the environment in any way. If it does then, is society aware of this impact and do they find it acceptable? These questions will be asked of the two case studies in chapter 5.

3.7 *Summary*

This chapter has used microeconomic theory to analyse the various impacts a PPP could have on the economy. The most important impact is efficiency and more specifically, how a PPP will affect economic efficiency. The first step in the decision process is to set bounds on a set of socially acceptable choices for infrastructure, service

delivery, and maintenance. The second step is to examine the ability of a PPP to minimize costs, take advantage of economies of scale and scope, decrease timing and monitoring costs, and introduce competition.

Other considerations include a PPP's impact on distribution, economic development, information flows, risk, and the environment. For any PPP under consideration, each one of these impacts should be identified and assessed.

The next chapter will focus on the financial analysis of PPP's and the benefits and drawbacks that result from the partial privatization of government services. This will be followed by chapter 5 of case studies in which the issues raised here and in the financial analysis chapter will be examined.

4.0 FINANCIAL ANALYSIS OF PPP'S

The previous chapter presented the economic impacts that a PPP may have on the economy. In addition to these impacts, a PPP may also have financial consequences that could affect the final decision on the suitability of a particular PPP. This chapter will examine the financial impact(s) on the private provision of public goods and services.

The financial analysis of PPP's is crucial to understanding the advantages and disadvantages that result from the partial privatization of many government services. Financing mechanisms have become contributors to the learning process as private interests take a more active role in infrastructure provisions and as governmental responsibilities move from financiers to facilitators. Underpinning the increased responsibilities of the private sector must be appropriate actions to reform existing legal and financial institutions.

At present, governments provide or broker roughly 90% of all infrastructure financing and bear almost all project risks (World Development Report, 1994). Tax revenues and borrowing are the predominant sources of these monies. With the increase in PPP's, new financing techniques are needed to accommodate necessary changes. If PPP's are to prosper, the future challenge facing financial and developmental institutions is to find new ways in which to facilitate the transfer of private savings directly to private investors to provide the means for the financing of long-term infrastructure projects.

Once this is resolved, there is another obstacle that must be overcome before PPP's can be used efficaciously. Governments of all levels have required precisely detailed budget and accounting reports each year, for the life of the project (O'Looney, 1996). This relies on departments to realize multifarious, often contradictory, objectives.

Alternatively, private institutions have a relatively uncomplicated, straightforward measure of achievement – profit levels. This standard provides a continuous stream of information regarding all expenditures. The only justification needed for expenditures is the concurrence with maintaining or expanding profit levels (O’Looney, 1996). The challenge, then, is to reconcile these two paradoxical mandates into one harmonious objective.

The present system of infrastructure provision puts considerable pressure on government purse strings. It is rarely less than 30% and occasionally over 70% of total public expenditures (World Development Report, 1994). Moreover, maintenance and operating costs add considerably to this total. As suppliers and financiers, governments must bear most, if not all, of the associated risks.

Governments rely heavily on tax revenues and deficit financing to support the various infrastructure projects. In addition to this, foreign dollars have been used to finance everything from municipal construction to the import of necessary equipment (World Bank, 1994). This importation occurs mainly because most infrastructure services cannot produce the foreign currency required to indemnify foreign loans (World Bank, 1994).

Governments have been forced to create new and innovative financing techniques that will enable them, at least partially, to deliver most of the services that have traditionally been their responsibility. Governments believe PPP’s to be the most effective and efficient way of doing this. As with any solution, there are both good and bad elements that must be considered before making a sweeping judgement on the viability of PPP’s. These elements are described in the following sections.

4.1 *Advantages and Limitations*

From the government's perspective, the advantages afforded by PPP's are clear and numerous. From a more analytical perspective, however, these advantages also bring with them some limitations. In the final analysis, the advantages must be weighed against the limitations in order to get a complete understanding of the repercussions of the PPP. Ideally, PPP's are employed to capitalize on the strengths of both partners while minimizing their weaknesses, so that the partnership is mutually beneficial and represents a net gain for society. In reality, however, this partnership does not always effect such an apparent net gain. This section will consider both the advantages gained by PPP's and the limitations PPP's could impose on both the public and the private sector.

The financial implications of PPP's vary greatly. This is because each new variable added will change the financial repercussions of implementing that PPP. To reiterate, variables are inputs, or characteristics, that are added to an equation that may vary over time. As with the economic considerations, it is important to keep in mind exactly what the expectations of the community are. Is the community more interested in maintaining social policies, or is it concerned with 'the bottom line'? Are these goals mutually exclusive, or can they be achieved simultaneously? Since the main goal of a PPP is to utilize the strengths of both partners in order to effect a net gain for society, these are questions that really must be answered before assessing the worth of the PPP.

One way a PPP could capitalize on the strengths of both partners is for the public partner to take advantage of a revenue stream that would otherwise be unavailable to it, while the private firm could use the better credit rating of the public partner to obtain a lower interest rate, which it otherwise would be unable to secure. In this instance, society

would seem to benefit overall because both partners have brought a benefit to the collaboration that would not have otherwise been obtainable. At worst, however, a PPP can encourage the degradation of labour quality, destroy the intent of the project it has implemented, and end up costing the taxpayers a great deal more than conventional provision.

PPP's tend to illicit many differing opinions as to the extent to which they should be utilized. Those who support the concept that many government-run enterprises should be privatized do so because they believe that "... private operators are more efficient than their public counterparts and thus can offer services at a lower rate" (The Toronto Star, October 13, 1993). In response to this, those who are weary of private enterprise in a conventionally public domain ask

"Finally, who picks up the pieces if and when the private operator of a public facility faces financial trouble? Ontario taxpayers are already saddled with the debt of the SkyDome after that grand stadium failed to meet the financial expectations of its private owners. The entire history of Canadian railways is one of governments bailing out failed private enterprises. Should we expect a different result from privatized highways or airports" (The Toronto Star, October 13, 1993).

One of the primary benefits associated with the present financing system of public good and service provision is the low borrowing costs, due to AA or AAA credit ratings, enjoyed by most governments. Private entrepreneurs are rarely, if ever, given these forms of leverage. If a PPP is instituted and financing becomes a private responsibility, the likelihood is that the interest rates associated with that project will be higher than if it were publicly funded. Moreover, the lower interest rates may mean the difference in the financial viability of a given project. If, however, funding was left as a public

responsibility, this limitation could be overcome. On the other hand, though, public funding negates the advantage(s) of private financing, such as decreased risk and/or lower financial responsibilities. Consequently, the advantages and limitations of financial responsibility for any PPP must be weighed carefully before a decision is made.

Most of the advantages that private firms have over public entities in the provision of infrastructure come, basically, from three sources (Gomez-Ibanez, 1990). The first is the incentives created by the pursuit of profits. The second is the ability of private firms to avoid the political bureaucracy encountered by public entities. The third is the potential to achieve economies of scale and scope, which may be inaccessible for public administrators, as discussed in the preceding chapter. Public operators, for instance, may not have the same flexibility or incentive to use resources, such as labour and capital, as efficiently as private operators. Or, by building and operating numerous facilities in a variety of locations, private firms are better able to utilize the benefits of specialized labour, in both managerial or technical areas, while smaller public organizations are usually forced to hire generalists to oversee a number of such areas (Gomez-Ibanez, 1990). These are all strong motivators for the implementation of a PPP.

As mentioned previously, one of the most common arguments for the privatization of government services is the belief that private involvement is the best treatment for the shortfall in capital available for infrastructure projects, since it will increase both total investment in infrastructure and the quality of the finished product. There is one consequence, however, which is rarely discussed amongst PPP supporters. To illustrate, let's go back to a basic economic principle: capital resources are finite. In other words, there is not an endless supply of capital. It stands to reason, then, that if

there are only limited amounts of funding available for all forms of investment and if a given level of capital is used for one project, less capital will remain available for any future projects. Therefore, there is concern that “While private involvement might increase total infrastructure spending, privatization does nothing (at least directly) to increase the pool of private savings from which private capital markets must draw; therefore privately financed infrastructure is likely to displace some other investments” (Gomez-Ibanez, et. Al., 1990).

By contrast, it is possible for funded infrastructure to increase the total investment made by society given many public projects are funded through taxes or user fees instead of debt financing, as is done in most privately funded projects.

“Privatization would offer an advantage then, only if there were little chance of increasing public funding and if the additional infrastructure investment were more worthwhile than the investment’s it displaced” (Gomez-Ibanez, 1990, pg. 151).

A major disadvantage associated with government provision is the constraint imposed on public expenditures, resulting from the high debt-to-income ratio and the interest rates applied to those debts faced by many governments. Since infrastructure provision necessitates such a large share of total government revenue, public expenditures receive fewer resources as debt levels grow. In addition to increasing debt levels, a high level of borrowed funds, at any given time, decreases the amount that can be borrowed at a later date. This situation limits government liquidity and, hence, leads to a search for new methods of securing necessary resources. Undoubtedly, the populace would benefit from a combination of greater provisional efficiency and lower interest

rates, which the private sector and many governments believe will be the result of expanding the use of PPP's in the future.

The use of private resources to fund a public infrastructure project does not guarantee an economically sound project, even though a private firm's first concern is for the "bottom-line". In fact, private investors may be perfectly willing to invest in an unsound project if they could benefit financially from explicit or implicit public subsidies or guarantees (Gomez-Ibanez, 1990). What this means is that, typically, private firms or investors are concerned only with increasing profit levels, and have little or no regard for ensuring that public objectives are met. Therefore, it becomes the responsibility of the public sector to insure that the proper precautions are taken to safeguard society from any negative externalities resulting from any proposed agreement between the public and private sectors. These precautions should mandate that any project, whether funded publicly or privately, be economically, environmentally, and socially sound and that the expected benefits outweigh the expected costs.

Another advantage of PPP's that is commonly cited is that a private firm can build and operate a facility using fewer resources than its public sector counterparts (Gomez-Ibanez, 1990). This belief is supported by numerous studies of the relative costs of private versus public services. The key component, which seems to be missing in public sector services, is competition and it is this variable which seems to constitute the difference between the two sectors.

This cost advantage, however, can become a matter of 'optics'. In other words, while it may appear that there are considerable cost savings resulting from the private provision and operation of typically public infrastructure, upon closer inspection, this

may not be the case. If the funding for a new project uses some form of PPP, governments may encourage the idea that they have become freed up from the need to borrow capital, thereby deceptively creating the illusion that their fiscal position is better than it actually is. Governments, however, will still have to pay for the project in one form or another and may at times even assume the risk for the private partner by guaranteeing the financial arrangements. To finance these projects, governments have begun to shift the burden of payment away from the general tax base towards individual users, through the employment of user fees (CUPE Research, September 29, 1995). So, instead of enjoying the benefits of transferring the risk to the private sector, many governments have assumed the risk themselves, even while compensating the private sector for that same responsibility.

In addition to this, the cost advantages touted by proponents of PPP's can be nothing more than transfers from one group to another (Gomez-Ibanez, 1990). As mentioned previously, since private firms are generally not bound by unionized labour or social responsibilities, they are able to pay lower wages than public authorities. These lower wages, while reducing the overall cost of the project, may also reduce the quality of the finished project. On the other hand, the lower wages may be closer to free market prices and, as such, would then make up a more efficient combination of inputs than the public sector could accomplish.

4.2 *Summary*

This chapter explored the financial advantages and disadvantages associated with the implementation of a PPP. The advantages resulting from a PPP, then, can be

summarized as : (1) an ability to capitalize on the lower borrowing costs enjoyed by most governments; (2) the incentives created by the pursuit of profits by private firms; (3) the avoidance of the political bureaucracy associated with most government endeavours; (4) the alleviation of the constraint imposed on public expenditures due to the high debt-to-income ratio faced by many governments; and (5) the efficiency gains (such as fewer resources required, lower costs, decreased time lines) experienced by private provision.

The disadvantages that may be experienced with the implementation of a PPP are: (1) the ability of a private firm to become insolvent; (2) the absence of a guarantee that a project will be either economically sound and/or socially acceptable; (3) the possibility that a PPP will not increase the accumulation of private resources from which private firms will draw their capital and so, consequently, a PPP may displace other private investments; (4) the cost advantage associated with PPP's may be a matter of optics and may compound the risk experienced by the government; and (5) the cost savings may be only transfers from one group to another.

In the following chapter, two case studies will be presented that will describe and assess practical examples of actual partnerships. The focus of these, is to address the economic and financial considerations examined throughout the past two chapters.

5.0 CASE STUDIES

One of the best ways to study a policy or procedure is to look at any examples that might exist that correspond with what is being studied. An example of the policy or procedure will enable one to comprehend, hopefully, how theory translates into reality. In this chapter, two case studies will be examined in hopes of supporting either the advantages of PPP's proclaimed by privatization enthusiasts or the limitations brought forward by those concerned with privatizing typically public domains. The first is a case study of the Charleswood Bridge, built and owned by a private firm in Winnipeg, Manitoba. The second is a case study of the Miramichi Youth Centre in New Brunswick. Both of these cases were chosen because they represent good examples of how PPP's can be applied to two different but conventionally public domains.

Both of these case studies have been examined while keeping the questions that were raised in the previous two chapters, with regard to measuring both economic and financial efficiency gains, in mind. These questions are:

- 1) Is there a defined set of choices?
- 2) Is the production function defined?
- 3) What are the organizational methodologies?
- 4) Does the PPP promote competition?
- 5) What is the potential distributional impact on consumers, workers, and private partners?
- 6) Has the impact on economic development been defined, and if so, what is it?
- 7) Are the information flows being maintained with the PPP?

- 8) **Has the risk levels changed? If so, is the public aware of this change and has it been approved as acceptable?**
- 9) **Does the PPP impact the environment? If so, is society aware of this and do they find this impact acceptable?**

Ideally, the questions raised in chapters 3 and 4 would be applied to each PPP when a preliminary study was conducted. For the purposes of this report, however, there does not exist enough information on these two case studies to find answers for all of the questions raised. The reason for this is that the policy makers did not consider these questions when the decisions to proceed with these PPP's were made. Therefore, the case studies presented below will answer the aforementioned questions, when possible, and will be discussed to show two examples of some current PPP's.

5.1 The Charleswood Bridge – Winnipeg, Manitoba

When deciding to build a bridge to span the Assiniboine River, from Roblin Blvd. to Portage Ave., the City of Winnipeg was contemplating new and innovative methods for infrastructure development and management. The City of Winnipeg decided that the PPP approach to doing business, which is gaining acceptance by governments around the world, would help them meet all of their objectives. These objectives were to “develop a strategic partnership with the private sector; to provide Winnipeg-based companies with exportable expertise in bridge and road design; and to establish benchmarks for future cost reductions” (Construction Manitoba, December 1994). Consequently, the City of Winnipeg put out a formal request for proposals in early 1994.

The City decided this project would be built on a B-O-T basis or, more precisely,

on a build-finance-operate and transfer basis. The first step the City took was to approve that a Request for Qualifications be sent out to prospective bidding companies. From the seven teams who submitted their qualifications, three were selected to bring forward proposals. Of these, DBF Ltd., a company created by Ernst Hansch Construction Ltd., was awarded the contract. In turn, the design and engineering of the project was awarded to Wardrop Engineering Inc. to DBF. In the final agreement, DBF was responsible for designing, constructing, and financing Parts I (long-term financing) and II (short-term financing) of the project. However, the City retained the option of taking control of the financing at any time before the contract was signed.

The building of the Charleswood Bridge has turned out to be a very important project for the City of Winnipeg and its residents. The Charleswood Bridge is being regarded as a learning experience in the effectiveness and applicability of PPP's.

To determine whether the Charleswood Bridge was a beneficial undertaking for the City of Winnipeg and its residents, key components of the project must be examined. More specifically, what were the City's objectives? How was the bridge built and financed? Can we compare the building of the Charleswood Bridge to the building of a bridge done in a more conventional method? The answers to these questions will give us a much better understanding of PPP's and their future applicability across Canada.

City of Winnipeg Objectives

The City of Winnipeg's objectives in building the Charleswood Bridge and its choice of financing arrangements are important because they are the measuring stick with which to judge the efficacy of the use of PPP's in the future. The objective include:

1. To arrange for the private sector to design and build a high quality project which at least meets but preferably exceeds current design and safety standards.
2. To arrange for the private sector to finance the project on terms advantageous to the City with Part I to be financed on a long-term fixed rate basis and Part II to be financed on a short-term basis.
3. To complete the project at a reduced cost and in a shorter period than would otherwise be possible if the City were to retain consultants to design the project and call tenders for contractors to construct the project.
4. To minimize the City's financial commitment to the project.
5. To develop a 'strategic partnership' between the City and the private sector with respect to the project.
6. To encourage the development of exportable expertise for Winnipeg-based companies in the areas of bridge and road design and construction, project management and project financing.
7. To establish benchmarks for cost reductions that may be applicable to other City road and bridge projects.
8. To return Part I of the project to the City at the end of the term of the project in a good state of repair and preservation, at no cost to the City, free and clear of all liens, charges, and encumbrances.

Building the Bridge

It is important to remember that each PPP has its own set of objectives that will govern the conclusions drawn about its efficacy and the applicability of future partnership projects. Each case study must be analyzed according to its individual objectives in addition to its ability to mold to different situations. Those basics will allow us to determine the economic and financial applicability of PPP's as an alternative to conventional public provision.

DBF was chosen because it met and at times surpassed the evaluation criteria set forth by the City of Winnipeg. Its total bid was cheaper than the other two by between \$1.3 million and \$1.5 million. It also came in cheaper than the City's own estimate and was the only one of the three to do so. The table below shows the difference between a high-end estimate of what it would have cost the City of Winnipeg to build and finance the bridge in a more conventional way and the guaranteed highest cost for DBF to build the bridge.

	<u>Nominal Cost</u>	<u>Nominal Cost + Interest Charges</u>
City Estimate	\$14,926,600	\$15,523,649
DBF Ltd.	<u>\$13,882,325</u>	<u>\$14,437,618</u>
Difference	\$ 1,044,275	\$ 1,086,031

DBF owns and is responsible for Part I and this part is leased back to the City for a term of thirty years after which the legal ownership will be transferred to the City, who will pay a residual amount of \$2,500,000 in the 30th year, over and above its final lease payment of \$2,305,000. During this time, DBF is responsible for any major repairs that might be needed. The minor maintenance and general upkeep is the responsibility of the City of Winnipeg. The City is also responsible for a maximum of \$4.5 million in maintenance fees over the 30 year term, which are payable in addition to its lease payments. Any maintenance costs over and above this amount are the responsibility of DBF. At the end of the 30 years, the City is guaranteed a bridge free of problems.

The City of Winnipeg owns Part II of the project that was constructed by DBF for

which the city paid a lump sum payment of \$5,064,302. This portion of the bridge was built and financed by the more conventional method and therefore not included in the PPP agreement. The City also incurred costs connected with the overall project amounting to some \$14 million, so the total cost of the project was some \$30 million, of which about \$10 million are directly associated with the PPP.

Financing

It was decided that DBF would provide the financing for the construction of the bridge and the City would make yearly payments, which would increase incrementally. Since DBF was a private company, it was unable to take advantage of the City's higher AA credit rating when arranging its financing. Therefore, DBF was forced to finance the project using a higher interest rate than the City would have received. Traditionally, the City uses a 20-year period when it arranges financing on bridges, buildings, etc. With DBF arranging the financing, the City was liable for lease payments for 30 years, which greatly increases the interest charges incurred by the City. In nominal dollars, the City will pay DBF a total of \$41 million over 30 years, excluding maintenance payments. Conventional financing would have cost \$23 million over 20 years at the interest rates prevailing in September 1994.

These nominal payments are misleading, however, and a more accurate valuation of the costs of the deal require that the sums to be paid be discounted back to present value terms. Discounting these nominal amounts by the City's cost of financing as of September 1994 of 9.5%, reduces the lease payments to a present value of \$11.6 million and the conventional financing payments to \$10.2 million. Thus, using present value

calculations, the City will pay \$1.4 million in today's dollars over and above what it would have paid for the bridge had the City financed it itself using conventional means.

In addition to the 1.5% difference in spread between conventional terms and the DBF lease terms, from the time the agreement was arranged to the time DBF actually arranged the loan, interest rates dropped by at least one full percent and possible more.¹ Since the agreement was made before this drop, the City could not benefit from it and attempts to renegotiate the lease agreement with DBF were not successful. Therefore, without intending to do so, DBF is now in the position to generate revenue not only on the bridge itself but also on the financing. If the drop in rates were only 1%, the additional benefit to DBF could be as much as \$3 million in nominal terms over the life of the agreement or as much as \$160,000 in present value terms.

Conclusions

The use of a PPP to build the Charleswood Bridge was primarily intended to be learning experience. The City of Winnipeg was hoping to take advantage of a stream of revenue which it itself did not possess. The City was hoping to have a bridge that was built better, faster, and cheaper than it could have been had the City built the bridge using more conventional methods. In addition, the use of a PPP allowed the City to effectively transfer the risks associated with the construction, design and operation of the bridge. On the construction side, the PPP seems to have been highly successful and the bridge was indeed built quicker and more cheaply than it would have been using conventional methods.

¹ Interviews I conducted were inconsistent on this point and I was repeatedly denied access to the actual lease agreement. Therefore, I was never able to verify the exact figures.

Since the financing was left to DBF, who was unable to receive an interest rate comparable to the one the City could get, interest charges are higher than they would have been if the City had financed the project in a more conventional way. Moreover, since the lease payments made by the City are still considered fiscal liabilities and must therefore be reported in the financial statements, the City receives no direct or indirect benefit by allowing DBF to finance the project.

Traditionally, the City borrows funds on a 20-year term. Because they must now make lease payments for a period of 30 years, the debt charges will be on the books 10 years longer than they otherwise would have been. Furthermore, interest rates were higher at the time the partnership was negotiated and signed than they were when construction actually began, one year later. However, the City was unable to take advantage of this decrease because it was locked into its agreement with DBF. While it is true that interest rates could have increased and DBF was the one who bore the risk, it still stands that the City, by leaving the financing to DBF, lost its flexibility in arranging its financial terms and, therefore, the possibility of taking full advantage of declining interest rates.

Overall, the project would have been better managed if the City had retained control over the financial arrangements while hiring DBF to design and build the bridge.

5.2 *Miramichi Youth Centre – The Province of New Brunswick*

This PPP began as a proposal submitted by the Wackenhut Corrections Corporation, a US based company, to the Province of New Brunswick to build, finance, operate, and then transfer the Miramichi Youth Centre. Wackenhut's proposal had been

chosen as the more preferred of the three received proposals. In the ensuing period, it was decided that the operations element was to be maintained by the public sector but with the option of future privatization.

Under the agreement, Wackenhut as the executor of the New Brunswick Youth Centre Trust, will design, build, and finance the facility. The Trust arranged for the sum of \$19,425,000 from Sun Life Assurance Co. of Canada by offering as collateral a mortgage on the building and the assignment of rents.

For a period of twenty-five years, beginning on January 1, 1998, Wackenhut will maintain the Centre and lease it back to the Province for a monthly base rent of \$154,636. Upon the completion of this period, the lease can either be renegotiated at a cost determined by a formula tied to market interest rates, or terminated on receipt of a \$5,827,500 payment by the Province. This amount was arrived at by depreciating the asset at a pre-arranged rate. In addition to this, Wackenhut receives a monthly payment of \$32,083.33 for maintenance costs, adjusted for increases in inflation, a monthly refurbishing allowance of \$52,750 p.a., which increases by 3% p.a., for furnishings and non-building items, and a \$10,000 p.a. trust payment.

Analysis

This PPP only offers two forms of efficiency savings; i) the design and building of the Centre and ii) the maintenance. These savings are experienced for the many different reasons mentioned earlier, such as fast-track designs and access to newer, more productive technologies. Similarly, maintenance costs could be less because of labour cost savings. However, these believed efficiency gains are difficult to assess because of

the absence of data from similar institutions maintained by public sector employees.

The distributional impact of this PPP is also difficult to observe. Wackenhut will presumably benefit from the design, construction and maintenance contract, but the size of those benefits is not known. Their long-term interest may be to use this experience as a stepping stone to operating correctional institutions. In this case, Wackenhut may be moderating its profits so as to gain more business later.

It is difficult to know whether any gains in employment and economic development, as a result of this project, would have emerged had this facility not been a PPP. In other words, there is no way to predict the level of job creation or economic development this project would have spawned had it been more conventionally tendered. If the project would not have been tackled at all, then the employment and development opportunities generated will be satisfactory. Between 1998 and 2002, Wackenhut has committed itself to creating the equivalent of 40 full time jobs, or 5520 person weeks of employment. It guarantees salaries for these jobs of at least \$24,000 p.a., adjusted for the cost of living. Failing that, it will contribute \$11,500 for each full-time equivalent job not delivered into a Job Development Fund to be administered by the Province, with a maximum liability of \$460,000. In addition, Wackenhut promises to invest a minimum of \$2.6 million in New Brunswick over that five year period.

Fiscally, this PPP allows for the reduction of \$19.4 million in government borrowing to be replaced by the monthly lease payments and a final lump-sum payment in the event the government wishes to assume ownership of the facility following the termination of the agreement. One can reasonably assume that the actual building of the facility might take two years and, if we assume that the loan is drawn in four equal

installments over those years with the first lease payment commencing at the end of the two year period, then the implicit cost of the lease and final transfer payment is just over 8% per annum. Since this is about 0.3 – 0.5% p.a. over the yield in June 1996 on bonds maturing in 2022, this implicit cost means that the province is paying somewhere between \$0.6m and \$1m more than it would have paid had it financed the facility itself. Furthermore, it is improbable that the more conventional method of financing would have had a negative effect on the Provinces' bond rating, and as such, anticipated costs correlated with a fall in those ratings are irrelevant.

Wackenhut is required to meet all normal health and environmental standards, with respect to air, mechanics and water, in the maintenance of the building and is stipulated as such in the PPP agreement. In addition, normal insurance risks are to be borne entirely by Wackenhut.

The PPP does create a reduction in the flow of information relative to alternative funding arrangements as documents are not readily available and crucial information on debt costs and the share of rents between the lender and Wackenhut is not forthcoming.

Conclusions

This partnership does not seem to pose much of a threat to public sector employees in New Brunswick. Correspondingly, taxpayers do not appear to incur any tremendous additional borrowing costs, although there is the probability some will exist. Again, there may also be additional costs involved in maintenance but I do not have sufficient information to make that assessment.

This PPP holds Wackenhut responsible for the creation of a number of jobs and to

bring some capital into New Brunswick. However, these amounts are not large and it is unclear whether or not they would be recouped out of profits made on the design, finance, build and maintenance portions of the Youth Facility. The investment and job promises certainly cannot be considered large when compared with the possible profits Wackenhut would make if they are awarded responsibility for actually controlling the operations of New Brunswick's correctional facilities, which is in all probability, the principal long term objective of this particular PPP.

6.0 CONCLUSIONS

Throughout this paper, the focus has been on identifying whether PPP's experience any efficiency gains over more traditional financing and provisional means. To do this, we have examined the different types of PPP's, the advantages and disadvantages of PPP's, the economic and financial considerations regarding PPP's, and finally looked at two case studies. These issues suggested the necessity of certain key questions required when determining the economic feasibility and efficiency gain, if any, for a PPP. The questions raised in Chapter 3 are:

- 1) Is there a defined set of choices?
- 2) Is the production function defined?
- 3) What are the organizational methodologies?
- 4) Does the PPP promote competition?
- 5) What is the potential distributional impact on consumers, workers, and private partners?
- 6) Has the impact on economic development been defined, and if so, what is it?
- 7) Are the information flows being maintained with the PPP?
- 8) Has the risk levels changed? If so, is the public aware of this change and has it been approved as acceptable?
- 9) Does the PPP impact the environment? If so, is society aware of this and do they find this impact acceptable?

Ideally, these questions should be asked of every PPP under consideration. By

answering these questions, and others like them, policy makers will have a better understanding of the efficiency gains, or possibly losses, of implementing a PPP. This chapter will provide a brief overview of this paper offer some alternatives and will conclude with some general observations and recommendations.

Governments were originally established as an overseer of society. They provided services because they had an obligation to fulfill public policies. Somewhere along the way, presumably in most part due to the characteristics of public goods, governments have become involved in the economic supply of many goods and services. Also, because of its ability to cross-subsidize projects, the government became a natural choice for the provision of these public goods and services. This has evolved over the course of many hundreds of years and for many different reasons. This may not, however, be the most effective and efficient role for the government to play. If government responsibilities reverted to regulation, of the environment, the money supply, interest rates, etc., we may begin to see a more harmonious and efficacious marketplace. Governments should limit their roles to the provision of purely public goods, such as the military, and regulate the actions of the market in such a way as to ensure the best possible outcomes for the whole of society.

I say this because of the overwhelming evidence that the private sector can indeed provide goods and services at a lower cost than the public sector. This ability to lower the cost of production comes from many different factors associated with private businesses. For instance, as mentioned previously, private firms have access to newer, more productive technologies, more efficacious management systems, fast-track design strategies, multi-disciplinary design teams, and so on. In addition to this, private firms

are often not bound by commitments made to unionized labour, nor are they concerned with the redistribution of income.

Governments, on the other hand, as a representative of all members of society, must take into consideration the effects of the various work standards and benefit packages. I believe governments should not forgo this duty, even with the institution of a PPP. If the government took on the role of authorizer and regulator, a sort of watchdog, I believe many of the problems associated with the implementation of PPP's could be overcome. For instance, let's say a public entity decided a new bridge needed to be built. Conventionally, they would hire a contractor who would then design the bridge to the specifications of the municipality. The municipality would then, in essence, become the provider and producer of that bridge. On the other hand, if a PPP is developed, the private firm would then take over the traditional role of provider and producer and the government is then free to become the facilitator and regulator. Their new responsibilities could be to ensure quality labour, or unionized labour, was used and benefit packages and workplace safety would not be compromised. Granted, this may diminish some of the cost savings usually enjoyed by private firms, but it would ensure that public mandates were not compromised.

This role of overseer could also be extended to areas such as the ecological environment or income redistribution. Governments could also require the use of proper training programs and ensure consumers would not be negatively affected. In other words, while it may be true that the private sector can lower the cost of production on many infrastructure programs, it is not always true that those lower costs are in the best interests of society. The role the government can and should play is one of authorizer,

overseer, regulator, and facilitator. It is this dichotomy of roles between the public and private sector that I feel would best meet the requirements of both equity and efficiency; two economic concepts that are often at odds with each other, but do not have to be an inevitable feature of future growth.

There are certain key factors that are crucial in the success of PPP's. The first is project definition. For the use of a PPP to be considered worthwhile, the project must address a true "societal" need. Performance objectives must be clearly defined in the beginning stages of the PPP development. Finally, innovative ideas must be promoted and considered.

Through the process of PPP development, every effort must be made to attract the private sector with a selection process that respects the investment required to prepare a proposal. Often, assembling the requirements for a proposal involves a great deal of time and money and, as such, the request for proposals should bear in mind the associated costs. The governments' commitment to the project must be demonstrated by keeping the process open and ingenuous. Stakeholders in the PPP should be consulted throughout the process and employees and unions should be invited to partake in the process.

The evaluation of the PPP must include an assessment of the projected risk involved with the PPP in addition to demonstrating the anticipated savings. There should be a multi-disciplinary team to conduct the evaluation.

The structuring of the PPP is also important in establishing a workable partnership. The government's financial commitment should be minimized. This could be done in one of two ways, depending on the objective of the public sector. First, the financing of the project could be done by the private firm, thereby freeing the

government from borrowing the vast amount of capital required for most infrastructure programs. The government would then simply pay an annual payment, either as a lease or a pre-arranged, agreed upon amount. Conversely, the government could finance the project itself, thereby reducing the interest charges incurred and generally, shortening the length of time payments would be made on the structure. As mentioned previously, it can not be stated with any certainty which of these two methods will minimize the government's financial commitment because every situation is different and the pros and cons must be weighed accordingly.

A successful PPP should have well illustrated penalties for non-performance to safeguard the public from an iniquity. Moreover, there should be contingencies made to allow the public sector to benefit from any monetary gains directly resulting from the project. This could be in the form of profit sharing or as payments made by the private firm as value increases because of new development possibilities.

It is true that governments have to find new and innovative ways to secure financing for sorely lacking infrastructure programs. Due to the self-defined debt crisis, governments are becoming less likely to initiate new infrastructure provision with traditional means of financing. Most public entities are counting on PPP's to be their knight in shining armor. Throughout Canada, the United States, and Europe, governments are seeking partnerships in hopes of continuing those services people in society have come to expect. Similarly, private firms have begun looking to new sources for profit generation because traditional areas are no longer capable of producing profitable returns. Accordingly, these two sectors have come together, one with the possibilities but not the means, the other with means but no possibilities.

6.1 *Alternatives to PPP's*

As should be quite evident by now, there is no unambiguous answer as to the desirability of extensive PPP usage. For each individual project, the pros and cons must be carefully weighed and considered. It is precisely because of this reason that alternatives to PPP's are so significant. It is important to know that there are options to simply remaining at the status quo or establishing a PPP, which may yield some undesirable outcomes. A viable alternative should address some of the concerns that give rise to the popularity of the PPP option but that are less threatening to the public sector workers and public policies.

It is often argued that PPP's are beneficial because they allow the public sector to reduce its level of borrowing or its capital costs through way of private sector financing. In reality, however, the public entity is typically able to borrow money more cheaply than a private firm. Even if this were not the case, the public sector could effectively reduce their own borrowing costs by organizing the coalition of smaller authorities who would pool and jointly guarantee their debt requirements. The Municipal Finance Authority of British Columbia (MFABC) is a good illustration of this. This authority enables smaller municipalities, through a system of collective bond issues, to pool "the security of their tax bases", which will constitute a comprehensive accumulation of assets (CUPE Research, September 29, 1995). This collection of assets can then be used as collateral against future long-term investments. MFABC has been in existence since 1971, has a triple A bond rating, and at the end of 1993, had \$1.7 billion in assets (CUPE Research, November 1994). This principle of collaboration between smaller public sector entities

could be extended to non-financial areas, such as construction or service delivery, which would mean that economies of scale, and jobs, are preserved within the public sector.

Another alternative to PPP's is to contract work back into bargaining units. (Marshall, pg.5) While this is typically a difficult task, there has been some measure of success within the past few years. The Hamilton Public School Board, CUPE Local 1344 is a good case in point. Using the various mechanisms at its' disposal, the local was able to secure access to the invoices for untendered contracts. They were able to utilize this information by creating a data bank, which delineated the trends effectively enough to prove that a vast majority of the work should remain as in-house work. This method has not only saved the jobs of many hundreds of employees by bringing work back into the bargaining unit, it has also created new job potentials as well as saving money for the employer.

PPP's have the potential to expose the area of public services to many new possibilities. They have the capacity to lower production costs while simultaneously producing a better quality output. They also have the ability, however, to erode the public policies, which most members of society do not want to dissolve. Labour will be the worst casualty, with lower salaries and benefits and less emphasis on safety in the workplace. This does not need to be the case, though. PPP's could be formulated in such a way as to address these drawbacks and still reap the benefits that make these partnerships so appealing.

I believe that the best alternative to PPP's may not be an alternative at all, merely a change in the definition of a PPP. What I mean is that there seem to be many benefits from the tradition method of infrastructure and service provision as well as many benefits

to private provision. I believe there must be a way to harness both of these without losing the benefits of each. For instance, the government could play the role of overseer, to ensure equitable treatment of workers, a standard of quality, etc., as well as to give private business the opportunity to create opportunities for new jobs and lower cost facilities. I believe that instead of continuing to use PPP's as a crutch, the government of Canada should look at better ways to enjoy the benefits of lower cost facilities without giving up the services and standards that we, as Canadians, have come to expect.

APPENDIX A - PUBLIC GOODS

A public good is so classified because of its characteristics. In other words, it is non-rival and non-excludable in consumption. A non-rival good is one, which if its benefits are consumed by one person, the same amount is still available for another to enjoy. The benefits enjoyed by the consumers do not diminish with consumption. In more theoretical terms, "...once a public good is provided, the marginal cost of another person's consuming it is zero." (Stiglitz, 1988, pg.630) This can apply to goods such as roads, bridges, national defense, etc.

A non-excludable good is one in which consumption cannot be prevented, either because of prohibitively high costs or simply impossibility. To better describe this, let's examine national defense, which is considered a non-excludable good or service. It would be virtually impossible for a member of society to be excluded from the benefits of this service. Let's assume that national defense was provided privately in a city called Armyville and the citizens had to pay a fee for this service. Now let's pretend that a war has been declared on Armyville. A missile is launched from one of its' enemy countries. This missile is found to be heading directly for the homestead of a family that had decided not to pay for the national defense service. The providers of national defense cannot very well allow this bomb to land, even though that family had not paid for its services because, naturally, the bomb would destroy the houses of the residents who had paid for their services. This problem is referred to as the 'free rider problem'. Free riding occurs when "...a person refrains from taking a costly action because he or she knows that someone else will undertake it (which allows the free rider to reap the benefits without bearing the costs". (Katz and Rosen, 1994, pg. 234)

A pure public good is one that is both non-rival and non-excludable. Of course, a good could be non-rival but excludable as in the case of a toll road. However, a toll road could become rival if it is overused because heavy usage could wear out the road over time and so, it is important to clarify each instance because many different conditions could exist. A good could also be rival, but non-excludable as is the case when a public school classroom has too many students, which effectively lowers the level of benefits received by the students from the teachings. This kind of good is referred to as an impure public good, or simply public good, because it is lacking one of the characteristics necessary for the classification of pure public good.

To efficiently provide a public good, certain conditions must be met. These conditions are represented in the equation below.

$$MRS_{gv}^A + MRS_{gv}^B = MRT_{gv}$$

MRS_{gv}^A is person A's marginal rate of substitution between gardens (g) and wine (v). MRS_{gv}^B is person B's marginal rate of substitution between gardens and wine. The sum of these two is the marginal rate of technical substitution between gardens and wine. The MRS is the quantity of one good a person is willing to give up in exchange for another good. Every point on an individual's demand curve represents a tradeoff between two commodities, that is, that person's MRS at that instance. The marginal rate of transformation can be defined as "the rate at which the economy can transform one output into another by shifting its resources". (Katz and Rosen, 1994, pg.408) It can also be thought of as the marginal cost of the efficient production level, in this case, G^* . This

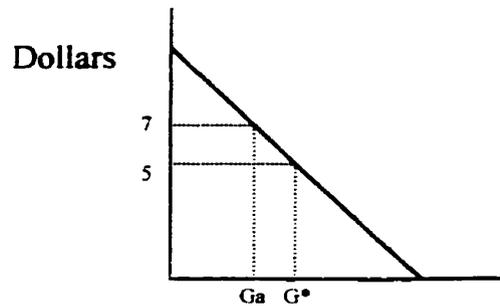
equation tells us that at G^* , the marginal cost is equal to the sum of what person A is willing to pay and what person B is willing to pay. This can be contrasted with the conditions necessary for the efficient provision of private goods. In this instance, efficiency requires that each individual have the same MRS's and that this value exactly equals the MRT.

Example:

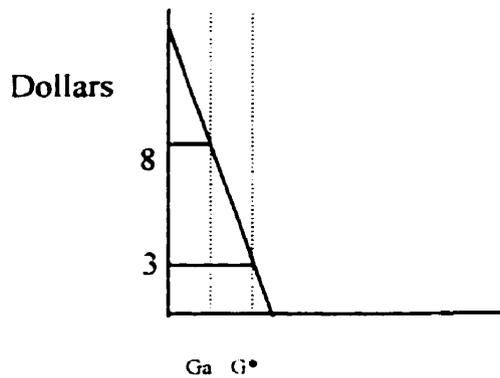
Suppose we have two people, Albert and Betty who both enjoy vegetable gardens. Albert's enjoyment of the garden does not diminish the enjoyment Betty receives from the garden, and vice versa. Therefore, we can say that this garden is a public good because it is non-rival. Both individuals prefer a larger garden to a smaller one, *ceteris paribus*. Suppose that the garden is presently 100 square feet and can be enlarged at the cost of \$7 per square foot. Albert is willing to pay \$6 to expand the garden while Betty is only willing to spend \$5.50. The question that must be answered is, Is it efficient to enlarge the size of the garden by a square foot? To examine this, we must compare the marginal benefit to the marginal cost. It must be noted that the consumption of the garden is non-rival, which means that the additional square foot can be consumed by *both* Albert and Betty. Consequently, in order to calculate the marginal benefits, we must take the *sum* of what they are willing to pay, which is \$11.50. Since the marginal cost is only \$7, it pays to add the additional foot to the garden. More generally, if the sum of the individual's willingness to pay is greater than the marginal cost of providing an additional unit, efficiency dictates that that unit should be purchased. If the opposite is true, then efficiency dictates that that unit should *not* be purchased. Therefore, efficient

provision of a public good requires that the sum of each person's marginal valuation of the last unit exactly equal the marginal cost. (Katz and Rosen, 1994, pg.631)

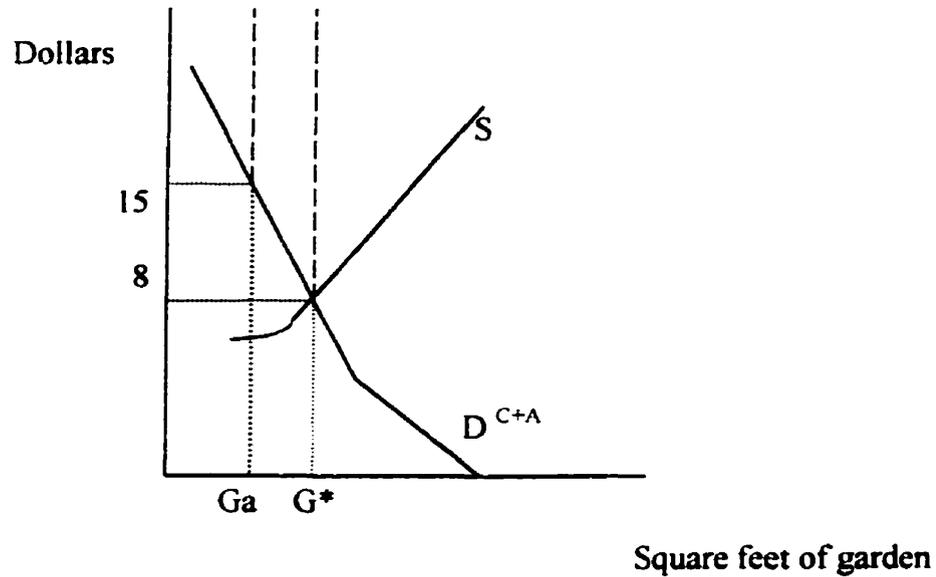
More typically, though, public goods are provided to a group of people and so group willingness to pay must be found to determine the efficiency of provision. This is found by the **vertical summation** of individual demand curves, as shown below.



Square feet of garden



Square feet of garden



As explained above, these graphs represent the **vertical summation** of the individuals respective demand curves. At the efficient level of provision, G^* , the sum of the marginal rates of substitution equals the marginal rate of transformation. This is different from the derivation of a group demand curve for a private good. In that case, the demand curves are summed *horizontally*, which allows for each person to consume a different quantity of the good at the same price. This differs from public goods because it would make no sense to try to sum the quantities of a public good that the individuals would consume at a given price because public goods are non-rival. Hence, we find the group willingness to pay for gardens by summing the prices each would be willing to pay for a given quantity. It should be noted that although the consumption of public goods is non-rival, there will most likely be differing values placed on the good.

APPENDIX B - PRIVATIZATION COST SAVINGS

UPDATED COST SAVINGS RESEARCH FINDINGS

Arranged Alphabetically by Service Category

SOURCE	COMPARISON	FINDINGS
Kitchen (1976)	In-house versus private firms in forty-eight Canadian Cities.	Municipal suppliers were more costly than proprietary firms.
Petrovic and Jaffee (1977)	In-house versus private contracting in Midwestern cities.	Cost of city collection was 15% higher than the price of private contract collectors.
Pier, Vernon, and Wicks (1974)	In-house versus private firms in Montana.	Municipal suppliers appear to be more efficient, not controlling for quality and community characteristics.
Savas (1977a)	In-house versus private firms in Minneapolis.	No significant cost differences if suppliers compete through tight control of municipal costs imposed by legislature using private costs as a comparison.
Savas (1981)	In-house and franchise contractors in a single district jurisdiction versus contractors and in-house in a multi-district setting.	The average number of bids per area increases when cities are divided into small districts. Competitive bidding leads to lower costs for contractor service. Cities that actively monitor municipal agencies using private contractor costs have lower average costs. No benefits are obtained without these policies.
Spann (1977)	In-house versus private firms. (Survey of literature.)	Public firms were 45% more costly.
SCHOOLS		
Peterson (1981)	In-house versus private contractor-operated public schools.	Private contracting prompted small gains in math and reading and losses in other subjects. No cost savings.
SECURITY SERVICES (general maintenance of public buildings)		
Hanke (1985a)	In-house versus private security guards.	Private security services save 50% or more.
SEWERAGE/WASTEWATER TREATMENT		
Hanke (1985a)	In-house versus contractor-built and operated treatment facilities	Contractor costs averaged 20% to 50% less due to lower construction costs and shorter construction lags.

UPDATED COST SAVINGS RESEARCH FINDINGS

Arranged Alphabetically by Service Category

SOURCE	COMPARISON	FINDINGS
		Competition also reduces operating Costs 20% to 50%.
STREET CLEANING (refuse collection)		
Stevens (1984)	In-house versus competitively contracted.	Contract cities have 43% lower costs after accounting for quality and other factors.
WATER UTILITIES		
Crain and Zardkoohi (1978)	In-house versus private suppliers; comparisons of 112 firms and detailed case study of 2 firms that switched type of ownership.	Public firms were 40% less productive. Private firms had 25% lower costs. Public firms going private had 25% increase in output per employee. Private firm going public had an output per employee decrease of 40%.
Feigenbaum and Teeple (1982)	In-house versus private water companies.	No cost differences were found after controlling for other cost factors.
Mann and Mikesell (1976)	In-house versus private suppliers.	Found public modes were 20% more expensive after adjusting for input prices.
Morgan (1977)	In-house private suppliers covering 143 firms in six states.	Costs 15% higher for public firms.

Source: Cost Savings From Privatization: A Compilation of Study Findings
By John Hilke, The Reason Foundation, How-to Guide #6,
March 1993.

* Note: This is only a sample of the many different studies that have been done in this area. To list them all would take up many, many pages and they would be redundant as the findings were similar throughout the studies.

APPENDIX C - CALCULATING THE PV OF FUTURE LEASE PAYMENTS

To calculate the present value of money to be collected (or given out) in the future, it must be discounted by some amount. For instance, a dollar today is worth **less** than a dollar in the future. Similarly, if a dollar is to be earned (or paid) sometime in the future, it is worth **more** today by the amount of interest gained (or forgone) by having to wait. The longer the waiting period and the higher the interest rate, the less the present value (PV) will be in comparison to the future value (FV). The formula used for this calculation is

$$PV = FV * \frac{1}{(1+r)^n}$$

Where 'r' represents the interest rate and 'n' represents the number of years into the future dollars are to be paid or received.

In a standard PPP lease agreement, the public partner pays an annual lease payment for the use of some capital asset built and owned by the private partner. For instance, if a lease agreement is drawn up so that the government must pay \$100,000 per year for the next 20 years and their incurred interest costs are 7% per annum, the PV of the payment for year 1 will be

$$\$100,000 * (1/1+0.06) = \text{approx. } \$93,458$$

The PV amount for the second payment paid at the end of year 2 will be

$$\$100,000 * [1/(1+0.06)^2] = \text{approx. } \$89,000$$

This amount is worth less than the amount received in the previous year because the government has one year longer in which to collect that money and as such, “saves” another year’s interest and the interest accrued on the interest. By the time the final payment is due, in year 20, the discount factor is just 0.312 which means that one dollar paid in the 20th year is worth only 31.2 cents.

The PV amount of the total payments to the PPP would equal the sum of each year’s lease payments, in PV terms, PLUS the discounted value of any terminal payment to be made, if so stipulated, if the asset is to revert to public ownership at the termination of the lease agreement.

In addition to this, it may be useful to calculate how much the PPP will earn implicitly on its investment by financing the project and then leasing it back. This value is found by using a trial and error method to pick a discount rate and then discounting the annual lease payments until the PV of the lease payments is the same as the PV of the investment. At this point, the net present value (NPV) is zero because the PV of the benefits exactly equals the PV of the costs. The interest rate at this point is referred to as the internal rate of return (IRR) on the agreement. If this is less than the governments borrowing cost, it will be beneficial for the public sector if the project is financed as stipulated in the PPP. If, on the other hand, the IRR is greater, it would be advisable for the project to be financed by the public sector.

APPENDIX D - PPP'S WITHIN CANADA

ALBERTA

TRANSPORTATION

Alberta Transportation and Utilities Highways Privatization Program
Country Hills Bridge, Calgary
Douglasdale Pedestrian Bridge, Calgary
Edmonton Master Transportation Plan
Edmonton Ring Road

ENVIRONMENTAL

Alberta Special Waste Treatment Centre
Banff Wastewater Treatment Plant
Calgary Utility Privatization
CU Water Highway 14 Project
Edmonton Regional Co-Composting Facility
Edmonton Water Privatization – AquaAlta
Edmonton Wastewater Operating Contracts
Kananaskis Wastewater Treatment Plant

CIVIC

Alberta Petroleum Marketing Commission
Alberta Public Works Outsourcing and Privatization Initiatives
Calgary Aquatic Centre
Calgary Golf Course
Calgary Hockey Rinks
Edmonton Telephone Corp. Privatization
ISM (Alberta)
Provincial Campgrounds in Alberta
Privatization of Liquor Stores

BRITISH COLUMBIA

TRANSPORTATION

Air Care Program
BC Government Air Services
BC Highway Maintenance
BC Rail Privatization
Capital Regional District, Victoria
Chilliwack Municipal Airport
Fort Langley Toll Bridge
Johnson Mariner Way Overpass, Coquitlam
Lions Gate Bridge
Mt. Washington Ski Resort Roadway
National Airport Policy. Private Involvement in BC Airports
Okanagan Lake Floating Bridge
Port Mann Bridge Bypass

Prince Rupert Bridge
South Fraser Perimeter Road
Trans Canada Highway Westview Interchange
Vancouver International Airport Expansion
Vancouver Island Highway
Vancouver Port Container Cranes
Vancouver port Corporation Privatization
Westcoast Express Commuter Rail
Whalley's Gateway Skytrain Station

ENVIRONMENTAL

British Columbia Solid Waste Hauling
Burnaby Waste Recycling Plant
Chilliwack Facility Privatization Program
Cowichan Regional District Septage Handling Facility
GVRD Wastewater Treatment Plant Upgrade
Kelowna Water Metering Project
Seymour Water Filtration Project
Victoria Composting Project

CIVIC

Burnaby Ice Sports Centre
Burnaby Secondary School
Citygate Mixed Income Housing Redevelopment
Coquitlam Arena - Rocket Ice
Coquitlam City Hall/Police Building
Cypress Bowl Recreation Facility
GM Place – Vancouver
Kelowna Multi-Purpose Facility
Langley Arena
Maple Ridge Ice Arena
Maple Ridge Wilderness Program
Nanaimo Theatre/Parkade Complex
Qualicum Beach Town Centre
Richmond Aquatic Centre
Richmond Ice Centre
Seaport Centre Casino Complex
Selkirk Waterfront Office Building
Stetson Bowl Stadium
Surrey Firefighter Training Program
Tskeil-Waututh Ice Rink
University of British Columbia Expansion
Vancouver Convention Centre
Vernon Recreational Complex
VLC Properties Ltd. Social Housing
Walnut Grove Community Aquatic Centre
"Woodwards Building", Mixed Income

MANITOBA

TRANSPORTATION

Winnipeg Charleswood Bridge

ENVIRONMENTAL

North End Water Pollution Control Centre

WINGRO Biosolids Reclamation Initiative

Winnipeg Regional Water Supply and Treatment Facility

Winnipeg Water Supply and Treatment Facility

Cartier Water System

CIVIC

Manitoba Satellite Facility

Winnipeg City Hall Executive Policy Committee (EPC)

Winnipeg's Fork Development

Downtown Winnipeg YMCA Building Revitalization

NEW BRUNSWICK

TRANSPORTATION

Highway 14

Moncton Airport Privatization

Toll Road System

ENVIRONMENTAL

Canadian Forces Base Gagetown Heating Plant

Moncton Water Treatment Plant

Moncton Utility Distribution System

CIVIC

Dalhousie Correctional Facility

Electronic Service Delivery Program

Integrated Justice System

Miramachi Youth Centre

Moncton School

New Brunswick Correctional Facility

New Brunswick 911

New Brunswick Reformatory

New Brunswick Tire Recycling

Revenue Management System

NEWFOUNDLAND

TRANSPORTATION

Hibernia Management and Development Co.

Newfoundland Department of Works, Services and Transportation

ENVIRONMENTAL

Marble Ski Resort

CIVIC

Operation ONLINE

NOVA SCOTIA

TRANSPORTATION

Cape Breton Fleet Operations/Central Vehicle Maintenance Facility
Cape Breton Regional Municipality – Central Dispatch Facility
Cape Breton Regional Municipality – Handi Dart Privatization
Highway 104 Western Alignment
Municipality of the County of Kings – Local Road Maintenance
Sydney Airport

ENVIRONMENTAL

Annapolis County Wastewater Collection and Treatment
Dartmouth Water Treatment Plant
Halifax MSW Processing Project
Lunenburg Wastewater Treatment Plant

CIVIC

Antigonish Hospital Program
Atlantic Land Management Technology
Cape Breton Regional Municipality Arena Operations
Cape Breton Regional Municipality Centre 200 Project
Cape Breton Regional Municipality – Civic Centre
Cape Breton Regional Municipality – Information System
Dartmouth District School Board – Prince Andrew High School
Auditorium Project
Grain & Forage Commission
Halifax City/Halifax County/ Bedford/ Dartmouth School Board
Service Privatization
Halifax Regional Municipality – Recreation Facilities
Nova Scotia Corrections
Porters Lake School System
Sydney School System
Wide Area Network System
Wolfville School System

ONTARIO

TRANSPORTATION

Hamilton – Wentworth Airport
Highway 407 Project
Highway 407 Extensions
Highway 416
Lackner and Fairway Roads
Ontario Airport Transfers
Ontario Turnpike
Oshawa Airport
St. Lawrence Seaway
Terminal 1 and Terminal 2 – Toronto Airport
Terminal 3, Toronto Airport
Waterloo Region Roads, Private Financing

ENVIRONMENTAL

Grand Bend Wastewater Expansion
Hamilton – Wentworth Wastewater Plant
Listowel, Ontario Wastewater Operations and Maintenance
Metropolitan Toronto Solid Waste
Petrolia Wastewater Operations and Maintenance
Plimpton in Lambton County Wastewater Operation and Maintenance
Region of Halton Waterworks System
Region of Niagara Water and Wastewater
OCWA Privatization
Region of Ottawa – Carleton Wastewater Treatment
Sarnia Wastewater Expansion
Strathroy Wastewater Extension
Town of Lucan Wastewater
Town of Rockland Wastewater Facility
Regional Municipality of Waterloo Wastewater Operations & Maintenance
Wyoming Wastewater
York Region Waterworks System

CRVIC

Barrie Molson Centre
City of Brampton Entertainment/Sports Complex
City of Gloucester City Hall
City of Mississauga Spectator Arena & Entertainment Sports Complex
City of Orillia – Multi-use Recreation Complex
City of Windsor Casino
Hospital Ambulatory Care in SW Ontario
Niagara Casino Project
Niagara Gateway Project
Ministry of Tourism Highway Sign Project
National Defence Area Training Centre
Ottawa Palladium
Rama First Nation Casino
Sarnia Arena
Scarborough Library – Private Funding
School Accommodation in Peel – Private Funding
SD Laboratory Services
Teranet Land Information Services Inc.
Windsor Police Headquarters
Windsor Police Radio Dispatch
Windsor Sportsplex

PRINCE EDWARD ISLAND

TRANSPORTATION

Fixed Link Bridge Involving Prince Edward Island and New Brunswick
Georgetown Shipyard

CIVIC

The Prince Edward Island Government's Food Technology Centre
Prince Edward Island Tourism Information

QUEBEC

TRANSPORTATION

Aeroports de Montreal (ADM)
MIL Davie Shipyard
Montreal Henri Bourassa Roadway
Montreal Parking Meters Project
Quebec City – Windsor, Ontario High Speed Rail
Transport Quebec

ENVIRONMENTAL

Laval Waste Management
Sainte-Marie-de-Beauce Water Treatment Operations

CIVIC

Canadian Museum of Civilization (CMC)
La Societe Immobiliere du Patrimoine Architectural de Montreal (SIMPA)
Mont Saint-Anne Ski Resort
Municipal Affairs Public-Private Partnership Framework
Provincial Privatization Program
Prevost Car sold to Volvo by Societe Generale de Financement (SGF)
Societe d'economies Mixtes (SEM)
Sidbec-Dosco
Unibord and Panneaux Chambord Corporation

SASKATCHEWAN

TRANSPORTATION

Saskatchewan Transportation Partnerships Program

ENVIRONMENTAL

Melfort Regional Water Supply System
Saskatchewan Water (Sask Water)
Waka-Humboldt Regional Supply System

CIVIC

Saskatchewan Casino Complex
Crown Corporation Privatization Program

YUKON and NORTHWEST TERRITORIES

TRANSPORTATION

Dawson Bridge

ENVIRONMENTAL

Whitehorse General Hospital Energy Centre

CIVIC

Niven Lake Subdivision, Yellowknife

CROSS – CANADA PROJECTS

TRANSPORTATION

Air Navigation Privatization (NAVCAN)

Canadian Nation Rail Privatization

Radarsat

CIVIC

Canadian Armed Forces Privatization

Canada Mortgage and Housing

Canada Post Property Management

Federal Buildings Initiative

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