

# 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 complete continuum of hybrid forms (Perrin and Raine 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 synergistic 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 (Saras 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 policymaking 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 the 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.

### Contextual 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) studied 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 dependence, commitment symmetry, common goals 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. Baird (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) identified three 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 prelude for capabilities, localities are unable to regulate, monitor, and control long-term contractual relations; thus, the introduction of PPPs could be likely to fail and undermine public interests (Aortio 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 (Güasch 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 apparent enormous potential for private investment 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 (Munard and Shirle 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, simplifying key factors without a coherent theoretical framework will not provide explanatory power.

### Theoretical Framework

Previous studies have attempted to formulate frameworks to explain the adoption of PPPs. In the conceptual framework of Baoli 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 some 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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## **O a E**

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

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 monopolies of public goods and stable returns on investment are the

increases the possibility of public agent rent seeking (Bloomfield 2006; Romek 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.

## G

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 (Le 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 (Stasa 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.

## Definition of a Transitional Economy

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 private-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 eighted 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

### Sample and Method

To investigate PPP development in transitional economies, a cross-country research team designed and implemented small-sample interviews and a survey in 2007.<sup>1</sup> 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

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 to PPP development, and (4) future prospects for PPP development.

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 addition, in the second stage, the interviewees in the advanced economies were also invited to complete the questionnaire. The data collected in the first stage were used for the exploratory factor analysis, and the data collected in the second stage were used for the logistic regression analysis. 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 Table 3

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 extent 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

Panel 1			Panel 2
All ( <i>N</i> = 129)	Advanced Econo- mies ( <i>N</i> = 22)	Transitional Econo- mies ( <i>N</i> = 107)	

entails increasing 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.

*Id*                    *C*   *ca*   *Fac*                    *Ex*   *a*   *Fac*   *A*   *a*

Ne t, e conducted an e plorator factor anal sis ith principal  
component estimation and, arima rotation. e 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 conceptually defined as linear combinations of related variables.

First, we used the Kaiser-Meier-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



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. Communality 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.

#### Construct Validity and Discriminant Validity

Next, we estimated the factor scores using the common 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 favorable than transitional economies with regard to *institutional guarantee* ( $t = 2.26, p < .05$ ) and *government credibility* ( $t = 2.47, p < .05$ ) but significantly less favorable 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	<b>-1.811*</b>	47	.077	-.312
Institutional guarantee	<b>2.258**</b>	127	.026	.520
Government credibility	<b>2.468**</b>	127	.015	.567
Financial accessibility	0.995	127	.322	.233
Government capacity	-0.808	49	.423	-.138
Consolidated management	<b>-2.507**</b>	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 the 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 favorable than an advanced economy in terms of integrated management.

#### Weighted and Unweighted Logistic Regression Analysis

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 <sup>†</sup>			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	<b>0.607***</b>	<b>0.581***</b>	<b>0.574**</b>	<b>0.572*</b>
Institutional guarantee	<b>-0.579***</b>	<b>-0.506**</b>	<b>-0.476*</b>	-0.457
Government credibility	<b>1.058***</b>	<b>0.989***</b>	<b>0.950**</b>	<b>0.920*</b>
Financial accessibility	<b>0.392**</b>	<b>0.430*</b>	0.438	0.447
Government capacity	0.026	0.009	0.018	0.030
Consolidated management	<b>0.537***</b>	0.364	0.291	0.246
Corruption control	-0.076	-0.113	-0.173	-0.241
Constant	<b>0.721***</b>	<b>1.757***</b>	<b>2.422***</b>	<b>3.102***</b>
-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

<sup>†</sup>Method is weighted logistic regression.

<sup>\*\*</sup>Equally weighted DV: We normalized the number of the two possible answers (yes = 1, no = 0) so that each carries equal importance.

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



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 probabilistic sampling, which may have caused a sample bias. Second, we were unable to control for differences among the survey respondents in terms of their political coalition, years of experience, 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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