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On the Development of Public–Private Partnerships in Transitional Economies: An Explanatory Framework

This article develops a generic framework to explain the environment for public–private partnership (PPP) development in transitional economies. The framework stands on a tripod that includes the market, the operating environment, and the government, each containing several factors that support aspects of PPPs. The authors apply the framework to analyze the results of a multi-country survey in an effort to identify key factors that facilitate PPP development in transition countries. The identified factors are market potential, institutional guarantee, government credibility, financial accessibility, government capacity, consolidated management, and corruption control. The framework and identified factors may serve as effective tools to diagnose and monitor PPP development in a broader array of countries. The framework is applied in analyzing data from four transitional economies and several advanced economies. The efficacy of the framework is further justified by its explanatory power of PPPs' practicality and is largely confirmed by results from a sensitivity test.

Public–private partnerships (PPPs) are long-term cooperative relationships that are established between the public and private sectors for the purposes of planning, designing, financing, constructing, and managing projects that are traditionally within the realm of the public sector (Ho 2006). PPPs are situated along a complex continuum of hybrid forms (Perry and Rainey 1988; Koppell 2003) between complete public ownership on one side and complete privatization on the other side. Under contractual agreements, public and private entities jointly provide public services and share both risks and benefits (Forrer et al. 2010). Such partnerships afford synergetic advantages: private enterprises benefit from government-supported strategies to harvest stable and reasonable returns on their investments (Scharle 2002), while public agencies benefit from the professional and cost-efficient operation of private enterprises in service

delivery (Savas 2000). Since their creation, the use of PPPs has spread from traditional hard infrastructure (transit, railways, bridges, and highways) to soft infrastructure (education, health care, and emergency service) (Hodge and Greve 2007). Today, PPPs are an important means by which governments deliver public services.

Public–private partnerships have been widely and successfully adopted in many advanced market economies, such as Australia, Hong Kong, and the United States, because of their mature legal systems, transparent policy making and regulations, stable economies, strong financing capabilities, and adherence to risk-sharing principles. In the United States, municipalities have observed a dramatic rise in the mixed public–private delivery (joint contracting) of city services (Warner and Hefetz 2008). In recent years, transitional economies that previously relied on government expenditures have also begun to adopt PPPs as a supplemental strategy, particularly at the local level to finance hard infrastructure (Grimsey and Lewis 2004). Major barriers to the development of PPPs in transitional economies, such as underdevelopment, unstable macroeconomic environments, and the absence of necessary institutions, are the inverses of the conditions that are favorable to the development of PPPs in advanced economies. However, given their strong demand for facilities and services (Jamali 2004), transitional economies have great potential in terms of creating PPPs for public service delivery.

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government, each containing several factors that support aspects of PPPs. We apply the framework to analyze the results of a recent multicountry survey in an effort

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to identify key factors that facilitate PPP development in transition countries. The framework and identified critical factors may serve as effective tools to diagnose and monitor PPP development in a broader array of countries.

This article is organized as follows: First, we review the literature on critical factors, theoretical frameworks, methodology, and sampling. The next section presents our framework and hypotheses. Then we discuss research design and follow with a discussion of the empirical results. The article concludes with a summary and directions for future research.

Literature Review

The scholarly literature on PPP development has grown rapidly since the 1990s. Most studies, however, are about advanced economies; research on PPPs in transitional economies is increasing, but at a much slower pace.

Critical Factors

Many studies have discussed key factors that influence the adoption of PPPs (Chan et al. 2010; Field and Peck 2004; Jamali 2004; Roseneau 1999; Van Slyke 2003; Zhang 2005). Some studies offer insight into the overall environment in which PPPs operate. One major stream of research discusses key factors that motivate the formation of PPPs. Alter and Hage (1993) study public–private collaboration in health service delivery in the United States and argue that a collaborative partnership can start when players in the two sectors both perceive the need and are willing to collaborate. Miller (2000) attributes the proliferation of PPPs to the desire for performance improvement, cost reduction, environmental protection, and increasing competition. Samii, Van Wassenhove, and Bhattacharya (2002) highlight key requirements for the formation of effective PPPs, which include resource dependency, commitment symmetry, common goal symmetry, intensive communication, alignment of cooperation learning capability, and converging working cultures.

Prominent in this literature are studies that dissect impediments to or facilitators of PPP implementation. Bovaird (2004) and Hofmeister and Borchert (2004) argue that PPPs cannot function in the absence of “good governance,” which is interpreted as and decomposed into accountability, responsiveness, transparency, equity, and participation. A PPP project with good governance should establish an institutional framework and incentive structure to reconcile private sector participation with public value and long-term sustainability (Koppenjan and Enserink 2009). Jamali (2004) emphasizes the importance of a sound legal and regulatory system to provide a fair and transparent operating environment and a strong administrative structure to steer and guide policy implementation. Using a factor analysis with 18 factors that are critical for the success of PPPs, Li, Edwards, and Hardcastle (2005) identify five factor groupings for PPP projects: effective procurement, project implementability, government guarantees, favorable economic conditions, and financial market availability.

Bloomfield (2006) echoes the emphasis on governance from the government side. To successfully complete long-term PPP contracts, partnering governments must invest

in specialized expertise and effective contract management. Kettl (1993) and Field and Peck (2004) interpret this capability as selecting contractual partners, forecasting the future operating environment, negotiating the form and content of contracts, and managing, monitoring, and enforcing contracts. Without investment in adequate expertise as a proxy for capabilities, localities are unable to regulate, monitor, and control long-term contractual relations; thus, the introduction of PPPs would be likely to fail and undermine public interests (Awortwi 2004). Hodge and Greve (2007) find that many PPP relationships become strained after the contracts are signed. There have been reports of such frustrations in Latin American countries, where approximately half of the concession contracts signed since the mid-1980s eventually were renegotiated (Guasch 2004). One of the adverse consequences of such cases is the decrease of private investment in public infrastructure in transition countries (Noel and Brzeski 2004).

In transition countries, despite the apparently enormous potential for private involvement in the financing and operation of hard infrastructure, the actual application of PPPs has been slow and limited. Queiroz (2007) attributes this phenomenon to the lack of an appropriate legal framework, economic and political instability, and, consequently, high perceived risk. Some scholars have concluded that PPP development in transition countries requires rapid development in procedures, market awareness, institutional acceptance, and risk taking (Snelson 2007). The performance of PPP projects in transition countries is also affected by the political will of senior leadership, incentive mechanisms, contract enforceability, and regulatory capabilities (Ménard and Shirley 2002). Despite wide discussions about factors influencing PPP adoption, these factors have not been integrated into a coherent conceptual framework that allows for systematic examination of PPP development. Thus, simply listing key factors without a coherent theoretical framework will not provide explanatory power.

Theoretical Frameworks

Previous studies have attempted to formulate frameworks to explain the adoption of PPPs. In the conceptual framework of Bazzoli et al. (1997), three components are crucial: operating environment, partnership structure, and nature of the activities. More recently, Field and Peck (2004) distinguish internal drivers from external enablers for successful public–private collaboration. Internal drivers reside with relevant parties that perceive the need and have the intention to collaborate. External enablers refer to the operating environment and the ability of parties to collaborate. Brown, Potoski, and Van Slyke (2006) note that public service contracting should align public values, institutions, and service market conditions across three phases in contracting: deciding to make or buy, selecting vendors, and deploying tools to oversee contract implementation.

Because PPPs are relatively new in transition countries, few frameworks have been proposed. Zhang’s (2005) study of PPP adoption examines five successful factors, but these factors do not compose a consistent framework. Similarly, Chan et al. (2010) assemble a net of six potential PPP obstacles that also fall short of a coherent framework. In summary, despite an apparent flourishing of research on

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individual elements, there has been a general lack of frameworks for holistic studies. This article seeks to fill the void by attempting to identify critical factors within a coherent framework.

Methodology and Sampling

The study of PPPs in the West has been mostly conducted with methodological rigor, using a plethora of methods. Similar research that has been conducted in transitional economies has shown a steep learning curve. Zhang (2005) and Chan et al. (2010) use carefully designed questionnaires, with the former utilizing a cross-country survey. Li, Edwards, and Hardcastle (2005) use a factor analysis to identify factors that are critical for PPP success. Here, we advance further by conducting not only exploratory factor analysis but also logistic regression analysis to identify critical factors and to test the validity of our framework.

Samples in previous studies of transition countries have typically been small. The survey conducted by Zhang (2005) includes only 46 responses. Considering the larger number of countries (13) covered in the study, the average number of observations from each sampled country (3.5) is too small to be representative and too minimal for generalization or examination of cross-country differences. We will improve on sampling by using a smaller number of representative countries from advanced and transitional economies, but a much larger number of observations from each type of country. Thus, although our sample size remains less than optimal, it presents a substantive improvement on previous research.

Analytical Framework

In this section, we develop a coherent framework for analyzing the factors that are conducive to PPP development in transitional economies. We integrate and extend existing frameworks to a broader array of country contexts and specify the qualifications therein. Our framework builds on the four stages of the economic transition process as defined by the International Monetary Fund (IMF 2000). These stages are (1) economic liberalization, (2) macroeconomic stabilization, (3) restructuring and privatization, and (4) legal and institutional reforms. The framework employs a tripod structure and operates on three mutually supporting and reinforcing pillars: the market, the operating environment, and the government. Using the analogy of a football game, the market consists of a physical element, field conditions, and an intangible element, the target audience; the operating environment provides the rules for the game; and the government plays the role of the referee and the organizing committee. Thereby, the game proceeds orderly.

Market

The pursuit of rich returns is the foremost consideration from the perspective of private partners (Scharle 2002). To develop PPPs in an economy, a market must exist such that PPP projects are profitable to undertake, the private sector is willing to participate, and the financial market is willing to invest. For the market assumption to hold in a transition country, the government must be ready and willing to recede from the identified market in which the government previously dominated but was unable to deliver services cost-efficiently or to satisfy its citizens.

Operating Environment

Opening an identified market to PPPs demands a favorable environment to ensure that private partners can operate with a (low) level of production costs and a reduction in public sector restraints. The operating environment is composed of at least two essential elements. First and foremost is the presence (or expectation) of laws as the “rules of the game.” The introduction of PPPs exerts unprecedented pressure on the legal system. As Jamali (2004) reveals, laws provide assurance to private partners for safeguarding their interests and alleviating risk. A sound legal system also assists in ensuring the efficient operation of partnerships in accordance with broader policy objectives (Zouggari 2003); in contrast, in the absence of the rule of law, insoluble disputes are inevitable, frequent, and painful for private partners (Grimsey and Lewis 2004). The second element is the presence of anticorruption mechanisms. Transparency is important: partnerships cannot work without a thorough understanding of the operating environment on each side (Hofmeister and Borchert 2004). Corruption is defined as the exercise of public power for either private gain or state capture. Corruption frequently occurs in PPPs in which the government supervision agency or its affiliate is also a partner (investor or party of interest) in the project. Corruption imposes heavy transaction costs on private partners. Anticorruption measures fall into numerous categories. Examples include the improvement of openness, fairness, and transparency in the bidding process; the enforcement of the supervision of operation; and the strengthening of performance, evaluation, and auditing. Neshkova and Kostadinova (2012) find that administrative reform in Eastern Europe facilitates transparent governance, which contributes to curbing corruption and attracting foreign investment.

Government

Redefining the role and responsibilities of the government in public service delivery is critical. PPPs do not necessarily imply “less government” but rather pose a different role for government (Jamali 2004). The stronger position held by the private partners (in technology, capital, and information) requires more skilled government participation (Scharle 2002), particularly with regard to negotiation, operation, and supervision. The government (agencies), whether it participates as a partner or regulator, must possess the appropriate aptitude in terms of expertise, knowledge, and information, as well as the means to acquire the appropriate aptitudes if it does not yet possess them. Kort and Klijn (2011) indicate that in a PPP project, the managerial capability of the government is more important than organizational form in terms of performance enhancement.

One crucial feature on the government side is its credibility as a basis for attracting private investment. To facilitate smooth PPP project management, a participating government must demonstrate credibility as a responsive and responsible party in all contractual relations. Previous studies have identified key contributors to government credibility (Henisz 2002; Levy and Spiller 1994; Ménard and Shirley 2002; Neshkova and Kostadinova 2012; Stasavage 2002). Among them are political checks and balances, an independent juridical system, and independent regulation. A lack of government credibility is epidemic in transition countries. As Ho (2006) notes, some local governments in transitional

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economies promise more than they can deliver to attract foreign investment. With each government change, new officials may eagerly seek ways to terminate agreements that they believe to be unfair or unreasonable.

Consolidated mechanisms must exist to ensure that the government can participate as a partner. A successful PPP requires a strong central administration structure to steer and guide policy implementation (Jamali 2004). Managerial and administrative problems represent risks for private companies that wish to invest in public facilities and services. Transitional economies often lack the administrative arrangement that is conducive to PPP projects. It may be unclear which of the multifarious government departments has the authority to negotiate and sign a contract and whether a promise from an appointed government representative is enforceable (Ho 2006).

Our tripod framework, which contains three pillars and several factors, is illustrated in figure 1. The *market* encompasses three of the four stages of economic reform identified by the IMF; the *operating environment* overlaps with legal and institutional reforms in the IMF model, and the *government* carries elements of all four IMF stages. The tripods are reinforced by interpillar connections. Between the *market* and the *government* is a “financial or credit guarantee (by the government),” which is especially crucial in transitional economies in which the market is not yet mature and access to the financial market is often hindered by ambiguous rules. The *operating environment* and the *government* are connected by “coordination,” in that the transition process is not smooth or even, the development of the rule of law system requires time, and transparency is a gradual process of permeating the social structure. Linking all three pods is the “leadership” role of government, which represents and accounts for the political will of government and its leaders in promoting market-oriented economic reforms and practices. These connections reinforce the tripod structure to render it stronger and more operable in the transition context of reformist countries.

During the transition process, the development of the *government* and the *operating environment* often lags behind that of the *market*.

For a transitional economy, the three pillars may not develop equally, particularly in the early stages of transition; however, the overall trend is moving toward balance and coordination. During the transition process, the development of the *government* and the *operating environment* often lags behind that of the *market*. The transition process enhances the capacity and credibility of the government and creates a fairer and more transparent and efficient operating environment as the last two stages defined by the IMF (2000), restructuring and privatization, as well as legal and institutional reforms.

Placing the framework in the context of the transition process more adequately explains the case of transitional economies—mutual amelioration and coordinated evolution among the three pillars.

Working Hypotheses

In this subsection, we develop working hypotheses on the contributors to PPP development in transitional economies based on the foregoing framework. From the three pillars, we develop three major hypotheses, each associated with two or three supplemental hypotheses. Then we develop three more hypotheses about the transition process.

Market

The profitability of a specific PPP market is an essential consideration for private enterprises (Scharle 2002), for which the natural monopoly of public goods and stable returns on investment are the triggering incentives for their involvement in public facilities and services. A mature financial market can assist enterprises in raising funds at lower costs with less risk, which may, in turn, contribute to lowering the cost of public service delivery and thereby maximizing public welfare (Noel and Brzeski 2004). These intricacies are summarized in our first hypothesis:

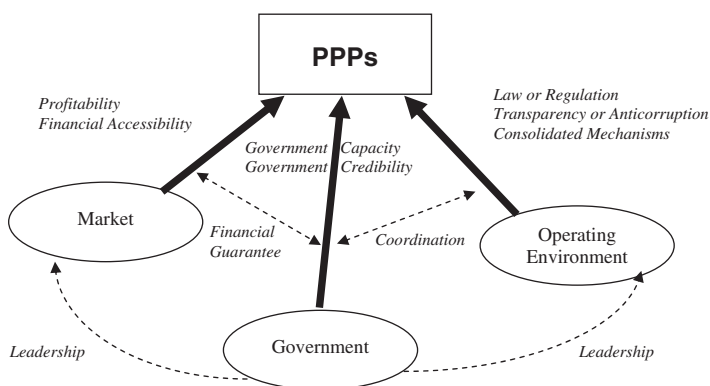
Hypothesis 1: The availability and identification of a market is positively related to PPP adoption.

Hypothesis 1a: The prospect of profitability is positively related to PPP adoption.

Hypothesis 1b: The availability of and access to domestic and international capital are positively related to PPP adoption.

Operating Environment

Previous research has shown that institutional uncertainty is one of the major obstacles to PPP development in transition countries (Brewer and Hayllar 2005). A sound institutional and legal system, transparent government regulation, and strong political will of senior leadership inspire the confidence of private partners and facilitate efficient PPP operations. The consolidation of government participation in PPP projects, including negotiation, approval, enforcement, and supervision, is helpful in terms of mitigating or eliminating conflicts among relevant government agencies and providing private partners with a clear and user-friendly road map for interacting with the government. Scholars have observed that consolidation implies a certain extent of centralized management, which reduces the transparency of government operations and



Note: Only the important factors are included in this figure and discussed in the text. This is by no means a full list of all factors. It is not the purpose of this study to identify an exhaustive set of factors. The factors identified in the empirical analysis are but some of the most crucial ones, a subset of the total.

Figure 1 Theoretical Framework of PPP Development in Transitional Economies

increases the possibility of public agency rent seeking (Bloomfield 2006; Romzek and Johnston 2002). A lack of mature institutions and corruption are common in PPP operations in transition countries. Although it can be argued that corruption sometimes eases the approval and enforcement of PPP contracts, it also damages fair competition and investor confidence in the long term. Therefore, the ability of governments to prevent, control, and eliminate corruption is crucial in safeguarding a fair market. This point leads to our second hypothesis:

Hypothesis 2: The existence (or expectation) of a favorable, supporting environment with political endorsement is positively related to PPP adoption.

Hypothesis 2a: The presence of mature or improving legal institutions contributes to PPP adoption.

Hypothesis 2b: Mechanisms of consolidated government participation are positive with regard to PPP adoption.

Hypothesis 2c: Anticorruption measures benefit PPP adoption.

Government

PPP-related government capacity refers to the expertise, knowledge, and information that government agencies possess with regard to negotiating, operating, and supervising PPP projects. Such capacity is a prerequisite for public agencies to successfully initiate, contract, and manage PPP projects (Brown and Potoski 2003a, 2003b), which, in turn, guarantees that the provision of public services by the private sector will not sacrifice or compromise public interests (Inkpen and Beamish 1997; Yan and Gray 1994).

Government credibility is related to and equally important as technical capacity. Government credibility is crucial for the protection of private investment in public facilities and services in transition countries, given that their market is not mature and their regulatory and legal systems are far from firmly established. Studies have shown that undermining government credibility increases uncertainty and risk in PPP operations (Levy and Spiller 1994). It is important to enhance government credibility in PPP projects by strengthening rule-based administration in an effort to secure the interests of private partners (Stasavage 2002). Thus, we present our third hypothesis:

Hypothesis 3: Government capacity and credibility are positively related to PPP adoption.

Hypothesis 3a: Stronger technical capacity better positions the government in contracting and operating PPPs.

Hypothesis 3b: Higher credibility boosts the confidence of private partners, protects their interest, and thus leads to more widespread adoption of PPPs.

Dynamic Transition Process

A transitional economy is one that is changing from a centrally planned economy to a market economy. An incrementally liberalizing economy provides private investors with lucrative market space that was originally controlled by the government.

Hypothesis 4: Transitional economies exhibit greater market potential than advanced economies for PPP adoption.

The transition process is typically characterized by the alteration and creation of institutions. In essence, the transition process is the functional restructuring of state institutions from growth providers to enablers. A transitional economy must create fundamentally different government institutions and promote privately owned enterprises, markets, and independent financial institutions. The major objective of the transition process is the establishment of institutional and legal systems for a more equitable, transparent, and efficient operation environment. For PPP development, we thus propose,

Hypothesis 5: The operating environment for PPPs improves as transition deepens.

Hypothesis 5a: The institutions and the legal system incrementally improve.

Hypothesis 5b: The participation of relevant government agencies becomes increasingly consolidated.

The speed of economic reforms is not the only important determinant of the success of the transition to a market economy; the transition of a government from a centralized state to an institution supporting a market economy is equally critical. Governments that have recently abandoned central planning struggle to grasp the change of their role in the market from providers to enablers of growth. For these governments, the transition process entails developing their capacity to manage a market economy.

Hypothesis 6: Government capacity and credibility continually improve as the transition process deepens.

Hypothesis 6a: Government capacity in managing PPP projects improves.

Hypothesis 6b: The government builds its credibility over the transition process to inspire the confidence of private partners in PPP project implementation.

Next, we test these hypotheses with data that we collected first-hand through cross-country surveys. We will use weighted logistic regression to test hypotheses 1, 2, and 3 and use cross-group comparisons between transitional and advanced economies to test hypotheses 4, 5, and 6.

Research Design

Sampling Method

To investigate PPP development in transitional economies, a cross-country research team designed and implemented small-sample interviews and a survey in 2007.¹ The survey was conducted in four transition countries (China, Poland, Russia, and Ukraine) used as the treatment group and eight advanced economies (see note to table 2) used as the reference group. The latter group was included to highlight the peculiar features of transition countries in PPP development.

The team used the snowball sampling technique to identify the respondents who had experience with and knowledge of PPPs from different perspectives. In each economy, the team first interviewed several renowned figures in PPPs, who then recommended candidates for the team to survey and interview in the second round. This process

continued for several rounds until the team had obtained its target number of interviewees. The respondents in each transition country were selected as representatives of the public sector, the private sector, and civil society. The public sector respondents were primarily officials in central or local governments with experience in PPP management, and the private sector respondents were mainly senior executives who had participated in PPP management. Those from civil society were experts or academicians who specialized in PPP research.

Qualitative Interviews

The research began with open-ended, face-to-face qualitative interviews in the selected transition countries. The interviewers encouraged the interviewees to freely share their opinions on topics related to PPP development in their respective countries from a general perspective. These topics were predetermined by the research team and included the following: (1) roles in and current development of PPPs, (2) institutional and legal environment of PPPs, (3) obstacles impeding PPP development or critical factors for the success of PPPs, and (4) contributions of PPPs toward improving local public service delivery and facilitating technological transfer. We conducted a total of 79 successful interviews in the four selected transition countries.

Survey

Using the interviews that were conducted, the team identified topics (questions) and their categories that the team deemed appropriate and took these as the basis for the design of a quantitative, standardized, and structured questionnaire. Combining the interview results with findings in the existing literature, the team identified 15 key obstacles that the interviewees believed impede the development (*formation* and *implementation*) of PPPs, as shown in table 1. These 15 obstacles were then incorporated into an important section in the questionnaire. The survey respondents were asked to evaluate the 15 obstacles impeding PPP development in their respective countries on a scale of 1 (not important at all) to 4 (very important). Higher scores indicate that a specific obstacle is considered a greater impediment. We also requested information regarding the demographic characteristics of the respondents (nationality, age, affiliation, and education) and their familiarity with PPPs.

The surveys were distributed by e-mail or regular mail in the same countries to capture the perceptual evaluation of individuals from the three sectors on key aspects related to PPP development. The

Table 1 Identified Obstacles to PPP Development

Key Indicators	
1	Lack of international finance
2	Lack of local finance
3	Absence or weakness of state guarantees
4	Weak laws and standards
5	Lack of political will on the part of politicians to change traditional ways of building and managing infrastructure
6	Absence of centralized system of PPP management at the national level
7	Unclear decision-making process for PPP projects at the state level
8	Lack of knowledge and information on the PPPs
9	Lack of experience in development of PPPs
10	Lack of legal structure and procedures to inspire confidence
11	Lack of government regulations to guarantee efficient PPP operation
12	Corruption, lobbies
13	Lack of attraction for private investors in general
14	Lack of return on investment for private investors
15	Lack of lucrative market for private investors

Table 2 Distribution of Survey Respondents by Country and Sector

	Public Sector	Private Sector	Civil Society	Total
Advanced economies	4	10	8	22*
China	27	9	2	38
Poland	18	7	3	28
Russia	8	5	13	26
Ukraine	6	5	4	15
Total	63	32	26	129

*The distribution of respondents from advanced economies is as follows: 8, United States; 4, Switzerland; 2, France; 2, United Kingdom; 2, Germany; 1, Spain; 1, Ireland; 1, Austria; and 1, Belgium.

respondent selection method was identical to that used for the interviews. The same questionnaires were used for both the transition countries and the advanced economies. The interviewees in the first stage of the project were also invited to complete the questionnaire. In total, 129 valid, completed surveys were collected. Table 2 provides summary statistics for sample distribution by country and sector. This data set ($N = 129$) will be used for the empirical analyses.

Empirical Analyses and Results

Our survey analyses began with descriptive statistics (the mean score) for the 15 obstacles and an independent sample t -test to identify differences between the two groups of sample countries. Then, we performed an exploratory factor analysis to extract the underlying key factors of the 15 obstacles in an effort to generalize and provide evidence for our theoretical framework. Next, we conducted an independent sample t -test of the identified key variables to test their validity and consistency with the results for all 15 variables. Finally, we conducted a weighted logistic regression to test our working hypotheses.

Descriptive Statistics and Comparison of Transitional and Advanced Economies

Descriptive statistics for the 15 obstacles are presented in panel 1 of table 3 in descending order by mean scores (on a scale of 1–4) that indicate the weight that our survey respondents assigned to each obstacle. According to the mean scores, the most prominent obstacles to PPP development are those related to institutions and government capacity. The former includes laws, regulation, legal structure, and procedures; the latter are variables connected to the government, including its knowledge and experience, decision-making mechanisms, administrative systems, and credibility. Financial accessibility and market attraction pose the least obstacles to PPP development.

The results from the independent sample t -tests (panel 2 of table 3) demonstrate that transitional economies and advanced economies differ significantly in their mean ratings for 6 of the 15 obstacles. A negative t -value indicates that an obstacle is a less important factor in the advanced economies than in the transitional economies or that this obstacle constitutes a greater impediment to the development of PPPs in transition countries. The results identify four obstacles as substantially weakening transition countries in PPP development. These obstacles are “legal structure and procedures” ($t = -3.25, p < .01$), “laws and standards” ($t = -3.02, p < .01$), “government regulation” ($t = -1.96, p < .1$), and “government guarantee” ($t = -1.77, p < .05$). Thus, the data confirm that transitioning to a market economy is an incremental process of building institutions and government capacity. The incremental nature of the process

Table 3 Obstacles to PPP Development: Descriptive Statistics and Cross-Country Type Comparison

Factors	Panel 1						Panel 2			
	All (N = 129)		Advanced Economies (N = 22)		Transitional Economies (N = 107)		Independent Sample t-tests (advanced versus transitional)			
	Mean [†]	SD	Mean	SD	Mean	SD	t	df	p	Mean Difference
Weak laws and standards	3.43	0.79	2.95	0.76	3.51	0.77	-3.02***	125	.00	-0.56
Unclear decision-making process for PPP projects at the state level	3.34	0.89	3.45	0.59	3.32	0.94	0.88	45.5	.39	0.13
Lack of knowledge and information on the PPPs	3.34	0.83	3.27	0.70	3.35	0.86	-0.39	123	.70	-0.08
Lack of experience in development of PPPs	3.34	0.76	3.36	0.49	3.33	0.80	0.26	47.6	.79	0.03
Lack of political will on the part of politicians to change traditional ways of building and managing infrastructure	3.29	0.95	3.41	0.67	3.26	0.99	0.87	43.5	.39	0.15
Absence or weakness of state guarantees	3.23	0.84	2.95	0.76	3.28	0.85	-1.77**	28.7	.08	-0.33
Lack of legal structure and procedures to inspire confidence	3.16	0.91	2.73	0.63	3.25	0.94	-3.25***	42.8	.00	-0.52
Absence of centralized system of PPP management at the national level	3.08	1.03	3.43	0.93	3.01	1.04	1.72*	125	.09	0.42
Lack of government regulations to guarantee efficient PPP operation	3.04	0.95	2.68	0.84	3.12	0.96	-1.96*	123	.05	-0.44
Corruption, lobbies	2.74	1.09	2.59	0.96	2.77	1.12	-0.68	123	.49	-0.18
Lack of local finance	2.66	1.02	2.50	1.00	2.69	1.03	-0.76	121	.45	-0.19
Lack of attraction for private investors in general	2.39	1.05	2.71	0.96	2.33	1.06	1.56	123	.12	0.38
Lack of return on investment for private investors	2.28	0.96	2.20	0.77	2.29	1.00	-0.48	33.1	.64	-0.09
Lack of lucrative market for private investors	2.27	0.99	2.57	0.68	2.21	1.03	2.04**	40.9	.04	0.36
Lack of international finance	1.98	1.05	1.79	0.79	2.01	1.08	-0.84	122	.40	-0.22

[†]The mean scores are calculated from a 1–4 scale, where 1 = “not important at all” and 4 = “very important.”

* $p < .1$; ** $p < .05$; *** $p < .01$.

entails increasingly liberalizing domestic markets in transitional economies, which boast significant business potential for PPP development (“lucrative market,” $t = 2.04$, $p < .05$), although these countries encounter greater institutional and legal risks. Moreover, their centralized management systems, which have been partially inherited from their former planned economies, serve to simplify procedures and facilitate coordination in PPP project management (“centralized system,” $t = 1.72$, $p < .01$). The positive sign indicates that transitional economies tend to perform better than advanced economies on the last two measures.

Identifying Critical Factors with Exploratory Factor Analysis

Next, we conducted an exploratory factor analysis with principal component estimation and varimax rotation. The purpose is to

identify a smaller number of factors from among the 15 obstacles that promise strong explanatory power about the observed correlations. The varimax rotation method makes each original variable load highly on one and only one factor to enhance the interpretability of the factor pattern. The factors thereby identified can be conceptualized as linear combinations of related variables.

First, we used the Kaiser-Meyer-Olkin measure to examine the homogeneity of the variables and obtained a value of 0.62, which (being greater than 0.5) suggests that the data are appropriate for factoring. We extracted seven meaningful factors that accounted for 73.5 percent of the total variation in the observed variables. The item loadings for each factor after varimax rotation are presented in table 4. Factors with large coefficients (in absolute value) for a

Table 4 Rotated Factor Loadings and Communalities (h^2) on PPP Obstacles

Item	Factors (t)							CC (*)	h^2
	MP $\alpha = .78$	IG $\alpha = .70$	GCR $\alpha = .65$	FA $\alpha = .56$	GCA $\alpha = .55$	CM $\alpha = .67$			
Lack of lucrative market for private investors	0.868	-0.010	0.213	-0.126	0.024	0.091	-0.088	0.831	
Lack of return on investment for private investors	0.828	0.143	0.006	0.125	-0.156	-0.104	0.048	0.759	
Lack of attraction for private investors in general	0.728	0.165	-0.041	-0.083	-0.026	0.167	0.191	0.631	
Lack of legal structure and procedures to inspire confidence	0.146	0.873	0.170	-0.023	-0.042	-0.067	0.083	0.827	
Lack of government regulations to guarantee efficient PPP operation	0.123	0.865	0.047	0.048	-0.061	0.008	0.151	0.795	
Lack of political will on the part of politicians to change traditional ways of building and managing infrastructure	0.017	0.508	0.002	0.074	0.304	0.345	-0.091	0.484	
Weak laws and standards	0.015	0.175	0.857	-0.127	0.122	0.059	-0.090	0.807	
Absence or weakness of state guarantees	0.136	0.030	0.818	0.213	-0.110	0.000	0.153	0.770	
Lack of international finance	0.117	0.073	-0.108	0.814	0.012	0.045	-0.088	0.704	
Lack of local finance	-0.199	-0.039	0.204	0.730	0.033	0.091	0.074	0.631	
Lack of experience in development of PPPs	-0.081	-0.071	0.041	-0.031	0.908	-0.058	0.098	0.852	
Lack of knowledge and information on the PPPs	-0.131	0.201	-0.103	0.312	0.504	0.066	-0.488	0.662	
Absence of centralized system of PPP management at the national level	0.147	-0.040	0.041	0.025	-0.150	0.851	-0.142	0.792	
Unclear decision-making process for PPP projects at the state level	-0.066	0.166	0.042	0.326	0.334	0.586	0.344	0.713	
Corruption, lobbies	0.082	0.199	0.018	0.026	0.080	-0.043	0.845	0.770	

*MP = market potential, IG = institutional guarantee, GCR = government credibility, FA = financial accessibility, GCA = government capacity, CM = consolidated management, and CC = corruption control.

* Cronbach's alpha is not calculated for factors with a single indicator.

variable are closely related to the variable. Each of the seven factors reflects one unique aspect that impedes PPP development. The meaning of each factor is induced from those items heavily loading on it. The factors are thus named *market potential*, *institutional guarantee*, *government credibility*, *financial accessibility*, *government capacity*, *consolidated management*, and *corruption control*. The seven underlying factors (constructs) are consistent with a prior content analysis and cover most of the constructs in the proposed conceptual framework. The 15 obstacles are generally well explained by the seven-factor solution that is depicted in table 4. Community values range from 0.484 to 0.852.

We examined the internal consistency of each factor using the Cronbach's alpha coefficient. As shown in table 4, among the six factors with more than two indicators, four factors had acceptable internal consistency, with Cronbach's alpha coefficients ranging from .65 to .78. Two factors, *financial accessibility* and *government capacity*, were in the marginal range, with alpha coefficients of .56 and .55, respectively. The coefficient was not calculated for *corruption control*, which has only one indicator.

Comparison of Transitional and Advanced Economies with Critical Factors

Next, we estimated the factor scores using the Thomson regression method and used the estimates as variables in subsequent analyses. The factor scores have a mean of 0 and a standard deviation of 1. The questions in the questionnaire were negatively worded to reflect a lack or absence of particular aspects; the factor scores are positive linear combinations of the original standardized variables, which reflect the meaning in the same direction as these original variables. To enhance understanding and facilitate interpretation, we reversed the sign of the factor scores to ensure that higher scores indicate a more positive evaluation.

Then, we reran an independent sample *t*-test with the seven scored factors (with signs reversed) to compare the PPP development in transitional and advanced economies. The results are shown in table 5. A positive *t*-value reflects a favorable position for advanced economies in comparison with transitional economies and vice versa. Advanced economies are perceived significantly more favorably than transitional economies with regard to *institutional guarantee* ($t = 2.26, p < .05$) and *government credibility* ($t = 2.47, p < .05$) but significantly less favorably with regard to *market potential* ($t = -1.81, p < .10$) and *consolidated management* ($t = -2.51, p < .05$). We found no statistically significant difference between the two groups with regard to *financial accessibility*, *government capacity*, and *corruption control*. These results are consistent with those in table 3 but are

Table 5 Independent Sample *t*-test with Scored Factors (advanced versus transitional economies)

	<i>t</i>	df	P	Mean Difference
Market potential	-1.811*	47	.077	-.312
Institutional guarantee	2.258**	127	.026	.520
Government credibility	2.468**	127	.015	.567
Financial accessibility	0.995	127	.322	.233
Government capacity	-0.808	49	.423	-.138
Consolidated management	-2.507**	127	.013	-.575
Corruption control	-0.014	127	.989	-.003

* $p < .1$; ** $p < .05$; *** $p < .01$.

more succinct and explicit. This finding confirms that the factor pattern is valid and satisfactorily accounts for the original information. In addition, some of the findings provide satisfactory support for hypotheses 4, 5a, and 6a, with two exceptions: *government capacity* is negative but not significant, and *consolidated management* is negative and highly significant. The latter demonstrates that a transitional economy is perceived significantly more favorably than an advanced economy in terms of integrated management.

Weighted Logistic Regression Analysis with Key Critical Factors

Finally, we used these seven identified factors as regressors in a sensitivity test of the validity of our framework. The dependent variable is a question in the survey: "Do you think there will be more private participation in the public sector in the next 10 years in your country?" The answers are coded as a binary (yes = 1, no = 0), which warrants the use of logistic regression. Because more than half of the answers were yes (1), we normalized the number of the two answers to give each equal weight, and this process led us to use weighted logistic regression. The results are provided in the first column (B_1) of table 6.

In general, the test confirms our previous results: market potential, government credibility, consolidated management, and financial accessibility all have the expected positive signs and are statistically significant at the 1 percent level. Hypotheses 1a, 1b, 2b, and 3b are well supported. Government capacity has a positive sign, though it is not statistically significant. There is only partial support for hypothesis 3a. The results do reveal two caveats: *corruption control* is negative but not significant, and *institutional guarantee* is negative and highly significant. Our interpretation is that the results of these two factors are linked to the transitional nature of origin for the

Table 6 Sensitivity Test of Logistic Regressions with Different Weights
DV = "Do you think that there will be more private participation in the public sector in the next 10 years in your country?" (yes = 1, no = 0)

Variable	More Private Participation in the Public Sector in the Next 10 Years (yes = 1, no = 0)			
	Weighted [†]	Unweighted		
	B_1^{**} (yes:no = 1:1)	B_2 (yes:no = 3:1)	B_3 (yes:no = 6:1)	B_0 (yes:no = 12:1)
Market potential	0.607***	0.581***	0.574**	0.572*
Institutional guarantee	-0.579***	-0.506**	-0.476*	-0.457
Government credibility	1.058***	0.989***	0.950**	0.920*
Financial accessibility	0.392**	0.430*	0.438	0.447
Government capacity	0.026	0.009	0.018	0.030
Consolidated management	0.537***	0.364	0.291	0.246
Corruption control	-0.076	-0.113	-0.173	-0.241
Constant	0.721***	1.757***	2.422***	3.102***
-2 log likelihood	254.947	143.016	93.704	58.977
Goodness of fit	39.502	17.644	6.824	8.809
Cox and Snell R^2	0.274	0.204	0.139	0.084
Nagelkerke R^2	0.365	0.302	0.248	0.201

[†]Method is weighted logistic regression.

^{**}Equally weighted DV: We normalized the number of the two possible answers (yes = 1, no = 0) so that each carries equal importance.

* $p < .1$; ** $p < .05$; *** $p < .01$.

bulk of our observations (83 percent). That is, the transitional economies in our sample are still “transitioning”; during this period, institutions and corruption are among the factors that require substantial improvement. Before they reach the high standards that have been established by advanced economies for these aspects, transition countries may be unable

to satisfy the expected levels in our theoretical framework. In other words, the rigid and residual nature of the old elements and the absence of mature institutions lead to corruption, which, in turn, provides room for private sector development and for rent seeking by interest groups in the short term. In tandem, these factors may favor PPP formation and short-term growth. This relationship may be taken as an additional aspect of the contrast between the two groups. We have reason to speculate that these two factors may actually show the expected positive sign as these economies move further through the four stages of the IMF’s economic progress spectrum. Undoubtedly, more thorough investigation of this phenomenon is warranted.

To further verify the empirical test, we conducted two additional weighted logistic regressions with different weights for yes and no (6:1 and 3:1) and an unweighted logistic regression. The results are shown in the three right columns of table 6. The statistical significance of some factors increases as the weight of “no” responses rises. Regardless of the weights shift, the factor coefficients show the same sign, thus confirming the stability of the empirical analysis.

Conclusion

This study makes a substantive contribution to the literature by developing a generic explanatory framework for evaluating, analyzing, and comparing the development of public–private partnerships in advanced and transitional economies, particularly the latter. Our framework is uniquely innovative with a tripod structure to cover the soil and the necessary external conditions for PPPs, as well as the essential roles and participation of the government.

To our knowledge, this study represents the most comprehensive cross-country research on PPP development that has been conducted. We collected firsthand, cross-country data that well represent transitional and advanced economies with a sample size from each type of country that is larger than in any previous studies. We developed a nexus of hypotheses that cover the general development of PPPs and the dynamic process of transition. We employed multiple empirical methods to test hypotheses, identify critical factors affecting PPP development, confirm and verify initial results. The framework and the identified critical factors can be effective tools for diagnosing and monitoring PPP development in a broader array of countries.

This study carries deep and wide implications for policy makers and scholars. As a policy recommendation to facilitate the formation and implementation of PPPs, we suggest that governments in transitional economies enhance their capacity and credibility in managing PPPs and build their institutions and legal system for a fairer and more transparent and efficient operating environment to inspire the confidence of private investors to participate.

The framework and the identified critical factors can be effective tools for diagnosing and monitoring PPP development in a broader array of countries.

The use of a small sample and the snowballing technique subjects this study to two types of bias. First, interviewees and survey respondents were not selected from probability sampling, which may have caused a sample bias. Second, we were unable to control for differences among the survey respondents in terms of their policy coalition, fields of exper-

tise, experiences with PPP operations, cultural backgrounds, and value orientations. These elements may have affected their perceptions of PPP development. Therefore, this study provides directions for future research in examining the reliability and validity of the extracted factors. Researchers may employ confirmatory factor analyses and linear structural relational models to establish construct validity of the scales to obtain more insight into those factors that are most instrumental to the success of PPPs. Researchers can also construct a structural model with these factors to analyze their influence on the performance of PPPs in terms of service quality, service cost, and equity. Furthermore, researchers may apply this framework to examine PPP development in other country contexts. We believe work in these directions will generate rich results.

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