International Journal of Emerging Technology and Innovative Engineering
Volume 2, Issue 8, August 2016 (ISSN: 2394 – 6598)
Date of Publication:03.08.2016

PROCESS AND LIMITATIONS OF VALUE FOR MONEY ANALYSIS TESTS FOR INFRASTRUCTURE PUBLIC PRIVATE PARTNERSHIPS

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ABSTRACT

A growing demand for private capital to build public infrastructures has been observed. In efforts to cater private finance and technical expertise, governments around the world are continuously deregulating infrastructure operations protocols. Nevertheless, to protect the public from any potential loss, a series of Value for Money (VFM) tests are conducted before initiating any proposal under public private partnerships(PPPs). Every country has different sets of VFM tools, which, however, share two basic models. In the first part of this paper, detailed discussions on developing and applying such VFM models is provided. In the second part, critiques on developing and applying such models are made, so as to point out potential pitfalls and associated limitations. This paper would help PPP practitioners and researchers to better understand VFM tests and their limitations.

Keywords

Value for money; public sector comparator; public private partnerships

1. INTRODUCTION

Public Private Partnerships (PPPs) are the tools that offer public sector organizations to attract private capital to build public infrastructures and associated services. PPPs have brought opportunities to overcome financial and technical deficits. Nevertheless, PPPs bring a lot of risk, which makes its wide adoption sceptical. Among many risks, loss of social welfare to the public is one of the most remarkable. To prevent loss to the public, a PPP proposal needs to satisfy a series of Value for Money (VFM) tests. VFM test ensures that the project proposal is offering the best mix of efficiency, economy and effectiveness that is necessary to achieve greater value for the public. As a matter of fact, VFM is a continuous process, which is started with project conceptualization and lasts through all project stages; i.e. from project feasibility study to project operations. Typically, all possible VFM aspects of a planned project are identified at feasibility study stage; based on which VFM assurance program is incorporated in project construction and operations to achieve the targeted value. This paper provides a detailed discussion on developing and using public sector comparator (PSC), which is a primary VFM instrument used by most of the governmental agencies around the world to determine if the public project is capable of delivering VFM under PPP arrangements. The paper then compares a typical PSC application with other commonly used VFM tests; and in the last, limitations of PSC are elaborated.

2. VALUE FOR MONEY TESTS IN PRACTICE

2.1 Public Sector Comparator

In terms of PPP projects, the VFM is evaluated by means of comparing PPP bids with PSC. The PSC is an instrument that is used to estimate the hypothetical risk-adjusted cost of a project, if it is financed, owned and implemented by a public sector agency [1]. The nature of PSC is purely quantitative. The typical structure of PSC is almost similar at every nation.However,PSC's time of development during the procurement process and it utilization to assess VFM slightly varies among countries. In current practice of PSC and associated bid evaluation, the majority of countries1 consider financial cost differences between public and private provisions as a major indicator of VFM. Nevertheless, the qualitative factors does reflect the VFM issues but current practices give higher weight to the VFM indicator showed by PSC.

[1]Australia, United Kingdom, Netherlands, South Africa, Ireland etc.

The PSC performs following roles [1; 2];

It provides full cost of a project development

- It works as a primary management tool in procurement of a project by focusing the development of rigorous output specification, defining allocation of risk between partners and in estimating project cos.
- It provides VFM indicators which help in deciding between public and private provision of a project.
- It acts as a reliable benchmark and PPP bid assessment tool.

The development of PSC generates confidence in prospect bidders about financial and managerial integrity; and therefore encourages the competition for the best value PPP bids.

2.1.1 Components of PSC

The typical PSC consists of four elements; i.e., (i) raw PSC or the base cost, (ii) competitive neutrality, (iii) retained risks and (iv) transferrable Risk. Figure 1 illustrates the typical PSC.

2.1.1.1 Raw PSC

This component of PSC accounts the basic cost of a project, assuming the conventional procurement system and to be operated and owned by a public sector agency. A raw PSC component takes the cost for project construction, operation and maintenance for its designed life (or a time equivalent to the anticipated PPP). A raw PSC may represents among a variety of project delivery methods envisaged under public procurement. However, the raw component of PSC doesn't take considerationof any cost for risk, which are then accounted under components of retained and transferable risks.

2.1.1.2 Competitive neutrality

Competitive neutrality is a supplementary cost added to the raw PSC to remove any competitive advantage to a public sector agency by virtue of its public ownership. For example, public sector organizations are usually exempted from paying taxes, and receiving utilities at subsidized rates. Therefore, adding extra cost for such advantages in raw PSC provides a level playfield between public and private sectors. Factors other than tax and utilities are included the cost of land, various types of stamp and import duties and other types of overheads [3].

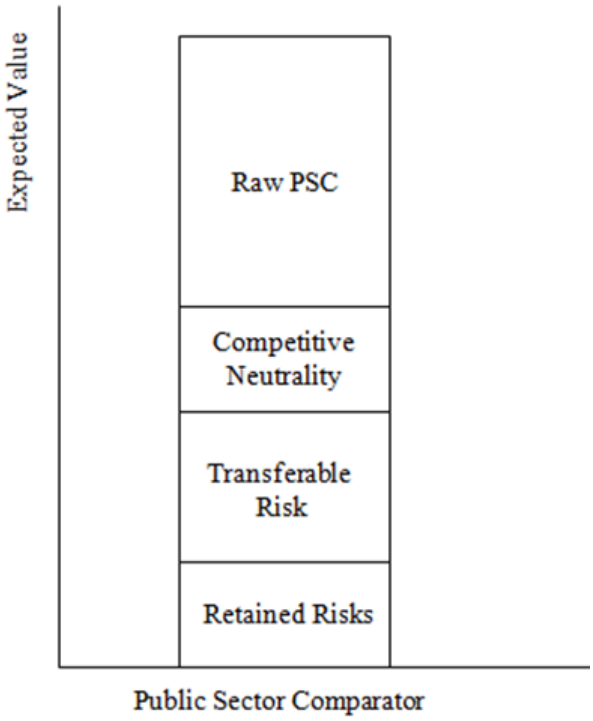

Fig.1 A typical PSC

2.1.1.3 Transferable risk

The optimized risk allocation is a primary VFM driver [4]. Therefore, projects risks that could be handled by the private sector, more efficiently at a lower cost in comparison to the public sector, are identified along with their probabilities and associated cost and then accounted under transferable risks. The transferable risks are required to be borne by the prospect private sector partner. The cost of transferable risks is then identified through prabilityestimation and is added in PSC as a component. The addition of transferable risk, and retained risk as well, indicates a 'risk adjusted' total cost of a project. The transferred risk is often a key determinant of VFM in PPPs, and one that may need to be updated as negotiations proceed, to allow for variations in risk allocation [2].

2.1.1.4 Retained risk

These are the risk borne by a public sector, irrespective of developing PPPs. The example of typical retained risks are political risks, regulatory risks, currency exchange risks etc. The retained risks are estimated similarly as transferred risks and their costs are added to PSC [2].

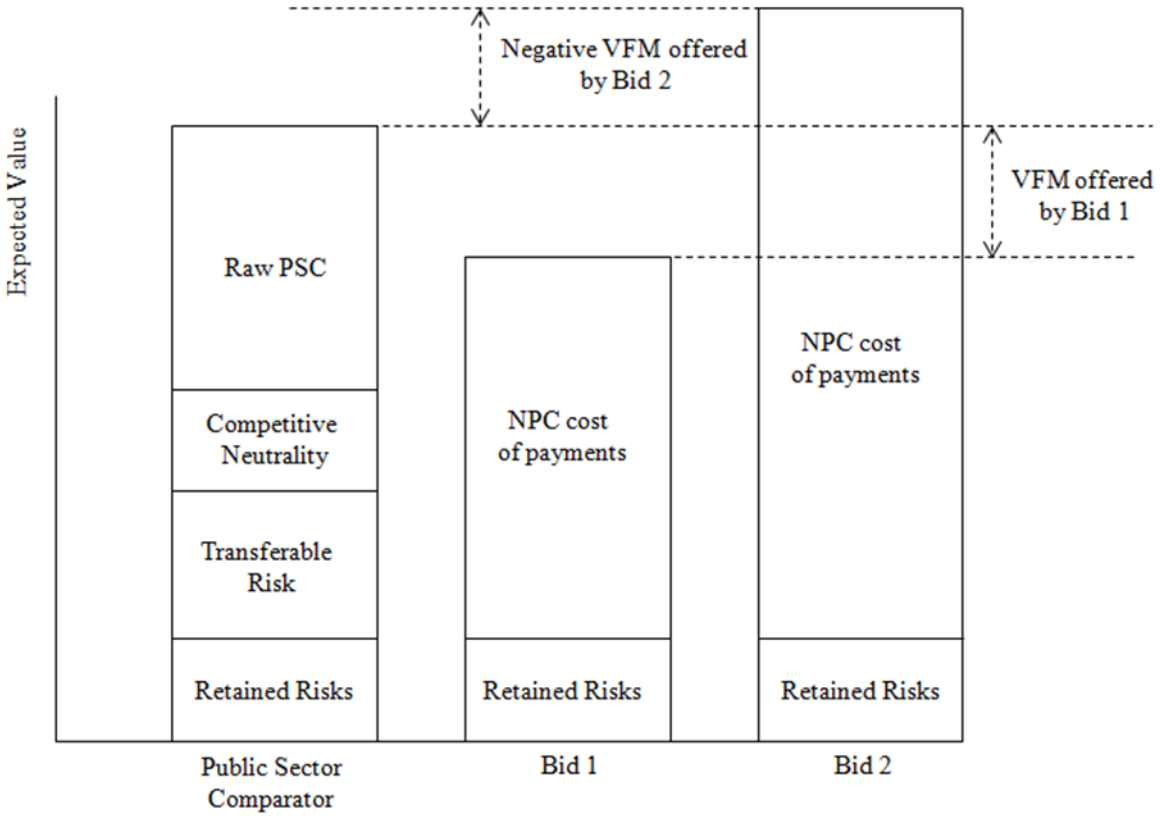

Figure 2 VFM comparison between a PSC and PPP bids

Application of PSC in VFM Assessment

The PSC and PPP bids are discounted on a prescribed discount rate and then their net present values (NPVs) are calculated, thus to build a comparable basis for two alternatives. The availability of NPV enables procurement official to perform a simple comparison between PPP and public provisions. Fig. 2 shows a possible value for money comparison between a PSC and a PPP bid. A positive indicator for VFM to the public is demonstrated, if the total cost of PPP option, discounted to the present value, is less than the risk and competitive neutrality adjusted the total cost of public procurement option [6].

As discussed earlier, that VFM assessment methods slightly differ in each country, however, the PSC calculation method is almost similar as discussed here. The following sections will explain VFM assessment practices for private alternatives around the globe. Broadly speaking, global practices of VFM assessment in PPP projects can be categorized in three categories.

2.1.1.5 PSC versus PPP bids

Hong Kong and Australian agencies follow this type of VFM assessment. The VFM is done via conducting both quantitative and qualitative tests. The literature available from Hong Kong government does not illustrate any specific qualitative tests; however their quantitative VFM tests are similar to the Australian agencies. The quantitative VFM tests are conducted by means of developing PSC. The PSC is constructed prior inviting bids from potential bidder.

A PSC construction requires identification of the "Reference Project"; before PSC development is formally initiated. The reference project is the most likely and efficient form of public sector delivery that could be employed to satisfy all elements of the output specification based on current best practice [1]. The output specifications define the boundaries of the reference project. The output specifications contain standards and minimum acceptable specifications of the services to be delivered by a PPP concessionaire.

The project brief, issued to pre-qualified bidders, is based on the same reference project on which PSC is developed. This assures that PSC and PPP bids have similar foundations.

The PPP bids are compared against the developed PSC, to asses VFM offered by each bid. However, this VFM indicator is in terms of financial cost savings only. For aspects like innovation, effectiveness and efficiency a qualitative assessment is preformed separately. The VMF indicated by the PSC has always given a preference, in spite of its limitation to show value in monitory terms only. Figure 2 shows the PPP bid comparison with PSC.

Qualitative factors are not fully accounted in the PSC calculations as they are not accurately quantifiable. However, they are considered in conjunction with the PSC as part of a fully informed evaluation process. Qualitative factors that need to be considered may include [1];

- Material costs (including risk) that are not capable of being quantified for a project (either explicitly or as a contingency factor);
- The identity, credit standing and a proven reputation of the bidder (including consortium parties and financiers). This will help ensure the ability of the bidder to deliver the proposed service at the specified bid price;
- Any differences in the deliverable service which cannot be quantified and adjusted for;
- Any wider net benefits or costs that a public sector agency approach may bring. For example, the social and wider benefits of earlier provision of key infrastructure services (e.g., a new hospital) under a partnership delivery method;
- The accuracy and comprehensiveness of the information used and the assumptions made in the PSC.

Qualitative factors become particularly important when the lowest private bids are close to the PSC or when an important consideration cannot be quantified for the PSC.

2.1.1.6 PSC versus shadow PPP bid

This method of assessing VFM bid is almost similar to the previous one; however, in this method PSC is first evaluated against a shadow bid prepared by public sector personnel. If the initial comparison between a PSC and a PPP shadow bid finds the PPP as a prospect option for delivering VFM then public sector proceeds with procurement by inviting bids from private sector. The shadow PPP bid is expected to represent private sector perspective and needed a separate and independent risk assessment than the PSC. In this method of VFM assessment, PSC is rebuilt or refined again when it is compared against real PPP bids. The PSC development method is similar as Partnerships Victoria; however guidelines published by Infrastructure Alberta and PPP Unit South Africa do not indicate inclusion of Competitive Neutrality in PSC calculations.

2.2 Three stage VFM assessment tests

HM Treasury on the UK [5] pioneered in utilizing PSC in assessing VFM in PFI deals, but since 2005 it is replaced by a three stage VFM assessment process. The three stages of VFM assessment are;

i. Program level assessment
ii. Project level assessment
iii. Procurement level assessment

Figure 3 shows the three stages of VFM assessment process. The second stage, i.e. project level assessment, is equivalent to PSC; nevertheless, PSC steps arereplaced with a hard coded spreadsheet application in which public sector personnel can develop a PSC type of model and a Shadow PPP bid by inputting numerical values.

The reference [5] also has defined a well explained qualitative assessment methodology, which is to be applied during the first two stages of VFM assessment. The quantitative analysis is carried out by the personnel of public sector agency during the project level assessment. This server the similar purpose as PSC but has different components and is based on readymade spreadsheet where public sector officials are required provided inputs in designated cells.

The VFM qualitative assessment [5] tends to sort following three factors;

Viability: This involves assessing whether there are any efficiency, accountability or equity issues which demand that services are provided by Government directly rather than through PFI. It also considers the extent to which the service requirements can be adequately captured in a contract based approach, with a clear specification in output terms for PFI to transfer risk effectively to appropriate parties.

Desirability: Involves assessing the relative benefits provided through different procurement routes, such as incentives and risk transfer in PFI versus the Government's lower cost of borrowing in conventional procurement. Requires upfront consideration of the relative advantages and disadvantages associated with a long-term contractual relationship between the public and private sector; and the strength of the mechanisms that could be used to ensure that different benefits are realized.

Achievability: involves gauging the level of likely market interest, the skills and capacity of the private sector, their appetite for risk, any lender constraints and whether the procuring authority has sufficient capability to manage the complex processes involved. The stage 3 emphasizes on identifying market problems and ensuring VFM drivers throughout the procurement process.

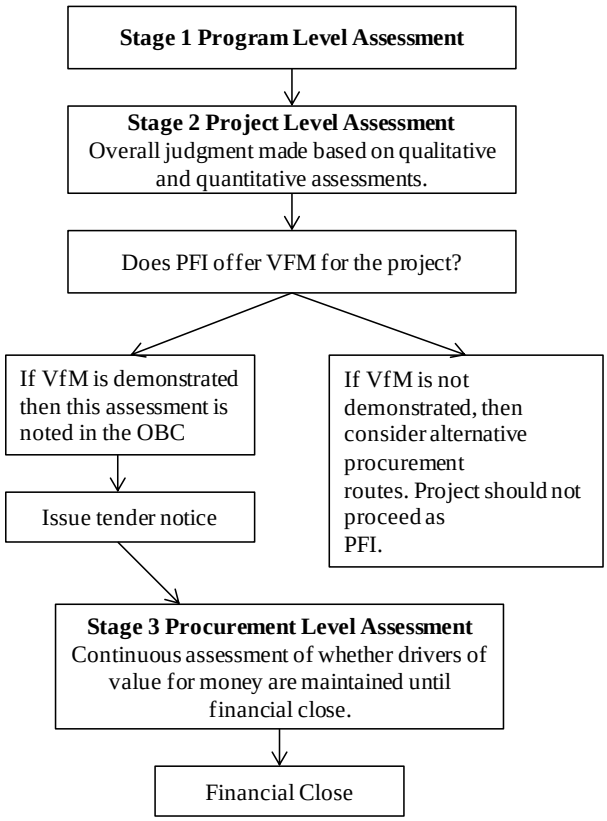

Figure 3 VFM assessment by HM Treasury, UK.(Source http://webarchive.nationalarchives.gov.uk/)

3. LIMITATION OF CURRENT PSC PRACTICES

3.1 The nature and risk associated with PSC

The very first limitation is the nature of PSC itself and the risk associated with its utilization as a comparison toll against the PPP bids. The cost data and calculations performed in making of PSC remains hypothetical [2]; as the PSC data figures never put through any real market tests. Therefore it can be concluded that the nature of PSC is subjective and can be manipulated to show whatever its users require. Nevertheless, it remains necessary for PSC to be seen as based on rigorous and objective estimates of costs and benefits in the public sector procurement process.

Typical PPP projects comprise between 15 to 30 years, but the estimation of associated VFM for that long periods are made at the time of developing PSC and its comparison with PPP bids. However, in a real case, such estimates of VFM may differ from what was estimated in PSC; and if it falls below a certain level than VFM is not maintained. It must not be neglected that slight changes in commercial commitments of project operator impact the VFM estimated during PSC comparison. The longer terms of PPP project bring larger uncertainties to the initial commercial commitments made during the PSC comparison stage. Even small changes in commercial and financial commitments may prove very expensive to the public sector in longer terms.

As discussed earlier that data figures used for the development of PSC are initial estimates based on previous practices; but it is very rare that if the public sector hascome across such large duration projects; so the public sector officials has to rely on their wild guesses. While on the other hand the PPP bids are the firm bids to which bidders are contractually committed and if private alternative is accepted then the public sector would also have to be committed to those figures. The correct risk estimation is a major VFM driver and most of the time is the only difference between PSC and the lowest bid. However, PPP bids are the willingness of bidders to commence the project as soon as possible and thus highly probable to contain high priced risk which is not matched with PSC [2]. In this context, PSC is also subjected to a greater amount of un-provided risk. The greater amount of risk is due to the fact that the public sector is usually not experienced with long term projects and their risk estimation probabilities of different scenarios are based on previous experiences or based on the current trends of the market to accept the risk. Nevertheless, this approach of estimating risk has valid basis; but the truth is that most of the countries are lacking comprehensive data records of risk and their observed consequences. Therefore, the resulting risk probabilities merely represent a true estimate of risk consequences.

3.2 Bases of PSC

The PSC is actually based on a reference project. The reference [1] defines 'reference project' as

> *"the most likely and efficient form of public sector delivery that could be employed to satisfy all elements of the output specification, as outlined in the Project Brief, based on current best practice".*

The PSC development approach assumes that the reference project represents the same level of quality services as expected by the PPP bids, which is not an appropriate approach. The assumption of considering both, the reference project and PPP bids, on a same level of outputs undermines the basic principal of VFM. In a typical PPP project, the concessionaires are expected to provide VFM higher than the public sector provision. Nevertheless, it should be remembered that the higher level of VFM is not only attaining lower cost but also achieving efficiency and effectiveness. Therefore, considering a reference project similar as an anticipated PPP bid raises issues about achieving practical value. The Identification of a reference project based on most likely and an achievable procurement approach by relevant public sector agency is actually looking forward to sort out an alternative providing

similar quality of output, but with less cost. However, if we take account of VFM bid evaluation, which also focuses on achieving efficiency and effectiveness along with economy, then the development of reference project as a basis for the estimation of PSC is not correct; because it does not fulfil the basic principal of likewise comparison. In this situation, the comparison of PSC with PPP bids will not yield perfect VFM indicators.

In case of reference project as a model of the best possible project delivery by the public sector, the correct estimation of VFM offered by PPP bids is not possible. It is quite possible that the efficiency and effectiveness offered by the PPP bids comes with extra cost; and thus the total bid price may be higher than the PSC. The current practices of VFM bid evaluation consider this situation as a negative VFM; e.g. figure 2. To avoid such situation, it is quite possible that bidders would like to stay close to the project brief in tender documents, which may further unfold in restricting innovation that is a main VFM driver in PPP projects.

3.3 Timing and funding consideration in making of PSC

The other important issue is the time considerations in developing PSC. The current practices of PSC development consider similar project commencement and development timings as a PPP option. In real life this may not be the true scenario, as PSC and PPP are two different routes, comprising different type of synergies, capacities and capabilities. However both procurement routes are meant to bring the same outputs i.e. similar project output but value and characteristics attached to them are different.

As discussed above, the PSC is actually based on the reference project, i.e., the most efficient way public sector can deliver the project, which usually assumes design-bid-build (DBB) or design build (DB) approach. Both of these approaches increase public sector's reliance on private contractors and consultants to design and construct the project. Following PSC (i.e., public provision) route, the inclusion of private parties in project development process to design and develop project would require many scrutiny stages, e.g. pre-qualification, bid evaluations, appointment of consultants etc., thus would consume more time as compare to a PPP option.

The other factor which may influence to cause different timing of PSC is availability of project funding. The PSC assumes that funds are readily available for upfront capital investments in the project development. However, the reality is entirely different at most of the public sector agencies. The funding capacity of public sector agencies is limited and development funds are released in the form of annual budgetary slots; while on the other hand private sector theoretically has unlimited capacity to fund the project. Therefore, the limited availability of funds to public sector agencies restricts the pace of project progress; and thus only based on funding capacity it can be concluded that private sector is capable to progress faster than public sector agencies.

If, somehow, procurement via public funds is unaffordable, the PSC losses it value to be used as a VFM assurance tool as public sector remains with no other option but only private finance alternative. In this situation PSC comparison is not necessary, as development of PSC itself is a costly task.

3.4 Discount rate

The discount rate is another issue being debated among researchers. The discount rate is used to discount future project cash flows to the net present worth. Therefore, it provides a single point comparison between PSC and PPP bids. The existing guidance material also advise conducting multi point comparison to have a broader idea about VFM, e.g., comparison performed on aearly basis. The literature available on discount rate discussions majorly focuses economic aspects, but in this paper only managerial aspects of are covered.

The PSC and VFM bid evaluation methodology assumes a similar discount rate for discounting PSC and PPP bids, which may not be the correct approach. The discount rate used to discount public projects is usually smaller and represents the risk free returns on government bonds. The other underplaying principal of using lower interest rates is that government operates projects on social welfare bases and higher profits are not anticipated. Moreover, the cost of borrowing money to the public sector is also lower in comparison to the private sector. Therefore using same discount rate for both PSC and PPP bids may not yield realistic results. The higher discount rate will decrease the PSC to the unrealistic figure.

The discount rate on which PSC cash flows are discounted is usually higher than a typical discount rate used to discount other public project. The guidance material available on PSC (e.g. PSC Technical Note by Partnerships Victoria; VFM Guidance by HM Treasury) justifies the higher discount rate by adding the extra proportions to cover the systematic risk premium and other unforeseen factor to which tax payers may be exposed. Adding proportions of systematic risk in discount rate is not a correct approach due to the two reasons; first the smaller change in the interest rate would impact the entire cash flow and the final NPV; however the systematic risk is actually an uncertainty which in real could have worse consequences at certain times in a project life but for sure not in whole project life. Second, the probabilities of systematic risks are quite low in a stabilized economy. Therefore, systematic risk must be accounted separately as other risks.

The higher discount risk also takes proportions of financial costs and inflation, which also not a proper approach due to the sensitivity nature of discount rate. The financial cost must be treated as a cost to the public sector. The inclusion of inflation rate makes discount rate a nominal rate. However, discounting long term projects on an interest rate indicating similar interest rate may raise more questions.

3.5 PPP shadow bid

In South Africa and Canada, the PSC is compared against a shadow PPP bid before it can be compared against the real PPP bids. The shadow PPP bid is prepared by the public sector assuming the costs to the public sector if the project is to be developed via private finance. The comparison of PSC and shadow PPP bid is made prior request for the proposal to assure if private provision has potential to deliver VFM compared to PSC.

However, the making of a shadow PPP bid by the public sector is also questionable in terms of effectiveness of this approach. The real PPP bid encompasses efficiencies and associated innovations which depend and varies with respect to each bidder to bear project risks and quoting price for their acceptance. All these basic features for real PPP bids are the commercial secrets and not readily available to the public sector. In this situation the effectiveness of shadow PPP bid and value reflected by its comparison with the PSC remains doubtful. The available literature does not illustrate any detailed guidance on making shadow PPP bid.

3.6 The role of unquantifiable

A typical PSC is a quantitative method of assuring VFM by means comparing costs and benefits offered by each available alternative. However, there remain unquantifiable qualitative factors which influence total VFM attached with a project. Qualitative factors by definition are not accounted in PSC calculation [1]. The broader VFM tests incorporates qualitative factors, however in a real life practice the quantitative method takes precedence; unless the NPV of two alternatives is very close to make any decision. Nevertheless, for such situation no proper guidance is available and decision is left over the relative public sector agency.

4. CONCLUSIONS

This paper has discussed development of PSC and other VFM tests and their utilization as a VFM assurance tool in procuring public infrastructures through PPPs. Nevertheless, a PSC still lapses to be used as a universal VFM assurance tool. This paper has identified multiple issues in development and application of PSC in assessing VFM in PPP bids. For example, this paper has identified that comparing PSC against PPP bids is not a likewise comparison at all, due to the fact that both options contain different financing structures, capacities, organizational structures and sometimes different risks also. Therefore, it may be concluded that PSC alone is not capable of indicating true VFM embedded in any potential bid; and thus it is prescribed to apply multiple VFM tests, both quantitative and qualitative, to secure value in a PPP deal.

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