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Crafting an efficient bundle of property rights to determine the suitability of a Public-Private Partnership: A new theoretical framework

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Abstract

A Public–Private Partnership (PPP) procurement mode is poised to play a leading role in delivering global infrastructure. However, there is no fundamental microeconomic framework to determine whether a project or part/s of a project is a suitable PPP. This paper presents the development of a new theoretical framework that overarches and harnesses the application and integration of prominent microeconomic theories, namely, transaction cost and resource-based theories, property rights theory and principal-agent theory, to explain how an efficient bundle of property rights, associated with externalised project activities, is configured or crafted. This novel framework is developed to contribute significantly to advancing the rigour and transparency of PPP selection, as well as advancing theory of the firm. In turn, this change in current PPP thinking would appreciably increase the prospect of PPPs efficiently addressing the substantial appetite for this mode of procurement.

Keywords: Competition; Flexibility; Transaction costs; Capabilities; Public–Private Partnerships

1. Introduction

A Public–Private Partnership (PPP) is an established mode of procuring infrastructure. The World Bank (2014) recorded more than 5000 PPPs in 139 low and middle income countries in the last thirty years (1984 to 2012). Leveraging project finance via a PPP is likely to increasingly appeal to governments in the context of rapidly expanding infrastructure deficits, a fiscally challenged global environment and the diminishing impact of monetary policy on economic growth (World Economic Forum, 2012). It seems reasonable, therefore, to speculate that PPPs are poised to play a leading role in delivering world infrastructure over the next few decades. This speculation is also underlined by listings of PPP projects worth hundreds of billions of US dollars across USA and China (Jackson, 2015; Ballantyne, 2015).

However, it is logical to expect long-term inefficient outcomes from a PPP when a government unduly pursues private finance in cases where its cost is higher than the cost of government borrowing. It is also logical to expect inefficiencies if a government adopts an extensive risk transfer regime, such as the transfer of risks associated with activities in a new infrastructure project in which government has inherent natural advantages. Meanwhile, there is no fundamental microeconomic framework to explain whether a project or part/s of a project can be efficiently assigned to a PPP.

The purpose of this paper is to present the development of a new theoretical framework (subsequently referred to as the *PPP framework*) that overarches and harnesses the application and integration of prominent microeconomic theories to explain whether an economic or social infrastructure project, either in

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whole or in part, is suited to a PPP mode of procurement. Central to this suitability question are the microeconomics of bundling property rights—associated with various design, construction, operations and maintenance (DCOM) activities that allow the PPP company to demonstrate efficiency gains to offset the cost of project finance (Hart, 2003; Iossa and Martimort, 2015). In this context, the PPP framework deploys microeconomic theories to explain how an efficient bundle of property rights associated with new infrastructure activities can be configured, or crafted, to determine whether a project or part/s of a project can be efficiently assigned to a PPP.

The paper begins with a critique of current theory and practice on assessing the suitability of a PPP in pursuance of Value-for-Money (VfM). It then builds on this critique to identify fundamental PPP parameters that explain how an efficient bundle of property rights is created to form the basis of the PPP framework. This leads to both a general and a more specific and pragmatic hypothesis to guide the empirical testing of the PPP framework. The way in which the PPP framework deploys microeconomic theories in an implementable model is then discussed. Finally, the PPP framework's key implications (for theory, policy and practice), its limitations, and suggestions for future research are considered.

2. Current theory and practice on assessing the suitability of a PPP

2.1. Direct approaches

2.1.1. Ascertaining VfM

To assess whether a project delivered as a PPP yields long-term efficient outcomes and whether a PPP is a suitable mode of procurement, it is commonplace for governments to compare VfM from a PPP mode to VfM from traditional government financed projects (or non-PPP mode). VfM can be considered an economic concept that incorporates productive efficiency including, among other things, project finance principles (Productivity Commission, 2014, p. 70). In essence, VfM distils to achieving the best ratio between cost and benefits or *f(costs/benefits)* through the acquisition of infrastructure in whole-life terms.

A key impediment to *directly ascertaining* VfM arising from PPP versus non-PPP procurement is the intractability of data, particularly with respect to surfacing and measuring costs and benefits in the operations and maintenance stage of a facility. This is because costs are whole-life and include both internal and external transaction costs that are much less observable than production costs (comprising finance, design, construction, operations and maintenance costs). Meanwhile, benefits relate largely to the effects of the facility on the core activity, and this can be difficult to objectively isolate and evaluate (KPMG and University College London, 2010). Indeed, the National Audit Office (2011) noted that, "There is no clear data to conclude whether the use of PFI has led to demonstrably better or worse value for money than other forms of procurement".

Furthermore, VfM is a cumulative concept that would benefit from a longitudinal study of the entire life of a representative sample of PPPs and non-PPPs (Henjewele et al., 2011). Even if this data were available, a fundamental constraint is the extent to which it reflects PPP and non-PPP cases that have been efficiently delivered; that is, with optimal procurement decision-making from the procurement decision across the asset's entire life. This decision-making includes efficient tendering, governance (including design decision-making rights) and the exercise of real options in operations.

2.1.2. Estimating VfM

As with direct ascertainment, the comparative estimation of VfM from PPP and non-PPP procurement suffers from intractability of data and, more specifically, from the lack of historical data upon which to base estimates of future cash flows. Furthermore, the estimation of capital costs in major and mega projects is notoriously inaccurate and, in the context of this paper, not least because of the lack of accountability of project promoters (Sanderson, 2012). Indeed, there is substantial controversy surrounding the veracity of the Public Sector Comparator (PSC) that attempts to directly estimate the Net Present Value (NPV) of a project delivered via traditional government finance (based on a reference design) in order to compare it to a number of PPP bids (Winch and Schmidt, 2016).

2.2. Indirect approaches

2.2.1. Multi-Attribute Utility Approach

The Multi-Attribute Utility Approach (MAUA) is a very popular technique that examines the criteria of clients and the preferences of expert weightings for procurement modes as the basis of procurement decision-making (Chang and Ive, 2002). In practice—for example, in Australia—Procurement Options Analysis (POA) within the National PPP Policy Framework provides an approach to assessing the viability of PPP against other procurement methods that is consistent with MAUA (Infrastructure Australia, 2008).[1]

As MAUA does not rely on monetizing costs and benefits and can be deployed at an early stage (and within the business case), it does not suffer the same drawbacks as direct approaches. However, MAUA does suffer from its inability to reflect a whole-life orientation. Since little is known about differential costs and benefits arising from PPP and non-PPP procurement across the whole-life of infrastructure, the utility factors used in MAUA are likely to be skewed in favour of known features of alternative procurement to the end of construction and start of operations only. More fundamentally, the operation of MAUA is tautological (Chang and Ive, 2002); in other words, it matches client requirements (desired project outcomes through a likely lens at the end of construction—read *effect*) with the relative merits of alternative procurement modes (defined as a subset of, or in the same terms as, the desired outcomes of the project—read *cause*) in order to select the preferred procurement mode.

[1] Australia is considered second only to the UK in terms of its PPP market maturity (Deloitte Research, 2006).

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