Private Scope in Public-Private Partnerships: Experience and Institutional Determinants

By

Bertrand Quélin

HEC Paris – France

quelin@hec.fr

Sandro Cabral

UFBA – Salvador - Brazil

scabral@ufba.br

Sergio Lazzarini

Insper – São Paulo - Brazil

SergioGL1@insper.edu.br

Ilze Kivleniece

Imperial College London - UK

ilze.kivleniece@gmail.com

Paper submitted to the 2014 Annual Conference of the International Society of New Institutional Economics (ISNIE)

Duke University in Durham, North Carolina, on June 19 – 21, 2014

First version – Do not cite – Do not circulate

Acknowledgements: All authors contributed equally to this paper which was supported by grants from the HEC Foundation and Insper. We would like to acknowledge the work done by Camila Bravo Caldeira (Insper) and Antoine Levy (HEC Paris) for their excellent respective work as research assistant.

Corresponding author: Bertrand Quélin, HEC Paris, 1, rue de la Libération, 78351 Jouy-en-Josas Cedex, France.

Abstract

Management scholars have expressed an increased interest in the strategic aspects involving the delivery of public services, including the study of the emergent public-private partnerships (PPPs) and the organizational choices made by public and private actors. In the present article, we analyse the determinants of the private scope in PPPs—i.e. the extent to which private actors are more involved in various, complex activities of the partnership—in a cross-country, cross-industry setting. We examine the effects of public and private cumulative experience in PPPs, and the potential impact of the national institutional quality and the level of industry development on the private scope in PPPs. Our model is tested through an empirical work using a database covering 807 cases, 11 industries and 66 countries. We find that host-country accumulated experience in dealing with PPPs and superior quality of institutions increases private scope. Our results also show that private experience leads to an increased involvement of private actors in countries with better institutions and when the industry addressed by the PPP is incipient. Hence, by highlighting the determinants of governance choices and extent of private involvement in PPPs, our study offers implications for both theory and practice in a topic that have still received little attention in the strategy scholarship.

Keywords: Institutional environment, private scope, capability, public-private partnerships, governance mechanisms

INTRODUCTION

Public-private partnerships (PPPs) are becoming widely used by governments to overcome financing and execution limitations of the public sector, while at the same time capitalizing on capabilities brought by private entrepreneurs. These hybrid forms involving orchestrated public and private actions have been observed in developed and developing countries alike. Thus, according to a government office in the State of New York, "public-private partnerships have attracted interest in recent years because they have the potential to provide new sources of financial support for the construction and maintenance of public infrastructure, such as roads, bridges, and rail lines."[1] The Planning Commission of India has also expressed that PPPs can attract "private sector participation in financing, designing, construction and operation and maintenance of public sector programs and projects."[2]

In this regard, PPPs have developed considerably in many countries and many industries. Their goal is to reduce the public debt and lure specialized private companies to improve execution performance. Their challenges are to trigger a combination of new public and private capabilities in complex projects. Yet, although these new organizational forms have received keen interest in economics and public administration, there have been relatively fewer studies in strategic management assessing how public and private actors can jointly and effectively collaborate.

In economics, the focus is mainly on the contractual terms of PPPs (e.g. Guasch 2008). Because many contractual terms are imperfectly enforced, especially in setting involving weaker institutions, the architecture of PPPs can be explained according to incomplete contract theory (Hart 2003b). In other words, public and private actors will design contractual arrangements to reduce opportunistic behavior and increase verifiability, as well as pursue commitments that can be checked and monitored. Yet contractual terms are only part of what a PPP is about. Another important dimension is the extent to which private actors are willing to assume more complex operations in the PPP. For instance, private actors can invest and be involved in the design, construction, and management of the PPP; or, alternatively, the can focus on a more narrow task (e.g. operating facilities that are designed and built by the state). We refer to *private scope* as a situation where the private actor "bundles" many activities of the PPP and hence becomes more intensively involved in a complex set of tasks along the value chain. Therefore, we bring more nuance to the discussion of PPPs by examining how

[1] "Controlling risk without gimmicks," Office of the New York State Comptroller, http://www.osc.state.ny.us/reports/infrastructure/pppjan61202.pdf

[2] Government of India. Planning Commission, November 2004. http://planningcommission.gov.in/reports/genrep/rep_ppp.pdf

private actors can articulate their capabilities and become more or less involved in their interactions with the public sector. In other words, scope decisions depend not only on transactional issues affecting PPPs, but also on the set of private and public capabilities that can be used in the efficient execution of such partnerships.

In strategic management, attention is focused on the cooperation between actors whose interests and goals may be different, even divergent (Mahoney et al. 2009). One strand in the literature focuses on the issue of value creation. Sharing and appropriating this value therefore arise as crucial (Kivleniece and Quelin 2012). Another strand emphasizes the contribution of various stakeholders (public organizations, private firms, NGOs, unions, and customers) in public-private collaborations (Rangan et al. 2006). A third and evolving literature has also examined the capabilities of public and private partners, their expertise and know-how, as well as their cumulative experience to engage and succeed in this type of collaboration (Cabral et al. 2013b, Klein et al. 2013). These dimensions are important to determine which private player will be able to participate in the PPP, but they are also vital to the public actor to more effectively build partnerships that benefit from private capabilities.

In fact, strategy scholarship is increasingly recognizing capabilities as key factors shaping public-private interactions (McGahan et al. 2013). We, in particular, focus on a particular dimension related to capabilities: the extent of accumulated *experience* in dealing with PPPs. In essence, PPPs mobilize the expertise and experience gained by players who have signed such contracts. The private operator is in general highly specialized in a specific industry. Its accumulated know how should grow with the number of contracts signed in different countries. However, capabilities on the side of the public actor are also crucial. Governmental agencies dealing with PPPs must develop a specific ability to drive and monitor collaborative efforts in environments prone to corruption and, in many cases, subject to weak enforcement. The accumulation of previous experience in dealing with PPPs will shape the experience of public bodies, and probably improve their ability to better craft and monitor such partnerships.

We empirically examine these issues using a novel database using a database covering 807 PPPs in 11 industries and 66 countries. Our results suggest that the accumulated experience of governments in PPP positively affects the private decisions in terms of investing in multiple activities along the value chain of public-private projects. Private participation is also influenced by the quality of local institutions. These results evidence that private companies seems to be sensitive to the hazards of local government opportunism. We also find that private experience in PPP affects scope decisions when local institutions present

superior quality and when the development of local industry targeted by the PPP is lower. We thus unveil a complex interplay between competence-related and contextual factors that should influence the decision of the private actor to be more highly involved in complex public-private interactions.

Our paper is organized as follows. The first section discusses the theoretical arguments able to justify the role and impact of capabilities in the PPPs as new organizational forms. A second section presents and discusses all of our hypotheses to be tested. The data and sample are presented in the third section. The fourth section discusses the main findings and the last part concludes with implications for theory and practice as well as suggestions for future research.

THEORETICAL BACKGROUND

A number of recent studies in economics, management and organization science points out to a growing and socially significant part of economic activity taking place across the realm of public and private sector boundaries. In the provision of public services, in particular, one observes an increasing move towards new forms of collaboration that attempt to merge the public sector interests and service objectives with private sector skills, capabilities and efficiency incentives for a delivery of particular public service or good. PPPs are an example of such new forms of public-private interaction (Henisz 2006a, Kivleniece and Quelin 2012, Kwak et al. 2009). Initiatives such as Private Finance Initiative (PFI) in the UK or multilateral Public-Private Infrastructure Advisory Facility (PPIAF) for emerging markets, all signify attempts by governments to catalyze private actor participation in the most crucial public service sectors, such as transportation, education, schooling or health. Many of these arrangements are driven by hard-pressing social issues or developmental agendas (Utting and Zammit 2009, Brinkerhoff and Brinkerhoff 2011) but, on a more local level, also by attempts to remedy the underlying resources constraints of public authorities (Engel 2008) and introduce private sector capabilities in underperforming public services context.

Yet, as more and more governments turn to private sector to satisfy their social and policy-based objectives, from a theoretical perspective these new forms of cross-sector collaboration remain relatively understudied (McGahan et al. 2013). While commonly argued to represent, in policy language, “the best of both worlds” (Engel et al. 2011), the determinants, forms and performance of these interorganizational arrangements raise important questions, particularly from a public administration approach (Hodge and Greve

2007, Hodge and Greve 2009) and management and organizational strategy perspectives (Kivleniece and Quelin 2012, Klein et al. 2010b, Mahoney et al. 2009).

PPPs and the question of private scope

One of the key theoretical questions relates, in particular, to the determinants of organizational form and type of private involvement associated with public-private collaboration. PPPs are increasingly recognized as representing a novel type of interorganizational collaboration, compared to traditional inter-firm alliances, joint ventures and other types of business-to-business networks (B2B) within the private sector (Rivera-Santos and Rufín 2010, Kivleniece and Quelin 2012). These arrangements are argued to differ by introducing a mix of players with contrasting and non-pecuniary objectives, a political rather than entirely market selection environment, and a somewhat restricted choice of informal coordination and control mechanisms, at least, when compared to purely interfirm settings (Rufin and Rivera-Santos 2010, Spiller 2010, Klein et al. 2010b).

Yet, recent studies also point out that, within the realm of PPPs, one observes a high heterogeneity in terms of governance structures, distribution of private versus public tasks and responsibilities, and contractual mechanisms involved. Kivleniece and Quelin (2012) theorize how, from a theoretical perspective, PPPs arrangements may represent at least two conceptually different – autonomous versus integrative - governance forms, each associated with different operational tasks integration model between public and private actors, alternative revenue schemes and resulting in different ownership, control and incentive regimes. Rivera-Santos and Rufin (2010) highlight how, to specify the underlying division of control rights, many PPPs involve complex contractual arrangements that may complement or often even replace equity-based arrangements common in B2B settings (Rivera-Santos and Rufín 2010). Kwak, Chih and Ibbs (2009), examining in more detail the types of contractual and organizational arrangements involved in managing infrastructure PPPs, reveal a rich continuum of contract-based partnership forms that vary depending on the scope or extent of private sector involvement - from low private involvement PPPs, such as OM (operation and maintenance) to high private involvement contracts, such as BOO (build-own-operate). Likewise, Chong et al. (2006), focusing on the public-private arrangements in water industry in France, identify a continuum of PPP forms from direct management to concessions, varying in the extent of private operator involvement, duration of private operator property rights and level of task delegation by public actor.

Some of the contractual arrangements underlying a given PPP incorporate and specify also the design or financing tasks that may be delegated to private actors within the partnership scope. Bennett and Iossa (2006b), for example, identify private finance initiative (PFI) as a specific form of PPP that involves the bundling of the design, building, finance, and operation of the project, to be contracted out to a consortium of private firms for a long period of time, at the end of which the ownership over the project assets may or may not be transferred back to the public sector.

From a theoretical perspective, then, as recent literature suggests, the contractual and governance structures in PPPs reflect an array of potential arrangements, varying considerably in the extent and nature of how both ownership and the control rights over assets and tasks may be allocated or shared between the public and private actors. In our paper, we coin this dimension as the *scope* of private involvement (or private scope – as referred alternatively in the text) and argue that it becomes a critical theoretical aspect for understanding and decrypting such collaboration. Defined as an extent to which private actors are investing and participating in the multiple activities along the value chain of the PPP projects (Kwak et al. 2009), private scope delineates how the underlying project phases of the task are partitioned among the partners, and which type or nature of activities are delegated to private actors under the supervision of a private authority. It is likewise closely tied to the types of underlying incentives and performance outcomes associated with a given PPP (Hart 2003b).

From the perspective of strategic management literature, the notion of private scope stands in close parallel with the notion of vertical scope in private boundary contexts, referring to the structure and division of tasks for an economic exchange or productive activity along the various stages or levels of value chain (i.e. beyond the classical make or buy arguments) (Jacobides and Hitt 2005, Jacobides and Billinger 2006, Jacobides 2008). From the perspective of economics and public policy literature, private scope also relates closely to the notion of "bundling" – used to coin the combination of activities run by private partner in public-private project phases into a single contractual framework, such as public infrastructure planning and implementation (Iossa and Martimort 2012b) or infrastructure building and management (Bennett and Iossa 2006b, Martimort and Pouyet 2008). Yet it contrast to a more technical, project phase-driven view of "bundling" in PPPs context, the notion of private scope takes a broader and more nuanced view on the heterogeneity of private participation by tying it to broader contractual ownership and value chain dimensions.

The determinants of private scope in public-private collaboration

In the remaining part of the paper, we focus specifically on the question of private scope seeking to understand what factors determine or drive the scope of private involvement in PPPs, thereby contributing to our understanding of the existing heterogeneity of observed PPPs. Recent studies in public policy and economics literature shed light on a number of factors that may determine the contractual and organizational arrangements and the scope of private actor involvement in a given PPP project. Most of these studies, however, relate private scope to predominantly transaction cost-based and incomplete contracting theories and arguments.

Thus, among the key drivers in the economics literature associated with a chosen PPP form is the nature of the underlying public service or good, which in turn, is closely tied to the extent of its contractibility (Williamson 1999b, Hart 2003a, Hart et al. 1997a). According to this perspective, some of the most common limitations on the extent of private scope in the provision of public good or service are related to the underlying socially sensitive or significant nature of the service, contractual incompleteness, quality and probity concerns (Williamson, 1999). In his seminal work, Williamson (1999) uses the somewhat extreme case of how private bureaucracy will never extend to controlling or managing "sovereign transactions," such as foreign affairs, due to impossibility to specify a complete contract with private actor for delegating such activity, which in turn leads to misaligned public and private incentives, and a high degree of subsequent hazards. Similar arguments are likewise put forward in other public service related contexts – such as PPPs in prisons (Hart 2003b, Hart et al. 1997a), where the contractual incompleteness coupled with high potential social cost, in case of private actor "hold-up" or quality "shirking," is argued to reduce the effective scope for private sector involvement. Yet, as recent literature suggests (Cabral et al. 2013b), even in these contexts, a hybrid governance approach, such as PPPs, may turn beneficial in the view of applying heterogeneous public and private capabilities whilst retaining public sector oversight.

A growing literature on "bundling" in PPPs, in turn, often takes an externality- or synergy-informed perspective in considering when it is optimal to allocate the control and ownership rights to private sector. Thus, enlarged private scope by bundling different stages of production is seen as a way exploit synergies between different production stages and incentivize consortium for delivering innovative solutions (Bennett and Iossa 2006b). Other studies emphasize the total (or social) costs and benefits of private participation. Some argue that private scope will increase when there are no negative externalities or private costs

associated with full ownership, and when the benefits accruing from the activity may be more valued by the firm than by the public sector (Besley and Ghatak 2001). Private involvement is also argued to be found in sectors where the extent of service contractibility is sufficiently high to ensure public value and successful delivery (Riess 2005).

However, largely absent from the growing literature on PPPs are both an external-environmental view as well as an internal, capability-informed perspective on private scope. While the current studies focus increasingly on governance trade-offs associated with enlarged private scope (i.e. maximized incentives and synergy exploitation versus probity, holdup and other hazards), the impact of unique organizational capabilities, which may deliver substantial value in the public-private collaboration context, remains understudied (Cabral et al. 2013b, Klein et al. 2010a, Klein et al. 2010b, Piening 2013). Echoing the literature on vertical scope in private settings, where more attention recently turned towards productive capability and learning (Jacobides and Hitt 2005, Jacobides and Winter 2005b, Jacobides 2008, Novak and Stern 2008), the PPP literature, we argue, needs more emphasis on both public and private sector experience and capabilities in explaining private scope.

Likewise, from an environment perspective, the importance of national political institutions and their quality or level of development is also expected to play a critical role (see, for example: Murtha and Lenway 1994, Henisz 2002, Henisz 2000). Yet, the incorporation of such external elements that should also influence the ability to public and private actors to deploy their capabilities in the execution of PPPs remains underexplored. The incorporation of such contextual factors should also help explain private engagement in many multinational settings and industries, particularly where public-private collaboration may be pursued as a national-level policy tool.

Below, we address these potential determinants of private scope in more detail, by developing a novel theoretical framework and associated, testable hypotheses.

HYPOTHESES

In our theorizing, we argue that accumulated experience in public and private domains influence the propensity of private involvement or scope in more complex initiatives. Here, we assume an intertwined relationship between evolved capabilities and previous experience in terms of promoting and participating in public-private collaborative arrangements. This logic is akin to the discussion in the cooperation literature on how firms develop a superior ability to conduct alliances as a function of their cumulative number of past executed alliances (Kale et al. 2002).

However, country-level characteristics, namely the quality of national institutions and the degree of national industry development, may also affect perceptions about contractual risks and the consequent transaction costs at stake, thus shaping private scope strategies. These two mechanisms can also mediate the relationships between experience and the extent of integration observed in services for the public interest. By taking into account accumulated experience, institutions, and industry determinants, our hypotheses may capture both the role of experience and contractual hazards as interdependent aspects on boundaries decisions (Argyres et al. 2012).

The impact of previous public and private experience on scope

It seems to exist a convergence between both strategic management (McGahan et al. 2013) and public administration scholars (Piening 2013) about the importance of organizational capabilities in the delivery of public services. In an era of alternative arrangements including outsourcing, concessions, and PPPs, special attention is paid to the governance choices and management of public-private relationships (Kivleniece and Quelin 2012). Considering the inevitable presence of government actors in these organizational arrangements, capabilities are also essential from the point of view of public actors. Beyond the classic view of bureaucracies as specialized individuals acting in an impersonal fashion following meritocratic rules (Weber 1968), a new type of public officer is required, capable of facilitating the contractual design and collaboration process in future projects. Under this perspective, bureaucrats should be not only autonomous but also knowledgeable of national industry conditions and mechanisms to better support public-private interactions (Evans 1995).

Progressive accumulation of knowledge, know-how, and managerial skills are widely recognized as key ingredients to sustainable organizational success, even in a dynamic perspective (Teece et al. 1997). The same reasoning can be applied in the public sector. Recent advances in the management and public policy literature posit that capabilities in public-private settings are developed through experience and learning, oftentimes with a tacit nature (Klein et al. 2013). Actually, countries with previous track record of successful public-private collaborations are more likely to promote these initiatives in the future (Hammami 2006), which suggests that the proven experience in managing public and private partnerships is a relevant construct and plays a non-negligible role in fostering these arrangements.

When public and private actors interact in PPPs, the accumulated experience in the public sector in a given industry may spill over to other activities in which private

entrepreneurs are involved, including future public-private contracts in the same industry or even in correlated sectors (Cabral et al. 2013b). Public experience may also increase the confidence of private actor and reduce the risk perceptions related to enlarge the private scope in long-term projects. Evidence demonstrate that the knowledge gathered across the several projects experienced in a given industry contribute to improve risk-sharing optimization and may incentivize bundling from the private operator side, including new finance models and new operating technologies (Chung et al. 2010). Formally:

Hypothesis #1: The higher the experience of public authorities in PPPs in a given industry, the higher the private scope in a PPP in the same industry.

As relationships between public and private actors evolve over time, one may expect that private providers of services are keener to recognize the menu of activities that most contribute to current value creation as well as potential business opportunities. Recurrent interactions with specific actors may improve the existing partnering abilities (Gulati et al. 2009), making it possible not only to refine the evaluation of prospective contractual hazards (Williamson 1991) but also to improve managerial assessments about the impact of capabilities on scope decisions (Jacobides and Winter 2005a). Increased knowledge in a given industry may enable organizations to recognize new assets, resources, and activities that are complementary to the existing menu of capabilities eventually fostering an amplified organizational scope (Argyres and Zenger 2012). Hence:

Hypothesis #2: The higher the experience of private actors in PPPs in a given industry, the higher the private scope in a PPP in the same industry.

The role of national institutions

Institutions, or the rules of game (North 1990), may attenuate market and government imperfections (Meyer 2001). However, they can also create uncertainties especially when there are striking differences between home and host country institutions and the quality of the national institutions is low (Rodrik 2000). Seeing as independent variables that interact with organizational aspects and affect strategic choices (Meyer et al. 2009), institutional aspects and their underlying contractual hazards play a leading role in managerial decisions related to organizational boundaries choices, sometimes enabling outsourcing, and sometimes fostering vertical integration (Brahm and Tarziján 2014, Mayer and Salomon 2006).

Nation-level institutional characteristics seem also to be relevant when comparing public-private projects in a cross-country setting (Hammami 2006, Henisz 2006b). Indeed,

public-private arrangements are subject to different hazards that may hamper contractual effectiveness. Besides the standard opportunistic behavior of private actors, these hybrid forms may present governmental opportunism, i.e., governments can use discretionary power to modify the rules of the game either to extract the rents of its private partner (Spiller 2010) or allocate additional funds to business groups for reasons other than efficiency (Inoue et al. 2013).

Although institutional voids may foster new business opportunities to private entrepreneurs who are able to fill the existing regulatory, finance and technical gaps (Khanna et al. 2005), under risky and uncertain conditions massive private investments in large public-private projects such as infrastructure or utilities can be hampered (Henisz 2002). More precisely, national institutions plagued by the absence of autonomy from public authorities, clear accountability mechanisms, and without tools and capacities for the conduct of the regulatory police are less likely to promote the attraction of private funds in public-private projects (Andres et al. 2009). Thus:

> *Hypothesis #3: The higher the quality of national institutions, the higher the private scope in a given PPP.*

The role of national industry development

The existence of a collection of resources and capabilities in a given industry at the national level is crucial for economic development (Lazzarini 2013). Premature industry development will likely imply that private firms will have to execute multiple, complementary investments (Hirschman 1958). For instance, the attractiveness of a PPP in the port sector will increase if naval infrastructure and access roads are already available. Under these conditions, private firms may become more reluctant to participate in public-private arrangements, requiring multiple investment and complex resource allocations. In this case, a "big push" by the host government will be called upon (Murphy et al. 1989, Rosenstein-Rodan 1943). To attract private firms in PPPs, governments will need to become more directly involved in the project with capital injections and even more direct participation in the execution of the project (Evans 1979, Trebat 1983).

Yet, if a given country has not developed extensive know how and specialized infrastructure in a given industry, governments may need to reply on private capabilities to build and execute complex projects. For instance, private firms may bring their expertise to design state-of-the-art facilities and infrastructure. By the same token, when the industry is

already developed, private firms may reduce their scope and instead rely on investments already in place. This logic leads to:

Hypothesis #4: The higher the country level of industry development, the lower the private scope in a given PPP.

Interactions between national institutions and accumulated experience

The relationship between institutional features and experience at both firm and industry levels have been largely discussed in the management literature (Meyer et al. 2009, Peng et al. 2009). Institutions may stimulate (or hinder) the deployment of organizational capabilities by creating (or obstructing) new business opportunities, new practices, and experimental managerial methods and process. Contingent to the institutional environment in which PPPs take place, repeated interactions between public and private actors in public service contracts contribute to mutual learning and are likely to influence future investment decisions.

From the public side, bureaucrats' ability to learn will depend on whether they are relatively autonomous and are able to interact with external actors (Evans 1995). If, say, new elected governments frequently change and intervene in the public bureaucracy, then it will be difficult to accumulate capabilities to more effectively design and execute PPP. However if a given country presents acceptable institutional standards (i.e. skilled and insulated bureaucracy, transparency, business friendly environment, low levels of corruption), a significant cumulative experience in PPP projects might not be a prominent factor to stimulate private actors to run more complex projects. Actually, the very existence of a high-quality institutional setting can be enough to stimulate additional private investments in PPP with an enhanced scope. Lower market costs brought by national institutions (Coase 1960) may enable private organizations to rely on suppliers instead of integrating activities or internalizing some capabilities (Argyres et al. 2012). Formally:

Hypothesis #5: In countries where the quality of national institutions is high, the impact of public authorities' experience in PPPs on private scope will be weaker than in countries where the quality of national institutions is low.

However, from the private side, increased experience in public-private collaborations will develop not only the partnering abilities but also the technical capabilities of private entrepreneurs. Through repeated trial and error interactions private companies may develop

cost and quality innovations, and by creating or combining the different resources and assets available they can enhance their scope (Shanley and Peteraf 2004).

In this case, an enhanced national institutional setting in which the perceived hazards of expropriation are lower and the regulatory decisions are not taken on political and ideological grounds is likely to increase even more the confidence of private companies to choose higher scope. They will be able to bear additional risks, implement alternative business models, and integrate more activities in PPP projects. In other words, the institutional quality tends to positively mediate the interaction between private experience and increased scope. This leads to our sixth hypothesis:

> *Hypothesis #6: In countries where the quality of national institutions is high, the impact of private actors' experience in PPPs on private scope will be higher than in countries where the quality of national institutions is low.*

Interactions between industry development and accumulated experience

Our last two hypotheses are related to the mediating role of the national industry development in the relationship between accumulated experience in PPP and private boundaries' choices. In this matter, the past experience of government bodies in a specific industry is a critical factor not only for improving the design of PPP but also for successful arrangements. At a first glance, one may think that an increased knowledge on idiosyncratic industry's characteristics from the public side would yield more public (instead of private) participation in PPPs. However, the inherent limitations of public provision, such as low-powered incentives, organizational red tape, and insufficient flexibility to deal with turbulent environments (Williamson 1999a, Dixit 2002) may prevent public bodies to increase their scope if private entrepreneurs present adequate capabilities to perform the required activities. In this case, government officers with an enhanced knowledge of the industry would be restrained to defining standards and enforce contracts through intense public supervision in order to meet collective goals (Cabral et al. 2013b).

Therefore, superior experience from the government actors in PPP in context where the local industry is more developed may induce private actors to increase their scope. Private companies involved in PPP projects may perceive they have additional support from both government bodies and other industry stakeholders when experiencing new models through additional private involvement (i.e. public authorities may present an increased ability to develop new contractual schemes that combine business and public interests).

The effect of industry development on the relationship between private experience and scope should be distinct. Private companies involved in PPPs embedded in incipient industries will face increased costs to establish partnerships with specialized suppliers. In this case, integrating capabilities and increasing scope can be a feasible alternative to deal with the extant transaction costs (Jacobides and Winter 2005a). Previous experience of private organizations in PPP projects seems to be a necessary condition to observe more complex projects with improved private involvement when dealing with more embryonic industries. Formally:

Hypothesis #7: In countries with high level of industry development, the impact of public authorities' experience in PPPs on private scope will be higher than in countries with low level of industry development.

Hypothesis #8: In countries with low level of industry development, the impact of private actors' experience in PPPs on private scope will be higher than in countries with high level of industry development.

METHODOLOGY: DATA SOURCES, SAMPLE AND VARIABLES

Data Sources and Sample

We use several datasets. As a primary and main data source we used the PFI (Project Finance International) Database from Thomson Reuters. We extracted all 6,800 finalized cases named financed deals (opposed to pipeline deals). Then, we perform an extraction process to select all PPPs. The sample covers 807 out of 935 recorded PPPs in 66 countries and 11 different industries from 1992 to 2012. We also collected data on country- and industry-level characteristics from the *World Bank Development Indicators* database and the *IMD World Competitiveness Yearbook* (WCY). The latter is recognized as being one of the worldwide reference points on the competitiveness of nations. It has been published since 1989 and compares the competitiveness of 60 nations on the basis of over 300 criteria. It is based on hard data statistics (2/3) and a business executives' opinion survey (1/3). We complement these sources with some data from the International Monetary Fund (IMF) and Organization for Economic Co-operation and Development (OECD) databases.

Dependent Variable

Our unit of analysis is the PPP contract between a main contractor (and service provider) and one public organization. Our dependent variable measures the private involvement choices in PPP projects. It is based on the coverage by the private firm of some

both organizational features and tasks for setting up the partnership. Many scholars (Hart 2003b, Iossa and Martimort 2012a) refer to private involvement as a "bundling," equivalent to a combination of various activities to be run by the private partner on the basis of contract and project phases: designing, building, owning, financing, managing or operating, and transferring. We coin the private scope

The PFI database offers 13 different categories (in alphabetical order): Acquisition; BLT (Build-Lease-Transfer); BOO (Build-Own-Operate); BOOMT (Build-Own-Operate-Maintain-Transfer); BOOT (Build-Own-Operate-Transfer); BOT (Build-Operate-Transfer); DBFO (Design-Build-Finance-Operate); DBOT (Design-Build-Operate-Transfer); DCMF (Design-Construct-Manage-Finance); LROT (Lease-Refurbish-Operate-Transfer); PPP (Public-Private Partnership); Privatization; RLT (Rehabilitate-Lease-Transfer). First, we exclude the full transfer of ownership to the private firm (Acquisition (14) and Privatization (3) categories) because it does not fit with the partnership definition. Second, we explore the meaning of the category "PPP" used by Thomson Reuters: not the one used to differentiate with public procurement, concession or other categories but the PPP used as sub-category within the main PPP category. The complementary information we collect from Thomson Reuters is not relevant or detailed enough to explain the difference with the other existing 12 sub-categories that are clearly defined. The term appears to be too generic. We decide to exclude 206 cases. Then, we build up four constructs based on the coverage rate of the main organizational features and tasks: from a pure concession with no investment to operating a facility, then ownership and operating, and finally designing, building, operating and transferring. We obtain four sub-categories in Table 1: 0: BLT; 1: BOT, LROT; 2: BOO, BOOT, BOOMT; 3: DBOT, DBFO, DCMF. This classification shows an increase of the organizational scope, commitment in managing and coverage of main tasks and responsibilities by private actors: moving up from simple concession or leasing to the almost complete coverage of design, building, management, then to the transfer.

Independent Variables

Our major independent variables are about the accumulated experience in PPPs. In a given year where the PPP was signed, we simply count the number of past, accumulated PPPs by public and private actors *in the particular industry of the PPP*. Our industry-specific focus is justified because capabilities are likely to vary across sectors, which require distinct types of investment and contractual architectures. Public experience is measured as the past number of PPPs in a given industry executed in a given country, whereas private experience is the past number of PPPs in a given industry executed by a given private actor.

We also have two dummies coding the quality of institutions and the level of industry development. We performed a factor analysis based on variables found in the *World Competitiveness Yearbook* (WCY) and discovered three institutional features that appear to be jointly found: quality of the bureaucracy, absence of bribing or corruption, and perceived transparency. We then create our measure of institutional quality by taking the average of those measures (Cronbach $\alpha = 0.808$). We measure industry development, in turn, by observing the existing level of national infrastructure depending on the sector or activity targeted by the PPP (transport infrastructure, education, telecommunication systems, and so on). For each industry, based on an extensive literature review, we selected a particular item that has been used to measure development. For instance, in the case of telecommunication systems, we use the observed country-level number of telephone lines per capital. We then standardize all industry-specific indications (i.e. we subtract their mean in a given year and divide the result by the standard deviation). The final indicator then tries to gauges the extent to which the industry in a given country is more or less distant from what is found in other countries by the same period. To build these industry indicators, we use multiple data from the World Bank, IMF, OECD and the IMD databases (Table 1).

Insert Table 1 about here

We also add several other firm-, country-, and industry-level controls. Our control variables cover the financial dimension of contract (total amount or cost of contract, in logarithmic form), some economic variables (the logarithmic value of the national population and per capital gross domestic product at purchasing power parity). Some others dimensions cover features of the national environment, obtained from the WCY (level of competition legislation, access to financial and banking systems and availability of skilled labor). Finally, we add industry dummies and control for temporal effects by adding a year trend variable.

Figure 1 depicts our analytical model.

Insert Figure 1 about here

Insert Table 2 about here

Methodology

Given the nature of our dependent variable—gauging higher private scope in a categorical, ascending order—we adopt the order probit model (e.g. Greene 2000) to test our hypotheses. The model is useful in a context like our where we know that a given PPP arrangement will involve higher private scope but we do not measure private scope directly (i.e. it is a latent outcome). Estimated through maximum likelihood, the ordered probit model indicates how a change in a certain independent variable affects the likelihood of observing ordinal outcomes. We also employ robust (Huber-White) estimators of the standard errors and cluster them at the country level to accommodate potential correlation between observations coming from the same country.

To test the interaction-based Hypotheses 5 to 8, in particular, we proceed in two ways. We first add a set of interactions between the experience variables and the variables coding institutional quality and industry development. However, because such interactions are difficult to interpret in nonlinear specifications like the probit and logit models (e.g. Hoetker 2007), we additionally perform split-sample regressions—initially for the subsamples of PPPs observed in countries with low and high institutional quality and next for the subsamples with low and high industry development. We then compare the coefficients of the independent variables for each subsample using chi-squared tests of equality of coefficients.

RESULTS

Table 3 shows the summary statistics and correlations of our variables and Table 4 shows the results of the ordered probit regressions. Models 1 to 3 in Table 4 present estimates of the main effects for the whole sample of PPPs; model 4 adds interactions for the whole sample; and, finally, models 5 to 6 perform split-sample regressions.

Tables 3 and 4 around here

We start by examining the proposed main effects (Hypotheses 1 to 4) in the models without interactions (models 1 to 3). Hypothesis 1 is supported across all specifications: public experience in PPPs in a given industry positively affects private scope in PPPs in the same industry. This result confirms our expectation that public experience in PPPs will increase public authorities' capabilities to propose attractive projects as well as to craft better contracts and regulations, thereby increasing the willingness of private parties to be involved in a more complex set of activities. The effect of private experience, in turn, is positively

significant in model 1 but it becomes insignificant when we introduce in model 3 the institutional and industry development variables. Thus, Hypothesis 2 is not supported: *in general*, we do not find that the experience of private actors in PPPs in a given industry will increase their private scope in PPPs in the same industry (although, as we discuss later, private experience does affect scope depending on institutional quality and industry development).

We find strong positive effects of the variable coding institutional quality. In countries where institutions are above the median according to our proposed measure, private scope is substantially higher. This result also confirms our expectation that improved institutions should reduce perceived risks of adverse contract renegotiation and expropriation, thereby increasing the willingness of private actors to bundle more activities in the PPP. Thus, Hypothesis 3 is supported. As for the industrial development variable, although it shows a significant negative effect (as predicted) in model 2, the effect becomes insignificant in model 3 when we add the experience variables. This result fails to lend support to Hypothesis 4: the extent of industrial development does not affect private scope directly.

Now we turn to the test of our proposed interactions. In model 4, the effect of the interaction between public experience and institutional quality shows a negative, yet marginally significant ($p < 0.10$) coefficient. Judging from the result of this regression, Hypothesis 5 appears to be moderately supported: public experience will be relatively less important in countries with high institutional quality, probably because better institutions (at the national level) already provide private actors with a more favorable environment for overarching private investments in complex PPPs, regardless of the experience of public actors. Yet, when we split our sample of PPP into environments with low quality (model 5a) and high quality institutions (model 5b), we do not detect any significant difference between the coefficients of public experience across those two subsamples. Based on this test, Hypothesis 5 is not supported: public experience appears to have the same positive effect on private scope, independent of the institutional environment where the PPP is embedded.

In contrast, as mentioned before, the proposed interaction between private experience and institutional quality is strongly supported. Model 4, for the whole sample, shows that the effect of private experience is enhanced in a condition of higher institutional quality; while models 5a and 5b indicate that the expected positive effect of private experience is significant only in the subsample involving cases with institutional quality (model 5b). Furthermore, the Chi-squared test of equality of coefficients shows that the coefficient of private experience is significantly larger in the subsample with high institutional quality than in the subsample with

low institutional quality (Chi-squared statistic = 5.8, $p < 0.05$). This result lends high and consistent support for Hypothesis 6. Apparently, the accumulated capabilities of private actors will lead to higher scope in countries where perceived risks of expropriation are lower; in other words, private capabilities will matter less for scope decisions if the national environment poses substantial hazards for private investment.

Interaction effects involving the industry development variable, however, are less consistent. In model 4, we observe a negative interaction between public experience and industry development; yet, in models 6a and 6b, we see that coefficient of public experience is apparently larger in the subset involving high industrial development (model 6b). However, the coefficients of public experience across models 6a and 6b are not significantly different from each other. Therefore, Hypothesis 7 is not supported: public experience positively influences private scope regardless of the level of industry development.

Finally, although we do not find a significant interaction between private experience and industry development in model 4, we do observe in models 6a and 6b that private experience positively affects private scope only in the subsample where industry development is low. At first glance, this appears to support our conjecture that private capabilities will be more essential when country-level industry development is scant. However, the chi-squared test comparing the coefficients of private experience across models 6a and 6b fails to detect any significant difference. This is likely due to the relatively high standard error of the coefficient of private experience in the subsample with high industrial development (model 6b); its point estimate is too dispersed to allow for a definite conclusion on its comparability to the coefficient estimated in the subsample with low industry development (model 6a). Thus, although Hypothesis 8 does not receive consistent support, we do find that the effect of private experience depends on whether the PPP occurs in a condition of low industry development. In other words, we can affirm that private experience is relevant *only* in the subsample with low industry development, although we cannot say that this effect is larger than in the opposite condition with superior industry development.

It is useful to illustrate our results with some short cases. The Ajman sewerage project, for example, involved connecting houses in the Dubai Emirate to the new watering system. However, problems have concerned poor revenue collection from users and complaints from users that the connection charges were too high. In a notice, Standard & Poor's recognized there was a lack of a developed regulatory framework to allow pass-through of variable costs such as energy and the covenant package was weak at 1.05x for

default. The chosen level of private scope was low This case illustrates how low institutional quality and lack of public experience can lead to low scope

The case of Bilfinger Berger in Canada, in contrast, illustrates a case where private scope resulted from better institutions. Bilfinger Berger led a C$226.9m consortium to back construction of the Women's College Hospital in Toronto. They design, build, finance and maintain the hospital's redevelopment project in the downtown area. The annual payments include maintenance and repair expenses and will total about C$460m after 30 years. In order to ensure that all hospital services can stay fully functional, the project was carried out in phases stretching over a period of five years. The project had a 61-month construction period.

DISCUSSION AND CONCLUSIONS

Although academics and practitioners have debated on the merits of PPPs as a form to bring together governmental and private resources for projects in the public interest, in reality those partnerships are far from a uniform phenomenon. Not only PPPs differ across the various institutional and industry contexts where they operate; they also vary depending on whether private firms are more or less willing to deploy resources in the architecture and operation of those partnerships. We shed light on the determinants of private scope in PPPs, defined as the extent to which private actors will be willing to invest and participate in multiple activities along the value chain of public-private projects. Using a unique database of PPPs in various industries and countries, we unveil an interesting interplay between public and private experience in dealing with such partnerships, moderated by two key country-level factors: the quality of national institutions and the extent to which the industry targeted by the PPP is already developed.

In a nutshell, we find two main, strong determinants of private scope: the quality of domestic institutions and the experience of public authorities dealing with PPPs. This result confirms our expectation that institutional quality and public experience will allow governments to better craft PPP projects and reduce perceived risks of contractual renegotiation and expropriation. We also find a contingency-based effect of private experience. Cumulative private experience in PPPs appears to be particularly relevant in countries with better institutions and lower development in the industry targeted by the PPP. In this sense, our study provides important contributions to the literature and key implications for practice, detailed next.

Implications for Theory

Scholars have pointed out that PPPs—and, more generally, private action in the public interest—are understudied in the management literature (Kivleniece and Quelin 2012, Mahoney et al. 2009). Even more so is the analysis of whether, *within* PPPs, private actors will be willing to deploy substantial resources to build complex operations at the public-private interface. The degree of private involvement is a key element in the design of PPPs because governments can rely on private capabilities to handle multiple activities of the partnership. Our study provides a novel theoretical framework to explain the determinants of private scope and thus contributes with a more nuanced view of PPPs and their positioning in the public-private spectrum.

We also expand the literature on public-private contracts by moving beyond the usual focus on contractual factors (e.g. Hart et al. 1997b, Bennett and Iossa 2006a). In particular, we exploit sources of firm- and country-level heterogeneity that have received increasing attention by business scholars: competence-related (Cabral et al. 2013a, Klein et al. 2013) and institution-based factors (Khanna and Palepu 2000, Peng et al. 2009). Our measure of experience tries to capture a learning process whereby public and private actors accumulate industry-specific capabilities to deal with PPPs. To be sure, experience does not act in isolation but also interacts with the environment where the PPP is located. For instance, we propose and find that private actors' willingness to increase their scope is positively affected by their private experience mostly in countries with higher institutional quality, suggesting that experience will be more relevant in a context where private actors are more confident to deploy resources in public projects. We thus additionally contribute with a contingent-based view of how experience interacts with the national environment to create a local setting more conducive to private involvement in PPPs.

Managerial and Public Policy Implications

Our study also has important implications for practice. For firms operating or interested in PPPs, we outline a host of critical factors that determine private scope. If we assume that our observed firms are generally optimizing their scope decisions, our results offer some key recommendations. Namely, managers should increase scope when the country has cumulative experience in PPPs in the same industry and when the national institutional environment is strong. Firms with cumulative experience in PPPs in a given industry also tend to increase private scope in countries with high quality institutions. When we restrict our analysis to cases involving low industry development, our results also suggest that firms with

higher private experience should pursue higher scope when the domestic industry is underdeveloped. In other words, private firms can leverage their private, industry-specific capabilities especially in setting exhibiting good institutions and lower industrial development.

There are also important lessons for policy makers and public authorities dealing with PPPs. Many governments consider the attraction of private capital in PPPs a way to circumvent budget constraints and articulate new, private capabilities in projects for the public interest. We showed that improvements in national institutions are fundamental to increase private scope, as well as the cumulative experience of public authorities in PPPs. In other words, to enhance private involvement in PPPs, national governments should not only seek an overarching environment favoring private investment in general, but also foster the accumulation of national, industry-specific public capabilities to structure attractive PPPs.

Limitations and Future Directions

There are also important ways in which future research can refine and expand our results. Because our database does not allow us to observe private scope directly, we adopt an ordinal measure based on reported descriptions of each PPP. Future research should propose more direct, fine-grained measures of scope, such as the percentage of private ownership in each stage of the value chain and/or the nature of private involvement in each phase of the PPP. Our measure of experience is also only a subset of all possible aspects related to public and private capabilities in dealing with such partnerships. For instance, countries may vary in the size and composition of PPP agencies; certain agencies may also have technical personnel specialized in particular industries or types of contracts. Gauging these more refined features can greatly contribute to the evolving literature on the competence-based determinants of public-private interactions.

We also restrict our analysis to cases where PPPs were actually observed. That is, our database does not include projects involving pure state ownership or full-fledged privatization. Yet, the factors unveiled in our study can also affect the very decision to adopt PPPs, instead of those other polar modes involves public and private operation. In other words, future research should also examine the decision to engage in PPPs and then how this decision affects the choice of private scope. This will require substantial effort to build a larger database of national projects with and without PPPs, which is beyond the objective of our paper. Yet, it can be a rewarding effort to improve our understanding of how PPPs emerge and how national governments can lure private resources for their successful execution.

REFERENCES

Andres, L., Guasch, J. L. and Azumedi, S. L., 2009. Regulatory Governance and sector performance: methodology and evaluation for electricity distribution in Latin America. *In:* Menard, C. and Ghertman, M. eds. *Regulation, Deregulation, Reregulation: Institutional Perspectives.* New York: Edward Elgar, 111-150.

Argyres, N. S., *et al.* 2012. Organizational Economics of Capability and Heterogeneity. *Organization Science,* 23(5), 1213-1226.

Argyres, N. S. and Zenger, T. R. 2012. Capabilities, Transaction Costs, and Firm Boundaries. *Organization Science,* 23(6), 1643-1657.

Bennett, J. and Iossa, E. 2006b. Building and managing facilities for public services. *Journal of Public Economics,* 90(10), 2143-2160.

Besley, T. and Ghatak, M. 2001. Government versus private ownership of public goods. *The Quarterly Journal of Economics,* 116(4), 1343-1372.

Best, M., 1990. *The new competition: institu tions for ind ustrial restructuring.* Cambridge: Harvard University Press.

Brahm, F. and Tarziján, J. 2014. Transactional hazards, institutional change, and capabilities: Integrating the theories of the firm. *Strategic Management Journal,* 35(2), 224-245.

Brinkerhoff, D. W. and Brinkerhoff, J. M. 2011. Public-private partnerships: Perspectives on purposes, publicness, and good governance. *Public Administration & Developmen t,* 31(1), 2-14.

Cabral, S., Lazzarini, S. G. and Azevedo, P. F. 2013a. Private entrepreneurs in public services: a longitudinal study of outsourcing and statization in prisons. *Strategic Entrepreneurship Journal,* 7(1), 6-25.

Chong, E., *et al.* 2006. Public-private partnerships and prices: Evidence from water distribution in France. *Review of Industrial Organization,* 29(1-2), 149-169.

Chung, D., Hensher, D. A. and Rose, J. M. 2010. Toward the betterment of risk allocation: Investigating risk perceptions of Australian stakeholder groups to public–private-partnership tollroad projects. *Research in Transportation Economics,* 30(1), 43-58.

Coase, R. H. 1960. The problem of social cost. *Journal of Law & Economics,* 3(1), 1-44.

Dixit, A. 2002. Incentives and organizations in the public sector: an interpretative review. *The Journal of Human Resources,* 37(4), 696-727.

Engel, E., Fischer, R. and Galetovic, A., 2008. *The basic public finan ce of public-private partnerships*. Working paper No. 35, *Yale University* Department of Economics, New Haven, Connecticut.

Engel, E., Fischer, R. and Galetovic, A., 2011. Public-Private Partnerships to Revamp U.S. Infrastructure. *Discussion Paper 2011-02* The Hamilton Project - Brookings.

Evans, P., 1979. *Dependent development: the alliance of multinational, state and local capital in Brazil.* Princeton: Princeton University Press.

Evans, P., 1995. *Embedded autonomy: states and industrial transformation.* Princeton: Princeton University Press.

Greene, W. H., 2000. *Econometric Analysis.* Upper Saddle River: Prentice-Hall.

Guasch, J. L., Laffont, J. J. and Straub, S. 2008. Renegotiation of concession contracts in Latin America - Evidence from the water and transport sectors. *International Journal of Industrial Organization,* 26(2), 421-442.

Gulati, R., Lavie, D. and Singh, H. 2009. The nature of partnering experience and the gains from alliances. *Strategic Management Journal,* 30(11), 1213-1233.

Hammami, M., Ruhashyankiko, J.F., Yehoue, E., 2006. Determinants of Public-Private Partnerships in Infrastructure. *IMF Working Paper.* Washington, DC.

Hart, O. 2003a. Incomplete contracts and public ownership: Remarks, and an application to public-private partnerships. *Economic Journal,* 113(486), C69–C76.

Hart, O. D. 2003b. Incomplete Contracts and Public Ownership: Remarks, and an Application to Public-Private Partnerships. *The Economic Journal,* 113(486), C69-C76.

Hart, O. D., Shleifer, A. and Vishny, R. W. 1997b. The proper scope of government: theory and an application to prisons. *Quarterly Journal of Economics,* 112(4), 1127-1161.

Henisz, W. J. 2000. The institutional environment for multinational investment. *Journal of Law, Economics, and Organization,* 16(2), 334-364.

Henisz, W. J. 2002. The institutional environment for infrastructure investment. *Industrial and Corporate Change,* 11(2), 355-389.

Henisz, W. 2006. Governance issues in public private partnerships. *International Journal of Project Management,* 24(7), 537-538.

Hirschman, A. O., 1958. *The strategy of economic development.* New Haven: Yale Economic Press.

Hodge, G. A. and Greve, C. 2007. Public–private partnerships: an international performance review. *Public Administration Review,* 67(3), 545-558.

Hodge, G. A. and Greve, C. 2009. PPPs: The passage of time permits a sober reflection. *Economic Affairs,* 29(1), 33-39.

Hoetker, G. 2007. The use of logit and probit models in strategic management research: critical issues. *Strategic Management Journal,* 28(4), 331-343.

Inoue, C., Lazzarini, S. and Musacchio, A. 2013. Leviathan as a Minority Shareholder: Firm-Level Implications of Equity Purchases by the State. *Academy of Management Journal*.

Iossa, E. and Martimort, D. 2012. Risk allocation and the costs and benefits of public-private partnerships. *The RAND Journal of Economics,* 43(3), 442-474.

Jacobides, M. G. 2008. How capability differences, transaction costs, and learning curves interact to shape vertical scope. *Organization Science,* 19(2), 306-326.

Jacobides, M. G. and Billinger, S. 2006. Designing the boundaries of the firm: From "make, buy, or ally" to the dynamic benefits of vertical architecture. *Organization Science,* 17(2), 249-261.

Jacobides, M. G. and Hitt, L. M. 2005. Losing sight of the forest for the trees? Productive capabilities and gains from trade as drivers of vertical scope. *Strategic Management Journal,* 26(13), 1209-1227.

Jacobides, M. G. and Winter, S. G. 2005. The co-evolution of capabilities and transaction costs: explaining the institutional structure of production. *Strategic Management Journal,* 26(5), 495-413.

Kale, P., Dyer, J. H. and Singh, H. 2002. Alliance capability, stock market response, and long-term alliance success: the role of the alliance function. *Strategic Management Journal,* 23, 747-767.

Khanna, T. and Palepu, K. 2000. The future of business groups in emerging markets: long-run evidence from Chile. *Academy of Management Journal,* 43(3), 268-285.

Khanna, T., Palepu, K. and Sinha, J. 2005. Strategies that fit emerging markets. *Harvard Business Review,* (June), 63-76.

Kivleniece, I. and Quelin, B. V. 2012. Creating and Capturing Value in Public-Private Ties: A Private Actor's Perspective. *Academy of Management Review,* 37(2), 272-299.

Klein, P., Mahoney, J., McGahan, A., & Pitelis, C. 2010a. *Resources, capabilities, and routines in public organizations* . Paper Presented at the *SMS Conference*. Rome (Italy).

Klein, P. G., *et al.* 2010b. Toward a theory of public entrepreneurship. *European management review,* 7(1), 1-15.

Klein, P. G.*, et al.* 2013. Capabilities and strategic enterpreneurship in public organizations. *Strategic Entrepreneurship Journal,* 7, 70-91.

Kwak, Y. H., Chih, Y. and Ibbs, C. W. 2009. Towards a comprehensive understanding of public private partnerships for infrastructure development. *California Management Review,* 51(2), 51-78.

Lazzarini, S. G. 2013. Strategizing by the government: Can industrial policy create firm-level competitive advantage? *Strategic Management Journal*, DOI: 10.1002/smj.2204.

Mahoney, J. T., McGahan, A. M. and Pitelis, C. N. 2009. The interdependence of private and public interests. *Organization Science,* 20(6), 1034-1052.

Martimort, D. and Pouyet, J. 2008. To build or not to build: Normative and positive theories of public–private partnerships. *International Journal of Industrial Organization,* 26(2), 393-411.

Mayer, K. J. and Salomon, R. M. 2006. Capabilities, Contractual Hazards, and Governance: Integrating Resource-Based and Transaction Cost Perspectives. *Academy of Management Journal,* 49(5), 942-959.

McGahan, A. M., Zelner, B. A. and Barney, J. B. 2013. Entrepreneurship in the Public Interest: Introduction to the Special Issue. *Strategic Entrepreneurship Journal,* 7(1), 1-5.

Meyer, K. E. 2001. Institutions, transaction costs, and entry mode choice in eastern Europe. *Journal of International Business Studies,* 32(2), 357-367.

Meyer, K. E.*, et al.* 2009. Institutions, resources, and entry strategies in emerging economies. *Strategic Management Journal,* 30(1), 61-80.

Murphy, K. M., Shleifer, A. and Vishny, R. W. 1989. Industrialization and the big push. *The Journal of Political Economy,* 97(5), 1003-1026.

Murtha, T. P. and Lenway, S. A. 1994. Country capabilities and the strategic state: How national political institutions affect multinational corporations' strategies. *Strategic Management Journal,* 15(S2), 113-129.

North, D. C., 1990. *Institutions, institutional change and economic performance.* Cambridge: Cambridge University Press.

Novak, S. and Stern, S. 2008. How Does Outsourcing Affect Performance Dynamics? Evidence from the Automobile Industry. *Management Science,* 54(12), 1963-1979.

Peng, M. W.*, et al.* 2009. The Institution-Based View as a Third Leg for a Strategy Tripod. *Academy of Management Perspectives,* 23(3), 63-81.

Piening, E. P. 2013. Dynamic Capabilities in Public Organizations a Literature Review and Research Agenda. *Public Management Review,* 15(2), 209-245.

Rangan, S., Samii, R. and Van Wassenhove, L. N. 2006. Constructive partnerships: when alliances between private firms and public actors can enable creative strategies. *Academy of Management Review,* 31(3), 738-751.

Riess, A. 2005. Is the PPP model applicable across sectors? *EIB papers,* 10(2), 11-30.

Rivera-Santos, M. and Rufín, C. 2010. Odd couples: Understanding the governance of firm–NGO alliances. *Journal of Business Ethics,* 94(1), 55-70.

Rodrik, D. 2000. Institutions for high-quality growth: What they are and how to acquire them. *Studies in Comparative International Development,* 35(3), 3-31.

Rosenstein-Rodan, P. N. 1943. Problems of industrialisation of Eastern and South-eastern Europe. *Economic Journal,* 53, 202-211.

Rufin, C. and Rivera-Santos, M. 2010. Between commonweal and competition: Understanding the governance of public-private partnerships. *Journal of Management*, 1-21.

Shanley, M. and Peteraf, M. 2004. Vertical group formation: A social process perspective. *Managerial and Decision Economics,* 25(6-7), 473-488.

Spiller, P. T. 2010. Regulation: A Transaction Cost Perspective. *California Management Review,* 52(2), 147-158.

Teece, D. J., Pisano, G. P. and Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal,* 18, 509-533.

Trebat, T. J., 1983. *Brazil's state-owned enterprises: a case study of the state as entrepreneur.* Cambridge: Cambridge University Press.

Utting, P. and Zammit, A. 2009. United Nations - business partnerships: Good intentions and contradictory agendas. *Journal of Business Ethics,* 90, 39-56.

Weber, M., 1968. *Economy and society; an outline of interpretive sociology.* New York,: Bedminster Press.

Williamson, O. E. 1991. Comparative economic organization: the analysis of discrete structural alternatives. *Administrative Science Quarterly,* 36, 269-296.

Williamson, O. E. 1999a. Public and private bureaucracies: a transaction cost economics perspective. *Journal of Law, Economics and Organization,* 15(1), 306-342.

Table 1. Industry Indicators

Our Classification	**Sectors**	**Index**
Manufacturing	Chemicals, manufacturing	Manufacturing, value added (% of GDP)
Manufacturing	Chemicals, manufacturing	Chemicals (% of value added in manufacturing)
Mining	Copper Mining	Mineral rents (% of GDP)
Defense	Defense	Military expenditure (% of central government expenditure)
Defense	Defense	Military expenditure (% of GDP)
Fertilisers	Fertilisers	Fertilizer consumption (kilograms per hectare of arable land)
Hydroelectric	Hydroelectric	Electricity production from hydroelectric sources (% of total)
Hydroelectric	Hydroelectric	Electricity production from hydroelectric sources (kWh)
Petrochemicals	Petrochemicals	Petroleum production measured in thousands of barrels per day / inhabitants
Petrochemicals	Petrochemicals	Value of oil production/GDP (%)
Roads	Roads	Roads, total network (km) adjusted by land area
Roads	Roads	Roads, paved (% of total roads)
Water	Water Pipeline, Water Disposal/Treatment	Improved water source (% of population with access)

Water	Water Pipeline, Water Disposal/Treatment	Improved sanitation facilities (% of population with access)
Water	Water Pipeline, Water Disposal/Treatment	Investment in water and sanitation with private participation (current US$)
Education	Education	Secondary School enrollment (% gross)
Health	Services	Health expenditure, total (% of GDP)
Health	Services	Life expectancy at birth, total (years)
Office	Office	
Residential Estate	Residential Estate	Housing and Urban Infrastructure (% of GDP)
Residential Estate	Residential Estate	Investment in infrastructure with private participation (% of GDP)
Residential Estate	Residential Estate	Population in urban agglomerations of more than 1 million (% of total population)
Ticketing	Ticketing	

Table 2. Detailed description of the variables.

Status	**Name**	**Description**	**Measurement**	**Source**
DV	Private involvement	bundling or coverage of both organizational and contractual devices	1: BLT; 2: BOT, LROT; 3: BOO, BOOT, BOOMT; 4: DBOT, DBFO, DCMF.	PFI
IV	Public experience in PPPs	Cumulative capacity of public bodies to be involve in PPPs	General; Industry specific	PFI
	Private experience in PPPs	Cumulative capacity of public bodies to be involve in PPPs	Industry specific; Country specific	PFI

Dummies	Quality of institutions	Level of bureaucracy, transparency and ease to do business in a given country	(bureaucracy + bribing_corruption + transparency)/3 - 7 point-Likert scale on a national level	WCY
	Industry development	Level of development of amenities, capacities and services	Industry and Country specific indicator	-
Control	Cost of contract	Total amount	Logcost	PFI
	Population	Size	Logpop	World Bank
	GDP per capita	Gross Domestic Product	Gdcapita	World Bank
	Education level		Skilled labor	World Bank

	Competitive environment	Level of opening competitive environment	Competition legislation - 7 point-Likert scale on a national level	WCY
	Finance and Banking system	Ability to access to sources of financing means	Financial market availability	WCY
	1991-2012		Year trend	-

Note: PFI is Private Finance International by Thomson Reuters. WCY is the IMD World Competitiveness Yearbook. World Bank is the World Bank Development Indicators.

Table 3.Summary statistics and correlations

	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11
1. Private scope	2.07	0.76	1.00										
2. Public experience	5.14	4.63	0.23	1.00									
3. Private experience	0.77	1.49	0.12	0.54	1.00								
4. Institutional quality	0.48	0.50	0.36	-0.05	-0.06	1.00							
5. Industry development	0.58	0.49	-0.11	-0.58	-0.38	0.17	1.00						
6. Ln(Cost)	1.96	0.51	0.08	-0.06	-0.06	0.02	-0.02	1.00					
7. Ln(Population)	3.77	2.88	0.12	0.07	0.02	0.08	-0.03	0.04	1.00				
8. GDP per capita	27053.73	10945.33	0.16	0.62	0.33	-0.17	-0.29	-0.11	-0.01	1.00			
9. Skilled labor	5.47	1.13	0.05	0.01	0.05	0.16	0.05	-0.12	-0.04	0.12	1.00		
10. Competition legislation	5.83	1.03	0.29	0.32	0.17	0.46	-0.17	-0.10	0.08	0.27	0.56	1.00	
11. Financial market	257.82	72.06	0.17	0.41	0.16	0.10	-0.12	-0.01	0.11	0.37	0.19	0.28	1.00

Table 4

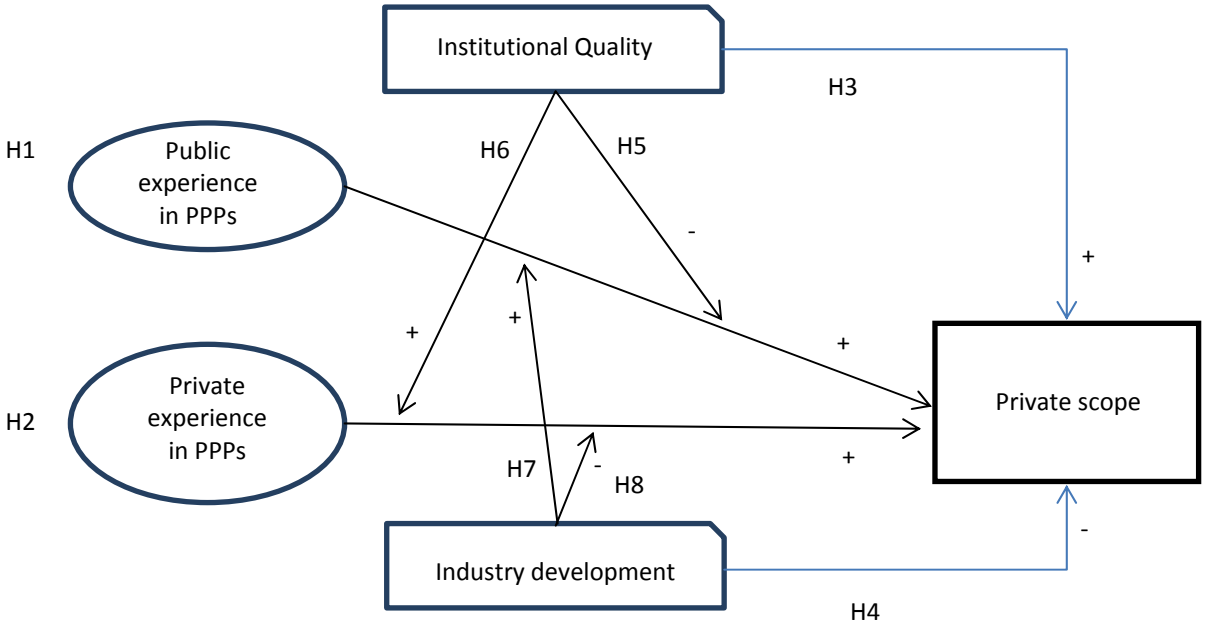
Determinants of private scope in PPPs: Ordered probit regression results

	All sample				Split sample			
					Institutional quality		Industry development	
					Low	High	Low	High
	(1)	(2)	(3)	(4)	(5a)	(5b)	(6a)	(6b)
Main effects								
Public experience	0.052**		0.053**	0.060***	0.068*	0.054*	0.048***	0.100**
	(0.025)		(0.023)	(0.021)	(0.036)	(0.028)	(0.018)	(0.042)
Private experience	0.034**		0.016	-0.031*	-0.020	0.056**	0.021***	0.004
	(0.017)		(0.016)	(0.016)	(0.020)	(0.028)	(0.008)	(0.061)
Institutional quality		0.666***	0.651***	1.044***			1.150***	0.207
		(0.141)	(0.148)	(0.327)			(0.181)	(0.232)
Industry development		-0.442***	-0.227	-0.112	-0.409	-0.087		
		(0.144)	(0.154)	(0.191)	(0.289)	(0.189)		
Interactions								
Public experience × Institutional				-0.002*				
				(0.001)				
Private experience × Institutional quality				0.126***				
				(0.041)				
Public experience × Industy development				-0.002**				
				(0.001)				
Private experience × Industry development				-0.049				
				(0.065)				
Control variables								
Ln(Cost)	0.166	0.157	0.157	0.094	0.180	0.161	0.234	0.237
	(0.161)	(0.130)	(0.136)	(0.132)	(0.115)	(0.210)	(0.161)	(0.228)
Ln(Population)	0.032***	0.034***	0.030***	0.033***	0.034*	0.022*	0.008	0.030*
	(0.011)	(0.010)	(0.010)	(0.011)	(0.019)	(0.013)	(0.010)	(0.016)
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Skilled labor	-0.073	-0.074	-0.040	-0.039	-0.078	-0.045	-0.030	-0.074
	(0.093)	(0.063)	(0.070)	(0.077)	(0.167)	(0.060)	(0.112)	(0.072)
Competition legislation	0.280***	0.156	0.124	0.121	0.229	-0.082	0.084	0.217*
	(0.108)	(0.100)	(0.103)	(0.124)	(0.163)	(0.207)	(0.116)	(0.120)
Financial market	0.000	0.002	0.001	0.001	0.000	-0.001	-0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)	(0.003)	(0.001)
Year trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	487	475	475	475	240	235	201	274
p (Chi-square test)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

*** p < 0.01 ** p < 0.05 * p < 0.10. Robust standard errors in parenthesis, clustered in each country.

Figure 1. Analytical model



Control variables:
Cost, population, GDP per capita, availability of skilled labor, Competition legislation, financial market availability, year trend