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IS THE PUPLIC PRIVATE PARTNERSHIP MODEL THE RIGHT VEHICLE FOR PUBLUC INFRASTRUCTURE DELIVER IN DEVELOPING COUNTRIES: AN ANALYSIS OF INTERNATIONAL EXPERIENCE

by

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ABSTRACT

Although there are many governments that have resorted to forming PPPs, there are still misgivings about the role PPPs can play in developing countries' economies. The objective of this study is therefore to attempt to answer one critical questions: Is the public private partnership model the right vehicles for delivering public infrastructure projects in developing countries? The study found that, the PPP model can be a good vehicle for delivering public infrastructure projects in developing countries, however, for PPPs to meet the expectations of the public sector and the citizens, there are things that the public sector needs to improve on, namely: transparency, accountability, optimum risk allocation/sharing, and competition. The study demonstrated that if a country implements its PPP programme properly, there are massive benefits that accrue to consumers and the economy as a whole. Such benefits include reduced prices which may also increase access to services.

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1 INTRODUCTION

An increase in global economic growth, demographic trends, public health needs, safety needs as well as transport needs have led to infrastructure requirements far in excess of currently available financing resources (OECD, 2006 and Quiggin, 1996). The increase in demand for infrastructure services has put a lot of pressure on governments to increase investment in infrastructure (De Bettignies and Ross, 2004). Failure to meet this ever-increasing pressure for infrastructure investment could prove costly in terms of economic growth and development in the long term.

As a result of this increasing pressure on governments to provide more and better services to their citizens on limited budgets, innovative infrastructure delivery mechanisms have been developed by both the public and the private sectors to deliver the needed public services (Urban Land Institute, 2005; De Bettignies and Ross, 2004). Many governments have resorted to forming public-private partnerships (PPPs) to benefit from both technical and financial know-how of the private sector (Harris, 2003).

Although the use of PPPs (private sector partner/party or the concessionaire) by governments has increased in the past decade, governments have not yet fully taken advantage of the potential that PPPs have to address some of the socio-economic challenges facing developing countries, such as unemployment and poverty. This is because there are still misgivings about the role that PPPs play in developing countries' economies.

There are two school of thoughts about the role that PPPs can play in developing countries' economies. On one hand there are those who argue that PPPs are good because they enable governments to deliver needed infrastructure even if they do not have the budget to do so and that PPPs can deliver infrastructure at lower costs due to economies of scale. On the other hand, they are those who argue against using the private sector to deliver public services. Their arguments centre around the fact that PPPs are equal to privatisation, are more costly than traditional procurement, are a way for government to avoid reporting debt, are weak in accountability and transparency, lead to public-sector jobs losses, lack flexibility and that private companies sacrifice quality for the sake of profits (McDavid and Clemens, 1995). PPP proponents argue that those who argue against PPPs tend to over-simplify matters or tell only part of the story.

The objective of this paper is therefore to discuss in detail the arguments for and against PPP projects with the aim of elucidating valid from invalid arguments about PPPs and to establish if the PPP model is the right vehicle for delivering infrastructure projects in developing countries. The paper starts by discussing the role of infrastructure in economic development, followed by a discussion on the economic of public-private partnerships. The third part of the paper discusses the arguments for and against PPPs followed by a discussion on whether PPPs have really benefited the public with the aim of establishing if the model is the right vehicle for delivering public infrastructure, especially in developing countries.

2 METHODOLOGY

The approach followed in conducting this study is a qualitative approach with some quantitative analysis based on international review of literature on PPP experiences around the world. The study is mainly a desk top study using data from the South African renewable energy independent power producers programme to demonstrate the benefits of using PPPs to procure infrastructure projects.

3 THE ROLE OF INFRASTRUCTURE IN ECONOMIC DEVELOPMENT

The contribution of infrastructure to economic development is widely recognised as very important for both households and private firms. Its availability and quality influence a number of decisions related to investment, migration, business establishment and locations (United Kingdom. Department for International Development, 2007). Infrastructure services are used as final consumption by households and intermediate consumption items for firms. However, the link between infrastructure and development outcomes is still a topic for debate among economists (Snieska and Simkunaite, 2009).

Although the debate on the link between infrastructure and economic outcomes is still ongoing, several empirical studies, such as those conducted by Rives and Heaney (1995), Bafoil and Ruiwen (2010), Kim (2006), Munnell (1992), and Boopen (2006) found a positive relationship between infrastructure availability and economic development. The results of these studies show clearly that infrastructure availability is imperative for the facilitation and acceleration of socio-economic development. It enhances the productivity of firms. Empirical evidence in a study conducted by Munnell (1992) in the USA in 1990 found that public investment in infrastructure enhances the productivity of private capital by raising its rate of return and encourages more investment. Another empirical work that supported the impact that infrastructure has on productivity is that by Yoshino and Nakahigashi (2000), which assessed the impact of infrastructure on productivity for both Japan and Thailand before and after World War II. These findings are in agreement with the growth models used to analyse the impact of infrastructure on economic growth and development, and they show clearly that there is no doubt that infrastructure contributes to economic development through an improvement in productivity and an increased return on investment. This is true, because good quality infrastructure reduces input costs for private firms as it is used as intermediate inputs into their production processes, thus increasing firms' profitability in the long term.

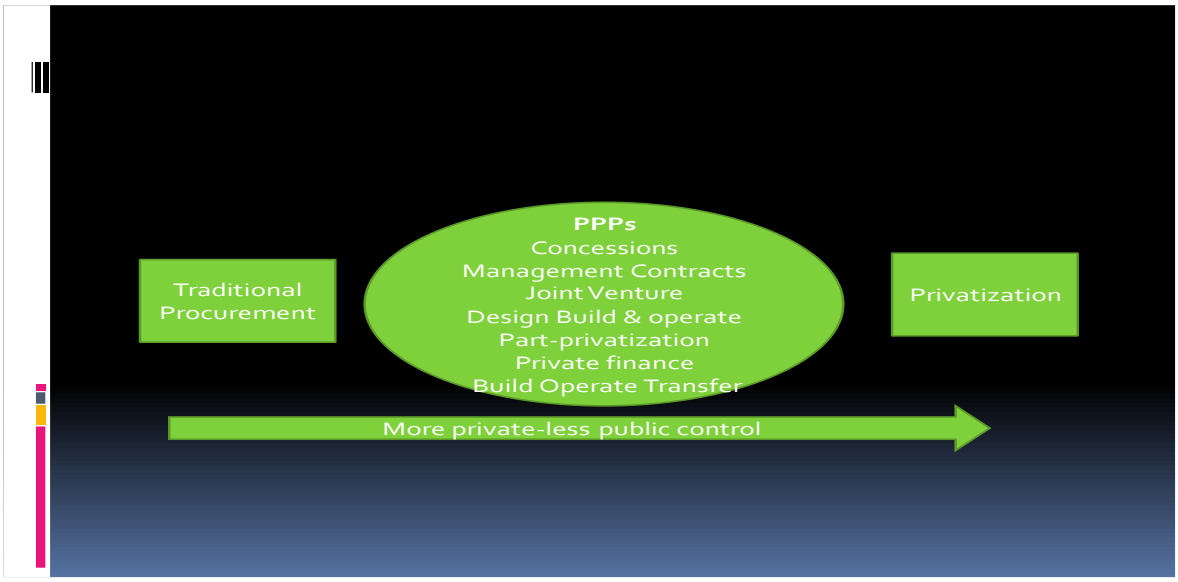
Infrastructure development can be considered as a prescription needed for reducing poverty. Fan (2004) summarises a number of empirical studies that indicate that road infrastructure and infrastructure in general have both direct and indirect effects on poverty reduction. This finding is supported by studies conducted by Ali and Pernia, (2003), Fan (2004) and Munnell (1992). An empirical study conducted in India during 1999 found that about 7% of the growth in aggregate output could be directly attributed to road investments, in addition to indirect contributions through the attraction of banks in areas with improved roads conditions (Pouliquen, 1999). It is important to first understand what PPPs are before discussing the economics around them. The following section therefore discusses the different definitions of PPPs.

4 PUBLIC PRIVATE PARTNERSHIPS (PPPs)

The participation of the private sector in infrastructure delivery has been referred to in different ways. According to Farrugia and Orr (2008), private participation in infrastructure is sometimes referred to as "private finance initiative (PFI), public-private partnerships (PPP), P3, alternative financing and procurement (AFP) or performance-based infrastructure". According to Grimsey and Lewis (2005), PPPs are arrangements whereby private parties participate in, or provide support for, the provision of infrastructure, and a PPP project results in a contract for a private entity to deliver public infrastructure-based services.

Public services can be delivered through a spectrum of partnership models. On the one hand, the public sector retains almost all responsibilities in the partnership and carries all the risks associated with the project. On the other hand, the private sector carries all the risks and responsibilities associated with the project. PPP projects therefore fall into the middle of the spectrum, between the public sector and its private partner according to their strength and weaknesses. Figure 1.1 below illustrates exactly where PPPs fall within the different service delivery mechanisms.

Figure 1: Traditional procurement, PPPs and privatisation



Source: *PriceWaterhouseCoopers, 2004*

From the above definitions it can be deduced that it is expected of PPPs to deliver high-quality services by taking advantage of the fact that in such arrangements one can draw from the best of the public and private sectors. Indeed, according to Binza (2008), at the heart of every successful project is the concept that better value for money[2] may be achieved through the exploration of private-sector competencies and the allocation of risk to the party best able to manage it.

[2]Value for Money will be discussed in later chapters of the document.

Dowdeswell and Heasman (2004); Bojovic (2006); Binza (2008); Maluleka (2008) and the German Economic Team (GET) (2007) identify a range of PPP schemes that are commonly used globally. Table 1 gives a brief description of each of these schemes. In most cases international literature refers to these types of PPPs as concession PPPs.

Table1: Public-Private Partnership Schemes

Service contract	Modalities
Service contracts	The private party procures, operates and maintains an asset for a short period of time. The public sector bears financial and management risks.
Operation and management contract	The private sector operates and manages a publicly owned asset. Revenues for the private party are linked to performance targets. The public sector bears the financial and investment risks.
Leasing-type contracts Buy-build-operate (BBO) Lease-develop-operate (LDO) Wrap-around addition (WAA**)**	The private sector buys or leases an existing asset from the government, renovates, modernises, and/or expands it, and then operates the asset, with no obligation to transfer ownership back to the government.
Build-operate-transfer (BOT) Build-own-operate-transfer (BOOT) Build-rent-own-transfer (BROT) Build-lease-operate-transfer(BLOT) Build-operate-transfer (BOT)	The private sector designs and builds an asset, operates it and then transfers it to the government when the operating contract ends, or at some other pre-specified time. The private partner may subsequently rent or lease the asset from the government.
Design-build-finance-operate (DBFO) Build-own-operate (BOO) Build-develop-operate (BDO) Design-construct-manage-finance (DCMF)	The private sector designs, builds, owns, develops, operates, and manages an asset with no obligation to transfer ownership to the government. These are variants of design-build-finance-operate (DBFO) schemes

Source: *Compiled from different sources*

5 THE SOUTH AFRICAN PPP MARKET

In line with the definition above, the Republic of South Africa's National Treasury (2004) defines a PPP as:

"… a contract between a public-sector institution and/or municipality and a private party, in which the private party assumes substantial financial, technical and operational risk in the design, financing, building and operation of a project".

For a project to be called a PPP, the National Treasury expects it to meet three conditions, namely (i) it must be affordable, (ii) it must provide good value-for-money and (iii) it must transfer appropriate technical, operational and financial risk to the private party. The South African National Treasury refers to two types of PPPs. The first type is whereby the private party performs a function usually carried out by government, such as providing water or maintaining a road. The second type is whereby the private party acquires the use of state property for its own commercial purposes, or a hybrid of the two.

In South Africa PPPs are found in the following sectors: water, roads, prison, electricity, government office accommodation, nature reserves, education, hospitals, tourism to name a few. It is currently difficult to estimate the number of operational PPPs in the country as the National Treasury's data on PPP projects is not regularly updated. A desk top search identified about 29 operational PPP projects (Mabuza, 2016). However it worth noting that there might be more PPP projects as other government institutions and parastatals do not record their PPP projects with the National Treasury. For example, electricity, ports, and some municipal PPP projects are not included in the National Treasury's list of PPPs. A number of PPP projects are still in the pipeline. A total of 78 of such projects covering all three spheres of government are recorded in the National Treasury PPP database, this figure also exclude PPP projects for government parastatals and other public agencies.

It is important to note that in practices, South Africa follows two PPP approaches. The first approach uses the private sector to design, finance, construct, operate and maintain the infrastructure project. This is called the traditional PPP model. The second approach, which is the hybrid of the traditional PPP approach and the public procurement approach, was adopted by SANRAL when procuring the Gauteng road expansion project. Under the first approach, the role of government or the public sector agency is limited when it comes to implementing the PPP project in that most of the responsibilities, such as design, finance construct, operation and maintenance become the responsibilities of the private sector partner. This model was followed by SANRAL when procuring the N3 toll road, N4 toll road and the Bakwena toll road PPP projects.

The government's role in these PPP projects is to monitor the implementation and the operation of the project and also to monitor that the private party meets the performance indicators agreed upon. Under the second approach (hybrid approach), the government agency raises funds for the project through issuing government bonds or raise debt from financial markets. Under this approach the public sector carries all market and financial risks related to the project, which is not the case when the traditional PPP approach is used.

Both approaches have their own advantages and disadvantages. For example, when the traditional PPP approach is used, government or its agency has limited control on how the project is implemented, as all responsibilities are transferred to the private sector party. When the *hybrid* approach is used, the government agency retains some influence on how the project is to be implemented as it carries most of the risks, such as demand risks, given the fact that under this approach the public partner funds the project itself. The main advantage with the *hybrid* approach lies with its optimal capital structure as discussed in section 6.3.

6 THE ECONOMICS OF PPPs

The involvement of the private sector in public infrastructure delivery comes with challenges. The challenges result mainly from the conflicting goals or objectives of the two parties when entering into a partnership. PPP proponents argue that the foundation of PPPs is the ability of the public sector to be able to contract-out some of the services that are traditionally provided by the public sector. Below is a discussion on the advantages and disadvantages of contracting-out as the foundation of PPPs.

6.1 Contracting-out: The Foundation of PPPs

Traditionally, the construction of any project/asset was a task delegated to the private sector while government would retain tasks such as maintenance, repairs and operation of the facility (De Bettignies and Ross, 2004). This means that the private sector has always been involved in the provision of public services in one way or another. The only new development that has taken place in recent years is that a larger number of tasks (such as operation and maintenance of the infrastructure) that used to be the responsibility of the public sector are now bundled together and contracted to the private sector under one contract. This is what PPPs are all about. Under PPPs the private sector is carrying bigger responsibilities than the public sector compared to when the traditional procurement method is used to procure infrastructure. Following below is a discussion on the benefits of contracting-out.

Benefits of Contracting Out: PPP proponents argue that contracting with the private sector results in reduced service costs and provides superior levels of service relative to public provision. They give a number of reasons for this argument. Their argument is based on ex ante competition, high-powered incentives, optimal risk allocation and economies of scale. Below is a brief discussion on these arguments.

(i) Ex-ante Competition: Economists believe that the key reason behind the success of contracting out at reducing costs, particularly in a PPP project, is competition (Tirole, 2007). This competition refers to competition for the market and not in the market. This is because the bidding process forces bidders to lower costs, raise quality and increase innovation (Reeves, 2004). This is because competition for the market disciplines the incumbent firm to be more effective. However, this assumes that collusive tendering is prevented, as it may result in high prices for the services being outsourced. It is worth noting that ex-ante competition may not yield the expected results if there is not enough competition for the market. For example, in South Africa many PPP projects are undertaken by a few big construction companies that possess the technological know-how and a strong balance sheet needed to construct a PPP project.

(ii) High Incentives and Optimal Risk Allocation: Risk allocation is an important element in the economics of PPPs. For a project to be regarded as a PPP in South Africa, the project should be able to transfer appropriate technical, operational and financial risk to the private party (Republic of South Africa. National Treasury, 2004; Reeves, 2004). The second reason for contracting-out in reducing costs is believed to be incentive-related. The incentive to reduce costs comes from the fact that the private sector is a profit maximising agent. In order for it to make good profit it has to reduce production costs to the lowest level possible. This is because the private sector is believed to have the capacity to deliver more innovative products more speedily, with more flexibility and at a lower cost because of its experience and the fact that it is more productive-efficient than the public sector (Schmidt, 1996).

An empirical study by Boardman, Laurin, Moore & Vining (2009) found that the privatisation of the Canadian National Railways generated welfare gains of about $15 billion. The Canadian national government captured almost half of these gains while the rest were captured by the shareholders. Consumers did not benefit from these gains, since prices did not fall as a result of the surplus created. This shows that the benefits gained were not enjoyed by consumers

and this shows the need for an independent regulator that will have consumers' interest in PPP projects. None regulated PPP projects my not benefit society as it is envisaged by PPP proponents and policy makers alike.

6.2 Delegating Design and/or Operation to the Private Firm

PPP proponents argue that private sector firms benefit from economies of scale, scope or learning because they are normally more specialised, larger in size and have more experience in the construction and operation of a construction business compared to the public sector. Under the conventional service delivery model the government designs, finances and contracts another party to construct the asset on its behalf. Once the asset has been constructed the public sector will then operate and maintain it. Under this approach it can be argued that the facility can be built so as to require higher or lower maintenance, depending on the construction company. It is likely that the construction firm bidding to construct the facility will not advocate for more durable and expensive construction if it will not be responsible for operation and maintenance of the asset once it has been built. This may be motivated by the fact that the construction firm would want to appear as providing the construction service at a lower cost compared to other competitors, so that it can be awarded the contract to construct the facility (International Monetary Fund, 2004).

However, in a case where the constructor is also expected to operate the facility (PPP model), its behaviour changes. In this case it would have an incentive to propose a more durable design of the facility in order to minimise the costs associated with providing the service over the full life of the facility or at least the length of the contract. As De Bettignies and Ross (2004) assert, it is clear that there is technological complementarity or economies of scope between building and designing, and between building and service provision. These complementarities are enhanced by the incentive advantages of combining these tasks. This approach forces bidders to focus on the total life costs of the project over the project life cycle because those responsible for building the asset would also be responsible for the long-term maintenance and operation of the asset. In a case where the constructor is also expected to provide services (bundling) it gives a compelling justification for combining asset creation and operation, which is the defining feature of a typical PPP (International Monetary Fund, 2004). Conventional delivery does not have this advantage, and therefore the payment made by government to induce high quality may be higher with conventional delivery (De Bettignies and Ross, 2004). Fostering the use of SMEs in PPP projects can also benefit the economy, given the expertise that the private sector has. The private sector may suggest some innovative ways in which SMEs can participate in PPP projects without compromising the viability of the project.

7 ARGUMENTS FOR AND AGAINST USING PPPs AS VIHICLE TO DELIVER PUBLIC INFRASTRUCTURE PROJECTSs

According to Vining and Boardman (2006), the rationale for governments to undertake PPPs can be summarised into three broad categories, namely: (a) minimisation of on-budget government expenditure or desire not to increase current government debt (b) to deliver both infrastructure and services at a lower cost due to economies of scale, more experience, better incentives and greater ability to innovate, and (c) PPPs makes it easy for the public sector to

impose user fees, resulting in lower net expenditure for government. Some economists argue against using the private sector to deliver public services. Such arguments are discussed below.

7.1 Do PPPs Minimise On-budget Government Expenditure?

PPP opponents argue that government's plans in involving the private sector in infrastructure delivery is to eliminate upfront capital expenditure and keep capital expenditure off the government's official balance sheet to provide budget stability (Hall, 2014). This often carries some political benefits because government budget will always appear healthy in the face of the voters, while a significant amount of tax is used for PPP projects (Vining and Boardman, 2006). This may be true in a case where the government pays the PPP project firm for the services rendered, however, many PPP projects are funded by the private party and the money invested in constructing the asset is recouped from tariffs and in such a case this argument does not hold.

In a case where the government pays for the service rendered by the PPP firm, the risk of not recording PPP projects in government's balance sheets may be that an increase in government's contribution to the project can also affect other government expenditures which are more important than the PPP project, and government may not be held accountable for that, as there will be no information available to the public that can be used to challenge the increases in budget expenditure. A good example of this is in South Africa was the increased costs of the Gautrain project which forced government to increase its contribution to about R19 billion in a PPP project of R26 billion. There is no doubt that this affected government budget expenditure to a greater extend. For accountability purposes all budget expenditures should be reflected on the government's balance sheet. The failure of governments to record PPP projects' liabilities in government balance sheets distorts the representation of government's fiscal health (TD Economics, 2006). Vining, Boardman & Poschmann, (2004) argue that PPPs conceal government debt. The argument here is that PPPs cannot be considered for their potential to generate value for money, but merely as a remedy for cash-strapped governments. Therefore arguments against PPPs on the basis of lack of accountability and transparency are valid only if part of the PPP project is funded by the state.

A strong argument about engaging the private sector is the desire to avoid up-front capital costs, as it is easier to raise private capital than additional tax revenue or government loans (Vining et al., 2004). The argument here is that, if government does not have the money to construct the project or provide the service to consumers and the private sector does not finance or provide the infrastructure at the time when it is required, there would be an opportunity cost involved in the economy as a whole. It makes economic sense to have the project or service provided by the private sector rather than not having it at all. When the private firm takes responsibility for non-core functions of the public sector, it frees up resources and helps government to focus on what matters, for example on the effective implementation of public policy. In this case, minimisation of on-budget government expenditure is a weak argument for using PPPs while the opportunity cost, intergenerational efficiency and distributional arguments make a strong economic case for engaging PPPs. It is worth noting that other countries such as South Africa do record all costs related to PPP projects in their

Medium-Term Expenditure Framework (MTEF) (Republic of South Africa. National Treasury, 2007).

Hall (2014) argue that PPPs have worsen fiscal problems as evident in countries that made the greatest use of PPPs in the past decades, such as Spain and Greece. The fiscal problems faced by these countries may not be solely as the result of PPP projects but may be due to other factors such as macroeconomic policies and political climate faced by these countries. The effect of PPP projects on the country's finances is also dependent of how the PPPs are structured. Where the hybrid PPP approach is use, PPP will not lead to fiscal problems but may help reduce such problems.

7.2 Do PPPs Provide Services at Lower Cost?

There are three dimensions to this cost-superiority argument. The first dimension refers to the major argument that private-sector firms have economies of scale, scope or learning because they are normally more specialised, larger in size and have more experience in the construction and operation of a construction business compared to the public sector, which normally engages in much more diverse projects and usually has less experience with the relevant technology or activity (Bloomfield, 2006). Larger private firms also engage in more similar projects which are global in scope, and this helps them to utilise learning economics, specialised knowledge accumulated through learning (Moszoro, 2010). This is not the case with most governments, especially sub-national governments, which engage in a limited number of projects. These projects are also different in nature, thus not allowing enough learning and scope economics advantage (Vining et al. 20044). Lapre and Van Wassenhove (2003) articulates that:

"... early empirical studies showed that the logarithm of unit cost decreased with the logarithm of cumulative number of units produced at a uniform rate-the learning rate".

This shows that the more a private firm produces a certain service, the more it benefits from learning economics. The second dimension is that the private sector normally has superior incentives to minimise costs, holding constant any scale, scope or learning effects. Because of the cost-reduction profit incentives, the private sector may have more cost-efficient operations, including procurement policies, and better project management skills as well as risk management expertise. It is also likely to have low wage-costs, possibly due to hiring non-union labour. The third dimension is that private firms have superior incentives (such as share options and bonuses) to engage in cost-reducing innovation as a result of continuous research and learning at the same time (Vining et al., 2004). This dimension relates to the fact that the private sector has a greater incentive to invest in cost-reduction measures ex ante in order to provide the service at a lower cost that will lead to higher profits. It is worth noting that such cost advantages might not be true in all circumstances, as some government departments may be more efficient than some private firms.

Such cost advantages are also more likely to arise as a result of bundling up the various components of a project and transferring them to a single contracting party. As mentioned earlier, this forces the private firm to focus on the total life-cost of the asset over the project life cycle. As a result, the private sector will develop more cost-efficient operational

approaches, such as good procurement policies and project management skills (Gabriel and Head, 2005). A literature review of empirical analysis carried out by Domberger and Rimmer (1994) of about twenty studies that looked at competitive tendering and contracting (CTC) supported this view, concluding that there is broad consensus that CTC leads to a substantial reduction in service costs (Globerman and Vining, 1996). Although opponents of CTC argue that the observed cost savings are a result of decreased service quality, evidence for this argument is far from conclusive. Much of the existing evidence on this issue is ambiguous or contradictory (King, 2001).

The above argument may be true only if one considers the financial benefits and not the overall economic benefits that also take into account project externalities. This is true because the efficiencies in operations may lead to a reduction in implementation time, leading to lower project costs and higher profits for the private firm. Studies conducted in the United Kingdom and Australia for different years confirmed these efficiencies. They revealed that the magnitude of costs savings are around 22% on average, and approximately 80% of all PPP projects are delivered on time (see Gabriel and Head, 2005; Domberger and Jensen, 1997, Boardman et al., 2009; King, 2001).

These studies support the private-sector efficiency argument based only on financial benefits. However, recent studies on the cost savings of PPP projects have disputed the above findings and pointed out that these studies ignored transaction costs in their analysis. When transaction costs are taken into account the savings even decrease further (Domberger and Rimmer, 1994). These cost savings can also decrease further if government's costs of administering the tender are also taken into account.

Many arguments for, or against, PPPs also fail to take into account that once a service is provided by a private firm there are a lot of changes that take place, which makes it difficult to compare efficiencies before and after a private provision of services. In line with Domberger and Jensen's argument (1997), public-sector accounting methods rarely capture the full economic costs of service provision. Moreover, and the fact that contracting brings with it changes in specification of service requirements and quality, comparing the price of a new private-sector service contract with the historical costs of public provision may be misleading, as data on similar costs are normally not available with the public sector. It is still not clear whether PPPs provide services at lower costs compared to the traditional infrastructure procurement approach. It seems that more research is needed to clarify the cost advantages of using PPPs vis-a-vi the traditional approach.

7.3 Does the Public Sector Borrow at lower Costs than the Private Sector?

PPP opponents argue that PPPs come with a higher price tag compared to traditional procurement. However, PPP proponents disagree with this argument and assert that such statements are based on three convictions that do not hold water when tested against economic principles. The first conviction is that the public sector can always borrow at a cheaper rate than the private sector. This may be true, given the fact that government borrowing is backed by tax revenue and is considered to be risk free. This leads to low government borrowing costs compared to private-sector borrowing. It is further backed-up by the fact that government bonds carry a lower interest rate than corporate bonds (Klein, 1996).

This argument is challenged by Currie (2000), and he argues that when a project is funded by the private sector, investors carry the risk of default and are rewarded accordingly. However, when funded by the public sector, taxpayers carry the risk but are not compensated for doing so. In other words, although the public sector can borrow cheaper to finance investment projects, this imposes a residual risk on tax-payers in much the same way as private-sector investors but without rewards. This liability being imposed on taxpayers is a cost that is not accounted for in any cost-benefit analysis of the project.

The second conviction is that, from any investment that the private sector makes, it requires a rate of return that may be high, thus exacerbating the concerns that the financial benefits that accrue to the private sector will be more generous relative to the public-funded model, or relative to the benefits that the public derives from the project. The last conviction is that PPPs involve high up-front transaction costs (bidding costs and lengthy bidding processes) incurred by parties to prepare for the bid. The time required to negotiate a commercial agreement and the on-going costs of over-sight hinder competition in the PPP market and put a number of private players off, especially SMEs. That, in turn, leads to expensive public services if provided through PPPs (Corry, 2004).

The argument that public financing of projects is cheaper than private financing is not convincing. The reason is argued by Currie (2000) is that, the citizens or the public underwrites or acts as a guarantor for government loans and receives nothing in return for playing that role. If the costs of underwriting a government loan were to be included in the financing costs of a public project, that may lead to public borrowing being equal or higher than private borrowing. Klein (1996) argues that government's borrowing is cheaper because the public sector can raise money easily through taxes should it face financial difficulties, makes more sense only if one ignores the cost of underwriting the debt by citizens. Furthermore, if one considers governments in countries where there is a high political risk, poor public finance management standards and a poor tax collection mechanisms, one would find that such countries borrow at a higher interest rate than private-sector firms that have a healthy balance sheet. The argument that governments borrow at cheaper costs than the private sector is only true if one assumes that the government has a healthy balance sheet and ignore the risk carried by the citizens for underwriting governments' loans.

The argument by De Bettingnies and Ross (2004) that it is not always true that the government will be able to borrow at a lower cost than the private sector also makes a lot of sense. This is because a full evaluation of relative costs has to be done before one can argue that the public sector can borrow at a lower cost than the private sector. These costs should consider factors such as (a) the credibility of the private borrower and the protection offered in its contract with the public-sector partner, (b) the extent to which tax savings may come from other levels of government; and (c) the degree to which the supply of funds to the public sector is upward sloping.

An argument about the cost advantage of using PPPs is the one advanced by However, Moszoro (2010). According to Moszoro, the cost savings in a PPP, especially a hybrid PPP arrangement are possible because the SPV achieves optimal capital structure in that, if the cost of capital is lower for public entities (all things equal) and the outlays on building the infrastructure are lower when the investment is made by a private investor, it is possible to

reach the lowest total cost of constructing the asset with both public and private capital as part of the shareholding. This is because mixed capital structure enables internalization of both the cost of capital advantage of the public sector and the knowledge advantage of the private sector. This shows that PPPs have the potential to deliver services at lower costs compared to the traditional approach, however, the allocation/sharing of risks within the SPV is fundamentally important.

7.4 Do Private Firms Sacrifice Quality for Profits in a PPP?

One of the concerns that the public or trade unions have about PPPs is the apparent excess profits that the private sector makes from PPP projects. The public is also concerned about that the private sector will always trade-off quality of service for the sake of profits once a private company is awarded a PPP contract (Corry, 2004; Dudkin and Valila, 2005).

This argument is not supported by international studies conducted on service quality issues after a private firm has been awarded a contract to provide a service. As mentioned earlier, international studies have found that it is difficult to make comparison on service quality after and before a service is contracted out because of non-availability of data on service quality prior to contracts being let. A study by Domberger and Rimmer (1994) that examined the quality argument in a sample of 61 cleaning contracts, concluded that while competition lowered contract prices by between 35 to 50 per cent, cleaning performance was maintained and even enhanced in some instances. An empirical analysis by (Alcazar, Nakasone & Torero, 2007) that evaluated the impact of private versus public provision of electricity in Peru using data from a 2005 survey found that management of electricity by the private sector led to a significant improvement in the quality of the provision of electricity.

Domberger and Jensen (1997) summarised a number of studies based on 40 English local authorities and concluded that contracting had led to major changes in the monitoring of services by government, with explicit inspection processes being introduced and a clear emphasis on performance standards. This implies that if quality deteriorates following contracting, that could be a problem of contract design or implementation, which is not associated with PPPs and can be prevented by applying appropriate output specification measures to address that challenge. Quality shading can happen if the public sector fails on its responsibility of performing its oversight functions as it has been reported in other studies (Monga, Mahta & Ranja, 2009).

Domberger and Rimmer (1994) summarised findings from ten studies that looked at the impact of contracting out on service quality and concluded that there is no consensus about the impact of contracting out on service quality and concluded that all these studies suffered from data availability and quality problems and more research is needed to resolve how CTC affects service quality. Therefore, the argument about quality shading is a matter that needs further research. In contrast, King (2001) argues that a decline in quality accompanied by a fall in price may be socially desirable, particularly if the quality of the service being provided by the public sector was unnecessarily high for the recipients in question.

It is clear from the above arguments that the problem of quality shading can only happen if the private sector operates in a guaranteed monopolistic environment and without proper public

sector monitoring of service quality. Therefore, it is imperative to note that the problem of quality shading is not as a result of a PPP but that of poor government management of the private firm and failure by government to introduce competition in the industry, which is not the responsibility of the private sector.

7.5 Does the PPP Model Manage Risks Better than the Traditional Procurement Model?

One of the most important benefits of PPPs advocated by PPP proponents is that PPPs enable governments to shift project risks from the backs of taxpayers to the private firm. The argument regarding risk shifting is that the public sector can reduce the risk associated with its financial exposure to construction costs, maintenance costs and demand risk by employing PPPs (Yescombe, 2007). PPP proponents and governments articulate that the private sector has the advantage and ability to spread risk of a particular project over a number of other similar projects because it normally engages in many similar projects simultaneously. However, this does not mean that the private sector simultaneously runs more projects than the public sector; it means that, given the same number of projects, the private sector can manage risks much better than the public sector, given the experience it has in project management, construction and operation (Gabriel and Head, 2005).

The above arguments can be rejected if tested against economic reasoning. An economic activity that makes economic sense is the one that maximises the welfare of citizens, not the one that shifts or spreads risks from one economic agent to another. Such an argument cannot be used as an economic justification to use PPPs as an alternative to the traditional procurement method. When the risk is spread over a number of projects the overall risk in the economy is not reduced, but only transferred or spread more broadly in the economy or to different sectors or projects within a sector. As Allen (2001) asserts, the goal of risk-sharing is not to maximise the amount of risk transferred from one party to another because that does not reduce the overall risk and thus does not improve the welfare of society. This implies that risk is simply shifted from the tax payers to the private sector with no net economic benefits.

The main argument the public sector can put forward for using PPPs is that using the private sector to deliver public services is cheaper because the private sector has highly skilled risk managers compared to the public sector. The best risk management expertise and tools possessed by the private sector can help to reduce the overall risk of the project, thus resulting in a positive net social welfare (International Monetary Fund, 2004, European Commission, 2003; Sadka, 2007). The reason why the private sector has an incentive to reduce project risks is because, should the risk eventuate, its profits will be reduced. It can therefore be argued that the low cost and price of services provided through PPPs is due to better risk management and optimal risk allocation rather than risk shifting from the public to the private sector.

7.6 Do PPPs Hinder Accountability?

Operating the asset and providing the service is the public face of a PPP project. This is the highly visible attributes to which people most frequently respond. The concern by governments

about giving a private firm the responsibility of providing a public service is about the loss of control associated with giving the private party certain contractual rights and the fact that a perfect contract between the government and the private firm can never be written due to incompleteness of contracts and that performance can never be perfectly monitored (De Bettignies and Ross, 2004). As a result, day-to-day democratic control and accountability, as well as the ability of government to be flexible and respond quickly to new situations and public needs can be lost if the asset is under the private sector's control, thus hindering flexibility and agility (Fourie and Burger, 2000).

Even though the public sector can monitor the performance of the PPP, it will need to first discuss it with the private partner before it can take the necessary actions to correct any development that the government is not comfortable with. This may take a long time before the two parties agree on the necessary steps that need to be taken. By the time they agree, one would find that the damage has already been done and the image of the government might have already been tainted.

PPP opponents assert that, once a private partner takes over the responsibility of delivering a public service that was traditionally delivered by the public sector, accountability to elected public officials and the public is lost (TD Economics, 2006). This is due to the fact that some business practices are geared towards the private sector's profitability objectives, which could be in conflict with government's goal of a high level of public accountability. In most cases the public expect government to be transparent and open to public scrutiny in order to gain public confidence. However, this does not bode well with the private sector whose objective is to remain competitive. In this case, the private sector would want to keep its operating strategies confidential, which is in conflict with public expectations.

This concern stems largely from the confusion over the difference between responsibility and accountability. The two are different: when a public sector transfers some responsibilities to the private sector, it does not relinquish accountability. Accountability will always remain the responsibility of the public sector or the government agency, regardless of the method used to deliver the service. This is because the decision to use the private sector to deliver the service is made by the government on behalf of its citizens; therefore the private sector is accountable to the public sector and the public sector is accountable to its citizens. The government agency must therefore remain accountable for the efficient performance of the functions delegated to it by the government.

According to Domberger and Jensen (1997), contracting can actually enhance accountability in three different ways, namely (a) by prompting reviews of standards and service specifications; (b) by introducing rigorous performance monitoring; and (c) by setting up mechanisms for redress in cases individuals or organisations have suffered loss or damage. The findings by Ellman (2006) appear to be relating to lack of government effectiveness to deal with the private firm and responding to public pressure. Accountability does not change, however effectiveness does, due to the indirect control that the government has on the service being provided.

7.7 Do PPPs make it Politically Feasible to Impose User Fees?

According to Vining and Boardman (2006):

"... governments believe or at least want to believe that private-sector operations makes it politically more feasible to impose user fees, resulting in lower net expenditures for governments".

The argument stems from the fact that users (or potential voters) would not have a problem paying for services provided by the private sector because of the understanding that the private firm needs revenue to cover its costs, repay its debt or make a profit. However, they will not accept a public sector charging them for services that, according to their understanding, should be provided by the public sector for free. As Vining and Boardman (2006) argue, this argument does have economic justification, especially when there are marginal social costs from public use, for example when highways are tolled to prevent overuse.

However, the public can still refuse to pay for the services as it happened with the Gauteng road improvement project3, where the public complained about the toll being too high and challenged them through the courts, such that the implementation of the toll collection was postponed by a few months while the minister of transport was investigating the feasibility of the tolls and their impact on the provincial economy (Serrao and Flanagan. 2011). This also happened in Australia, where the West Gate Bridge was tolled, but due to public pressure the tolls were removed (United States of America. Department of Transportation, 2007). Brits (2010) articulated clearly that some of the resistance by the public to pay for the tolls was due to lack of information about the concession agreement and that impacts negatively on user perceptions about PPPs. This implies that improving transparency as well as information availability and accessibility about PPP agreements to potential users is imperative for PPPs to succeed. Information about PPPs' contribution to socio-economic issues like development of SMEs and employment created by PPPs can help ease the resistance by the public to pay tolls.

From the above discussion it is clear that there are differing views about the benefits that PPPs may render to the public. The discussion on these arguments will continue for a while until enough independent empirical research around these areas is conducted. Having discussed the different views about the usefulness or economics of PPPs, the next section attempts to demonstrate whether the PPP model has a potential to benefit the public or not using both South African cases and information from international PPP assessments.

[3] The Gauteng roads improvement project is a project that is aimed at improving the conditions of all National roads around the Gauteng Province using the PPP model.

8 HAVE PPPs REALLY BENEFITED THE PUBLIC?

The superiority of PPP projects over the traditional public sector procurement approach is argued to be on timely completion and delivery of projects within budget as this translates to lower whole-life cost to the economy. According to Hall (2015), the UK government claims that 76 percent of PFI projects are completed on time compared with only 30 percent of traditionally procured projects. An analysis or evaluation conducted by the European Investment Bank (EIB) on projects that it funded came to the same conclusion that, PPP projects were largely completed on time, on specification and on budget (Hall, 2015). However, when it comes to costs of PPP projects, an empirical study by Blanc-Brude; Goldsmith; and Valila (2006) of the EIB found that PPP projects were 24 percent more expensive than public sector road projects. This percentage is of a similar magnitude as the cost overruns typically observed in traditional public procurement in the European road sector. This means that the costs associated with the traditional approach eventually matches those of PPPs. Experience in the UK had also shown that PFIs performed less well than traditionally procured projects. This findings may be true especially in developed economies, given the fact that developed countries' public sector employees may be well experienced to the level of the private sector employees. If this is the case the efficiency advantage that PPP projects are asserted to have over traditionally procured projects may not exist in such circumstances. However, this may not be the case in developing countries where lack of appropriate skills is one of the many constraints facing developing countries. However, it is not clear from these studies whether the evaluations also took into account the optimal capital structure of a PPP project or not or it was based on basic comparison of projects that had different characteristics, operating within different legal frameworks, with contractual structures as all these may have a significant impact on the comparisons' results.

The table below gives a list of selected infrastructure projects in South Africa with their associated costs overruns. Out of the ten projects listed in the table, only three were financed through the PPP model and the rest were financed either through Corporate financing with government guarantee or through public financing. It shows that projects in South Africa overran between 21 and 1329%. Although there are few PPP project in the list, two of them show low percentages of cost overrun and the other one show the highest percentage. According to SANRAL the high cost overrun for the Gauteng toll road project was caused by changes in the project scope, e.g. installation of gantries for tolling expenses (SANRAL, 2012). It is difficult to tell whether PPP projects had low cost overrun in general or not given the limited number of PPP projects in the table and the fact that all these projects are from different sectors and had different contractual structures. Data on projects initial budget and final project costs is hardly made public in the country and this makes it difficult to estimate project cost overruns in general.

Table 2: Selected South African Infrastructure Projects Overruns

Project	*Initial budget(R bil)*	*Final cost(R bil)*	*Cost over-run (%)*	*Finance/procurement method*
Gautrain	25.1	30.5	21	PPP
Kusile power station	90	121	34	Corporate finance with government guarantee
Medupi power station	33.6	105	213	Corporate finance with government guarantee
Gauteng toll roads	6.3	90	1329	PPP[4]
New multi-product pipeline	11.1	23.4	111	Corporate and public finance
ORT international airport	5.2	8.5	64	Public finance
De Hoop dam	7.9	20	153	Public finance
Soccer world cup stadia	8.1	18.4	126	Public finance
N4 toll road	2	3	50	PPP
Standard bank building	1.1	2	82	Private sector financing

Source: Ismail Z; Mabuza P; Pillay, K and Xolo S, 2014.

In South Africa there is no study that empirically determined whether the PPP model is the right vehicle for procuring infrastructure projects. However, in the electricity industry, using data from the renewable energy independent power project procurement programme (REIPPPP) it is possible to show the benefits of PPP projects. When the programme started in 2011 the prices of electricity for the different renewable energy technologies were high (see table 2 below). When the second bidding programme was concluded some prices for the same technologies had decreased by up to 40.4% compared with the first bidding round. The third bidding round even saw more reduction in prices of up to 68%. There is no doubt that consumers and the economy as a whole benefited immensely from this programme in terms of lower energy prices. Should the country had followed the REFIT approach instead of the bidding approach it would not have seen such decreases in electricity prices.

Table 2: REIPPPP Average Bid Prices, 2011 values (SA cents/kW)[5]

Technology	Round 1	Round 2	Round 3
Wind	114.3	89.7	65.6
Reduction from previous round		-21.5%	-26.9%
Total reduction from round 1			-42.6%
Solar	275.8	164.5	88.1
Reduction from previous round		-40.4%	-46.4%
Total reduction from round 1			-68.1%
Concentrated Solar power	268.6	251.2	146.0
Reduction from previous round		-6.5%	-41.9%
Total reduction from round 1			-45.6%

Source: *Eberhard, A. Kolker. J and Leigland. J. 2014*

[4] Financing for the project was raised by the public agency (SANRAL) through corporate financing and government guarantees. This is a hybrid PPP.

[5] The price structure for CSP in Round 3 was different to Rounds 1 and 2 and included a peak tariff 270% of the base price.

Although the above tables shows benefits of using PPPs, however a study on PPPs by Hall (2015) made the following conclusions about PPPs: (i) government cost of capital is always cheaper without a PPP, for both developed and developing countries, (ii) construction costs are higher under a PPP, because the financiers require a turnkey contract which is about 25percent more expensive than a normal contract, (iii) the private sector is not as efficient in operation as it is being believed by PPP proponents, and the public sector has the advantage of flexibility compared to a PPP arrangement (iv) the transaction costs of tendering and monitoring PPPs add 10-20 percent to the PPP total cost, (v) the incompleteness of contracts poses a real risk to the public sector as the possibility of contract renegotiation is high and the potential public liability in case the private company goes bankrupt is a possibility with PPPs, (vi) introduction of PPPs impacts; public services, environment and workers negatively, due to cost cutting tendencies, or from distorted selection of projects to suit the need for profit making objective of the private sector.

To evaluate whether PPPs are more efficient than the traditional procurement is not an easy task. The EIB (2005) attempted to do this comparison and concluded that, such an evaluation/comparison is difficult to make because it needs identification of two projects of similar specification, constructed and operated in the same legal, financial and fiscal framework and subject to the same market conditions. These requirements proved to be very difficult to meet. Even EIB which has a large portfolio of PPP and traditional procured infrastructure projects could not find suitable projects to make such a comparison. Without such information it is therefore difficult to determine *ex post* if the original decision to use a PPP was more cost effective or not compared to the traditional alternative. Attempts to compare projects coming from different sectors, different countries and different regions or continents may not yield accurate comparison.

9 CONCLUSSION

From this study it is clear that different authors make conflicting conclusions about the advantages and disadvantages of PPP projects and there is no one group that has advanced superior arguments for or against PPPs at this stage. It seems therefore that accurate comparisons between the two procurement approaches need to be undertaken based on accurate and comparable data from both traditionally procured and PPP projects as most of the comparisons made are based on incomparable projects' data set.

The study has shown that, to say whether a PPP model is the right procurement model for infrastructure delivery for a country or not, depends on how a country approaches the implementation of its PPP programme and whether it has the required expertise to drive the implementation of a PPP programme to achieve its objectives. If the PPP programme is designed in a way that incentives PPP participants to be efficient in financing, constructing and operating the project, the public would be able to extract maximum benefits from using PPPs compared to the traditional public sector procurement approach. However, where such incentives are not clear, it may be difficult to extract such benefits and the PPP model may appear to be inferior compared with the traditional procurement approach. In some cases, the public may be better off without than with PPPs.

A bad managed PPP programme may lead to expensive services and may be a fertile ground for corrupt activities. The answer to the question of whether PPPs are better than the traditional public sector procurement method or not is also dependent on how the PPP is structured. All PPP projects should be structured and evaluated based on the three dimensions/requirements stipulated in the National Treasury PPP Manual of 2004. These dimensions are that, a PPP must: be affordable, provide good value-for money, and transfer appropriate financial, technical and operational risks to the private party. A bad structured PPP may not achieve these requirements and can be worse than a traditionally procured project. A well experienced public sector personnel involved or responsible for the implementation of PPP projects is paramount in ensuring that these PPP requirements are adhered to at all times to achieve a successful execution of a PPP programme and for the public to extract the benefits associated with PPPs.

10 RECOMMENDATIIONS

The study cannot conclusively say the PPP model is the right model for delivering public infrastructure projects, however, for PPPs to deliver the project to the satisfaction of the public sector or its agency, the public sector needs to:

- improve transparency as well as information availability and accessibility about PPP agreements to the public for PPPs to succeed as most resistance against PPP projects by the public is due to lack of information about PPP projects. Transparency in PPP is also important in eliminating corruption associated with big infrastructure projects;
- improve the public sector accountability on services delivered through PPP projects (a) by prompting reviews of standards and service specifications; (b) by introducing rigorous performance monitoring; and (c) by setting up mechanisms for redress in cases individuals or organisations have suffered loss or damage;
- always strive for optimal risk sharing between the PPP firm or concessionaire and avoid the tendency by governments of shifting all projects risks to the PPP firms even if those risks could be better managed by the public sector. Inappropriate risk sharing between the two parties can compromise the viability and performance of a PPP project. However, the hybrid PPP model is able to deal with this challenge because it strive for an optimal capital structure that takes advantages of the two parties into account in any PPP project;
- introduce competition in the PPP market and improve government management of the private sector by appointing properly skilled public servants to avoid quality shading as most quality shading problems are a result of poor government management of the private firm and failure by government to introduce competition in the industry;
- create PPP procedures for institutional learning and develop standardised PPP procedures and documentation where possible;
- build in-house PPPs expertise or use external advisors especially if the public sector party lacks strong in-house procurement and negotiating skills.

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