Understanding pre-contractual transaction costs for Public–Private Partnership infrastructure projects

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Abstract

While public entities are still increasingly interested in Public–Private Partnerships (PPPs), we recently observe increasing reluctance from private partners to engage in PPP-bidding. Up-front costs that PPP bidders make, are considered too high compared to the bidding chances, and may result in less bidders in the future. In this paper, we empirically analyze transaction costs of PPPs in the pre-contractual stage and compare these to similar costs borne by private partners for traditional public procurement. Statistical analyses based on sample of 172 public infrastructure projects enable the estimation of the pre-contractual cost burden. Based on the study results, suggestions are made to lower these costs or to improve the cost position of the private sector, in order to safeguard the competitive setting of the PPP market.
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1. Introduction

Literature on Public–Private Partnerships (PPPs) from the perspective of both political/social science (e.g., Hodge and Greve, 2007) and economical/technical engineering (e.g., Iossa and Martimort, in press) have tackled most key economic and financial issues (see the Kwak et al. (2009) and Tang et al. (2010) for an overview). Most notably, the theoretical analysis of why and under what conditions PPPs are to be preferential to Traditional Public Procurement (TPPs) has been established in the framework of the theory of incomplete contracts (e.g., De Bettignies and Ross, 2010; Hart, 2003). Together with an increasing number of PPP projects in operation, numerous evaluation studies (see Hodge and Greve, 2009 for an overview) and reviews (e.g., Hodge and Greve, 2007; Kwak et al., 2009) have tried to quantify and assess the cost savings and value for money that can be achieved through PPPs (for an overview see Hodge and Greve, 2009).

However, these reviews demonstrate that one issue has not received much attention so far in evaluating procurement methods of public infrastructure projects: transaction costs. Coulson (2008) and Boardman and Vining (2010), for instance, note that evaluations are mainly based on production costs and neglect the impact of both external costs and transaction costs. Transaction costs, in the PPP context, refer to the costs of establishing and maintaining a partnership; more specifically, Dudkin and Välilä (2005) and Soliño and Gago de Santos (2010) indicate that they encompass legal, financial, and technical advisory costs incurred by both public and private sectors in the procurement and operational phases of a project. The importance of quantifying the transaction costs of PPPs is attributed to their eroding characteristics of potential cost savings. Experts (e.g., Dudkin and Välilä, 2005; Grimsey and Lewis, 2007) and academics (e.g., Chan et al., 2010a, 2010b; Siemiatycki and Farooqi, 2012; Trangkanont and Charoenngam, 2014) warn that apart from their direct negative impact on the financial and economic viability of the project, the high cost of bidding constitutes an obvious hurdle for potential bidders to enter the bidding process. This, in turn, undermines the power of ex-ante competition, which is at least in some infrastructure and public service sectors the only form of

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competition that may exist. In this light, there is widespread agreement among practitioners and academics (e.g., Domberger and Jensen, 1997; Dudkin and Välilä, 2005; Torres and Pina, 2001) alike that PPPs are associated with 'high' transaction costs, yet to the best of our knowledge, no systematic study has to date been undertaken to analyze their determinants and compare the result to their alternative, i.e., Traditional Public Procurement (TPP) (Farajian, 2010; Li et al., 2012). A main reason for the lack of empirical studies of the transaction cost problems of PPPs is the non-presence of proper data, which is due to the immaturity of PPP markets so far (few PPPs have gone through all the phases of their life cycle) and even if data is available, it is often highly confidential (mainly in the private sector), impossible to aggregate, or nonexistent (mainly in the public sector).

Acknowledging the severity of high transaction costs in the procurement phase of public infrastructure and their potential consequences on the one hand, and the absence of systematic research on this matter the other hand, we aim to investigate and contrast, in this article, the transaction cost economics of TPP and PPP projects in order to get a better understanding of their dynamics and to formulate policy recommendations to reduce the barriers to enter the current public infrastructure market. By focusing on the private sector, we circumvent data issues on the public side, while obtaining an insight on why firms (still) invest in public infrastructure under high transaction costs and what factors influence these investments. Conversely, this paper does not attempt to contrast transaction costs with the cost savings or value generation that these projects can generate given certain circumstances.

The study is organized as follows: we next briefly discuss former research findings on the transaction cost economics for the delivery of public infrastructure, which forms the basis to build a research framework consisting of three levels: relationship between (1) the ex-ante features and the relationship specificity of a bid, (2) ex-post features and the relationship specificity of a bid, and (3) the degree of transaction costs and the expected chance of winning the bid. The subsequent section describes the data and measures used for the empirical tests to investigate the three levels of the framework, and then also reports the empirical results. Finally, we close with a concluding discussion and recommendations for both policy and further research.

2. Transaction cost economics of public infrastructure delivery

Transaction cost theory, as developed by Williamson (1975), emphasizes the economic importance of creating or selecting governance structures for an individual transaction in order to reduce contractual hazard. Williamson's early development of transaction cost theory was based on the idea of 'small number contracting' under conditions of imperfect and asymmetrically distributed information (Williamson, 1999). Hence, in retrospect, these are valid conditions for public infrastructure contracts as they cover a lengthy period of time, their technologies are inherently and uncertain while their economic environments are all in a state of flux (Parker and Hartley, 2003).

From this perspective, the transaction cost theory teaches us that imperfect information enables parties of a contract to operate opportunistically by exploiting any information asymmetry. Based on a case study analysis of infrastructure delivery, Parker and Hartley (2003) highlight a number of major potential transaction costs arising from incomplete information and the resulting scope of opportunistic behavior. For example, information asymmetries have been often exploited between public and private partners concerning information about the true costs or quality of supply. Changes in specifications have been used in several cases as an excuse to raise prices and profits. Based on the previous arguments and these examples, we argue that opportunistic behavior can result in adverse selection, the ex-ante choice of an inferior option, or moral hazard. This increases the ex-post risk that one party will exploit the terms of the contract to the disadvantage of the other party. One obvious way of reducing this risk of opportunistic and related behavior is to integrate vertically. However direct ownership and control, or what Williamson calls 'hierarchies', also involves costs in terms of the direct management and administration of resources. Hence, while in-house production is one possible way of reducing the hold-up threat, it can raise costs as a result of diseconomies of scale in procurement and a lack of competition for supplies that in turn reduces efficiency incentives (Grossman and Hart, 1986; Hart et al., 1990). Parker and Hartley (2003) argue however that it is unlikely that governments will achieve superior economies of scale and scope in infrastructure provision over private sector firms. In contrast, they claim that the opposite may well be true, as private sector contractors are able to pool orders (as is stated by Hart, 2003).

Hence, PPPs are trapped between the threats of high transaction costs and the advantages that they may achieve in delivering public infrastructure. The focus of this paper however is on the first part of this argument i.e., higher transaction costs. We do not intend to link the costs to the potential cost savings and advantages in forms of e.g., value creations. We offer a comparative assessment of the magnitude and the determinants of the transaction cost of public infrastructure delivery. The principal dimensions with respect to which transactions differ are asset specificity, the degree to which assets cannot be redeployed from existing uses and users, except at a significant loss of productive value, and as such are transaction specific (Williamson, 1996); uncertainty, which may arise from 'state of nature' or changes in the external environment affecting a system (Rao, 2003) or when incomplete contracting and asset specificity are joined (Williamson, 1996); and frequency, which admits the fact that the pairwise identity of the parties and of the projects matters and has pervasive consequences for the organization of economic activity (Williamson, 1996). Kang et al. (2009) add inter-project spillover effects to this list, arguing that in some myopic situations (for example high transaction costs without any safeguards), firms still make unilateral relationship-specific investments to their transaction partners if the investment yields positive inter-project