

Appendix 1.

As empirical evidence shows, countries worldwide create specialized PPP bodies to pursue a number of objectives, such as to cope adequately with the risks associated with an increased number of PPPs, to augment the confidence of private partners interested in investing in PPPs at both the country and local level, to identify the most relevant PPP projects, to provide policy guidance and the dissemination of best practices, and to build a central repository of specialized knowledge on financial, economic, and legal aspects of PPPs (see OECD 2010; European Investment Bank 2011). Such PPP units also tend to adapt to the specific context of PPPs and adopt practices that best serve the purpose of governing collaborative ties with the private sector.

Selected Examples of PPP units in Developed and Developing Countries

Country (alphabetical order)	Year esta- blished	Description
BRAZIL	2005	<p>Brazil passed federal PPP legislation in December 2004. In 2005, several Brazilian states such as São Paulo, Minas Gerais, Bahia, and Pernambuco developed technical groups to structure projects, provide counseling to other areas of the government on PPP projects, and establish relationships with multilateral agencies focused on stimulating public-private projects, such as IDB, and the World Bank. As of 2017, Brazil had signed 104 PPP contracts in a myriad of areas.</p> <p><i>Sources: Radar PPP (www.radarppp.com) and Queiroz, C., Astesiano, G., & Serebrisky, T. (2014). <i>An Overview of the Brazilian PPP Experience from a Stakeholders' Perspective</i>, Interamerican Development Bank.</i></p>

CHILE	1993	<p>In 1993 the Chilean government under the Ministry of Public Works (Ministerio de Obras Públicas – MOP) established a PPP Unit to manage concession contracts and promote Chilean infrastructure, as well as capture foreign investments. Roads and airport were the main sectors benefitted.</p> <p><i>Source:</i> http://www.concesiones.cl/quienes_somos/Paginas/default.aspx</p>
COLOMBIA	2011	<p>The Agencia Nacional de Infraestructura (ANI) is a national agency attached to the Ministry of Transport. It aims to plan, coordinate, structure, contract, execute, manage, and evaluate concession projects and other forms of PPPs on public transport infrastructure.</p> <p><i>Source:</i> http://www.ani.gov.co/informacion-de-la-ani/quienes-somos</p>
CZECH REPUBLIC	2004	<p>Established as a joint-stock company in 2004, the PPP Centre was founded to advise and coordinate PPP initiatives in the country. The agency was supported by the World Bank and the European Commission and provides policy guidance, technical support, capacity building, and technical support to government units interested in PPP.</p> <p><i>Source:</i> OECD (2010)</p>
EGYPT	2006	<p>The Egyptian PPP Central Unit is a “center of expertise” within the Ministry of Finance, responsible for overseeing and implementing PPP policy. The unit is in charge of the study, application, and implementation of PPPs, as well as coordination with line ministries and with the private sector to develop this PPP theme in a policy framework.</p> <p><i>Source:</i> http://www.pppcentralunit.mof.gov.eg/Content/About%20us/PPP%20Central%20Unit/Pages/PPP%20Central%20Unit.aspx?mode=1</p>
ESTONIA	2001	<p>In Estonia the state-owned enterprise “State Real Estate Ltd” plays the role of PPP policy unit. Although this unit does not represent strong institutional support, it promotes several real estate projects for the Estonian government. This unit follows</p>

		<p>the general principles of the European Commission in PPP projects.</p> <p>Sources:</p> <p>http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/ee.pdf</p> <p>Van den Hurk, M., Brogaard, L., Lember, V., Helby Petersen, O., & Witz, P. (2016). <i>National varieties of public-private partnerships (PPPs): A comparative analysis of PPP-supporting units in 19 European countries</i>. <i>Journal of Comparative Policy Analysis: Research and Practice</i>, 18(1):1-20.</p>
FRANCE	2005	<p>The Mission d'Appui à la Réalisation des Contrats de Partenariat (MAPPP) was established in 2005 under the Ministry of Finance as a government-funded task force to promote the PPP market in France. Its role "is assessing PPP projects before they receive approval from the Ministry of Budget. MAPPP provides the methodology for evaluating PPP projects and validates feasibility studies prepared by the procuring authorities for governmental approval."</p> <p>Source:</p> <p>https://www.economie.gouv.fr/files/directions_services/ppp/mapp_profile_ang.pdf</p>
GERMANY	2001	<p>The North-Rhine Westphalia PPP unit has taken a leading position in promoting PPP in Germany. Acting at the state level, this unit has focused on construction and transportation sectors.</p> <p>Source: Krumm, Thomas. (2016). <i>The Politics of Public-Private Partnerships in Western Europe: Comparative Perspectives</i>. Edward Elgar Publishing, p, 124-127.</p>
HONG KONG	1992	<p>The Hong Kong PPP unit (Efficiency Unit) is under the Chief Secretary for Administration and provides technical support to government departments to examine PPP opportunities. It also promotes activities to further engagement of private actors in delivering new services and infrastructure projects. Since 1992</p>

		<p>the Efficiency Unit “is a change agent and catalyst for improving the management and delivery of public services.”</p> <p><i>Source: http://www.eu.gov.hk/en/index.html</i></p>
HUNGARY	2003	<p>The Hungarian PPP Unit (PPP Inter-Ministerial Committee), besides managing and coordinating PPP projects, also analyzes tenders and feasibility reports. The unit develops methodologies for the preparation of PPPs, elaborate project plans, thus providing policy guidance and technical support.</p> <p><i>Source: OECD (2010)</i></p>
IRELAND	2003	<p>The Irish National Development Finance Agency (N DFA) advises authorities on public investment projects and is responsible for all aspects of delivering procurement projects. The Irish PPP unit also executes contract management of PPP projects, acts as an agent for public organizations, and is allowed, under certain circumstances, to raise funds to finance public investment projects.</p> <p><i>Sources: http://www.ndfa.ie/about-the-ndfa/functions-legislation/ and OECD (2010)</i></p>
ITALY	1999	<p>The Italian PPP Taskforce U T F P (Project Finance Technical Unit), assists public authorities, promotes counseling in strategic projects, sponsors the PPP agenda, and fosters cooperative arrangements between private and public entities.</p> <p><i>Sources: http://www.rgs.mef.gov.it/Documenti/VERSIONEI/Comunicazione/Eventi/OCSE/OCSE_PPP_def_05-05-2015-Cop.pdf; OECD (2010)</i></p>
KENYA	2013	<p>The Public Private Partnership Unit (PPPU) was established as a specialized unit within the National Treasury to promote and oversee the implementation of the Kenya PPP Program. The PPP Unit, as the resource center for best practice and guardian of the integrity of the PPP process, plays a large role in identifying problems, making recommendations to the PPP Committee regarding potential solutions, and ensuring that</p>

		<p>projects meet such quality criteria as affordability, value for money, and appropriate transfer of risk.</p> <p><i>Source: http://www.pppunit.go.ke/about-pppu/background</i></p>
KUWAIT	2008	<p>The Partnerships Technical Bureau (PTB), established in 2008 under the Kuwait Authority For Partnership Projects, is responsible for PPP project implementation and development of processes aligned with international best practice standards. Kuwait is realizing a series of high-impact projects in diverse areas and the PTB selects the projects that address Kuwait's development goals.</p> <p><i>Source: http://www.kapp.gov.kw/en</i></p>
NETHERLANDS	1999	<p>The PPP Knowledge Centre, under the Dutch Ministry of Finance, aims to expand the PPP market in the Netherlands by developing standards, advising government, and providing technical support to projects. The Centre team was formed of experts from the government and industry, in policy and PPPs, all nominated by the government.</p> <p><i>Source: Koppenjan, J., & de Jong, M. The introduction of public-private partnerships in the Netherlands as a case of institutional bricolage: The evolution of an Anglo-Saxon transplant in a Rhineland context. Public Administration, forthcoming; OECD (2010)</i></p>
POLAND	2001	<p>The Polish PPP task force is part of the Ministry of Infrastructure. Besides creating a legal framework for PPPs in Poland, it also enables technical support for other areas of the government interested in developing PPP projects.</p> <p><i>Source: OECD (2010)</i></p>
PORTUGAL	2003	<p>The Technical Unit for Project Monitoring (UTAP – Unidade Técnica de Acompanhamento de Projetos) is within the Ministry of Finance and is responsible for the overall follow-up of the Public-Private Partnership (PPP) processes and to ensure specialized technical support in related economic, financial, and legal matters in Portugal.</p>

		Source: http://www.utap.pt/
SOUTH KOREA	1999	<p>The Public and Private Infrastructure Investment Management Center (PIMAC) is part of the Korea Development Institute. It manages and supports PPP projects on infrastructure by providing expert services.</p> <p>Source: https://www.kdi.re.kr/kdi_eng/kdicenter/pimac_about.jsp</p>
SPAIN	2005	<p>SEITT (Sociedad Estatal de Infraestructuras del Transporte Terrestre) is a governmental body which provides advice to the Spanish government on PPP contracts. It elaborates standards, does viability analysis, and disseminates PPP know-how, especially on transport infrastructure.</p> <p>Source: http://www.seitt.es/SEITT/LANG_CASTELLANO/INFO_IOP/</p>
UNITED KINGDOM	1997	<p>In 1997 the HM Treasury created the PFI Task Force to foster expertise in public-private projects in the government realm. In 1999 the PFI Task Force was replaced by the Partnerships UK (PUK), ensuring PFI momentum and, “along with the pipeline already put in place by the previous Government, delivered a steady increase in the use of PFI in the UK.”</p> <p>Source: http://www.eib.org/attachments/epec/epec_uk_england_ppp_unit_and_related_institutional_framework_en.pdf</p>
UNITED STATES	2008	<p>The Office of Global Partnerships (S/GP) is the center for collaboration between the interested parties in PPP contracts. This PPP unit builds and facilitates partnerships and leads the U.S. government’s efforts to engage private sector and civil society partners.</p> <p>Source: https://www.state.gov/s/partnerships/mission/index.htm</p>

Sources: Check links and OECD 2010. Dedicated Public-Private Partnership Units: A Survey of Institutional and Governance Structures. (OECD, Paris, France).

Available at <http://www.oecd.org/gov/budgeting/dedicatedpublic-privatepartnershipunitsasurveyofinstitutionalandgovernancestructures.htm>.

Appendix 2. Distribution of PPPs by region and sector

a. Region

Region	%
East Asia and Pacific	22.2
Europe and Central Asia	44.5
Latin American and the Caribbean	9.8
Middle East and North Africa	3.4
North America	15.1
South Asia	3.6
Sub-Saharan Africa	1.5
Total	100.0

b. Sector

Sector	%
Construction and real estate	10.7
Education	12.3
Energy	31.7
Health	9.5
Industrials	10.9
Information and communication technology	6.0
Security	2.5
Transportation	7.7
Water and sewerage	8.7
Total	100.0

Appendix 3A.

Additional information on the Dependent Variable (degree of private involvement)

Our coding reflects a spectrum with an increasing private organizational scope, moving up from a simple concession or leasing (0) to the almost complete coverage of design, building, financing, and execution of the project by the private partner (3). The coding captures a progressive increase in the well-established set of functions in PPP contracts for which a private party may be responsible: designing, building (or refurbishing), financing, maintaining, and operating (PPIAF/World Bank Institute 2012)¹.

To validate our coding scheme, we proceeded in three ways. First, we ran robustness checks with alternative coding schemes and found similar results in our regressions (explained in more detail in the Results section below). Second, we tested and verified our coding scheme with 37 independent academic and professional experts in PPPs from 11 different countries (such as Brazil, Chile, France, Italy, and Portugal). The experts were asked to evaluate the extent to which they agreed with our operationalization of private scope. We provided them with our proposed coding (Appendix 2 in companion) and then asked them to indicate on a 1–5 Likert scale (a) whether they agreed with our coding of private scope, and (b) whether they expected that moving from category 0 to 3 would increase the number of functions/tasks performed by the private actor in a given PPP. Responses to the two questions were, on average, 4.05 and 4.22, respectively. To check respondents' agreement on the two questions, we used McNemar's test (Agresti 1996)². We

¹ PPIAF - World Bank Institute (2012) *Public-Private Partnerships: Reference Guide Version 1.0* (World Bank, Washington DC)

² Agresti A (1996) *An Introduction to Categorical Data Analysis* (Wiley, New York).

built a scale to assess the degree of agreement among the experts on our questions, coding 1 for Likert grades equal or superior to 4, and 0 otherwise. The test does not reject the null hypothesis of agreement among the experts, thus indicating that specialists similarly and positively assessed the appropriateness of our coding. Third, although our original database does not provide comprehensive information on the extent of private equity investment in each project, we were able to gather data on 51 observations indicating the percentage of equity of the PPP directly held by the private operator. We found that this percentage monotonically increased with our measure of private scope: 12.9%, 19.6%, 54.1%, and 77.2% for cases coded 0, 1, 2, and 3, respectively (also found to be statistically significant according to a Kruskal-Wallis rank test).

The table below (Appendix 3A) offers a more detailed description of our codes and the percentage of each case found in our dataset.

Appendix 3B. Description of PPP types, degree of private involvement, and validation schemes

Type	% in the database	Description	Private scope
BLT (Build- Lease- Transfer)	1.96%	A private sponsor builds a new facility largely at its own risk, transfers ownership to the government, leases the facility from the government, and operates it at its own risk up to the expiry of the lease. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees	0
BOT (Build- Operate- Transfer)	12.00%	A private sponsor builds a new facility at its own risk, operates the facility at its own risk, and then transfers the facility to the government at the end of the contract period. The private sponsor may or may not have (temporary) ownership of the assets during the contract period. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees	1
LROT (Lease- Renovate- Operate- Transfer)	0.44%	A contractual arrangement whereby an existing facility is handed over to a private sponsor on lease for a particular period of time for the specific purpose of renovating the facility and operating it for a specified period of time. It is on such terms and conditions as may be agreed to with the government for recovering the costs with an agreed return. Following the end of the contractual period, the facility is transferred back to the public sector	1
BOO (Build- Operate- Own)	66.84%	A private sponsor builds a new facility at its own risk, then owns and operates the facility at its own risk. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees	2
BOOT (Build-	3.79%	A private sponsor builds a new facility at its own risk, then owns and operates the facility at its own risk (similar to the	2

Operate-Own-Transfer)		BOO model). However, it then transfers the facility to the government at the end of the contract period	
DBOT (Design-Build-Operate-Transfer)	0.63%	A single contract is awarded to a private sponsor for the design, construction, and operation of a facility. Ownership title to the facility may temporarily reside with the private sector, but the facility is transferred back to the public sector at the end of the contact period	3
DBFO (Design-Build-Finance-Operate)	14.34%	In this type of contract, the responsibilities for designing, building, financing, and operating a facility are bundled together and transferred to private sector partners. There is a great deal of variety in DBFO arrangements, and especially the degree to which financial responsibilities are actually transferred to the private sector. One commonality that cuts across all DBFO projects is that they are either partly or wholly financed by debt-leveraging revenue streams dedicated to the project. Direct user fees are the most common revenue source, but others range from lease payments to shadow tolls and vehicle registration fees. The contractor assumes the risk of financing till the end of the contract period. Future revenues are leveraged to issue bonds or other debt that provide funds for capital and project development costs. They are also often supplemented by public sector grants in the form of money or contributions in kind, such as right-of-way	3

Sources: The World Bank/PPIAF; National Council for Public-Private Partnerships/GAO (USA); other sources.

Appendix 4. Detailed description of variables

Variable type	Name	Description	Measurement	Source
Dependent variable	Private scope	Degree of involvement of private actors in the various activities of the PPP	See Appendix 3 and details on the survey with international experts (Check the supplemental material companion).	PFI, SDC
Explanatory variables	Past PPPs executed in the country	Public capabilities in public-private collaboration: cumulative capacity of public bodies to execute PPPs in a given sector	Number of past PPPs executed by the country in the same sector as the PPP	PFI, SDC
	Specialized PPP unit	Public capabilities in public-private collaboration: existence of a specialized government unit in the country to manage PPPs	Years since the establishment of the PPP unit	Various sources
	Past PPPs executed by the firm	Private capabilities in public-private collaboration: cumulative capacity of the firm to execute PPPs	Number of past PPPs executed by the private operator in the same country and sector of the PPP	PFI, SDC
	Ability to partner with governments	Private capabilities in public-private collaboration: revealed ability of the private actor to partner with governments	Percentage of past PPPs in the same country in which the firm created an SPV funded by the local government	PFI, SDC
	Quality of institutions	Institutional development of the country facilitating the enforcement of contracts with the public sector	Average of three indicators: quality of bureaucracy, absence of corruption, and transparency. We then create a dummy coded 1 if the country is above the median value of all countries, 0 otherwise	WCY
Control variables	Contract value	Total cost	Value of the PPP (in thousand US\$) in logarithmic form	PFI, SDC

Government partner	Whether the private firm is in association with local governments in the current PPP	Dummy value equal to 1 if the local government participates as a sponsor of the SPV of the PPP, 0 otherwise	PFI, SDC
Population	Size of the local market	Population in logarithmic form	WBDI
GDP per capita	Economic development (per capita income)	GDP (in thousand US\$) divided by total population, in logarithmic form	WBDI
Skilled labor	Perception of availability of skilled labor	Measure from the WCY	WCY
Competition legislation	Perception of the existence of enforced competition legislation	Measure from the WCY	WCY
Financial development	Ability to access sources of financing	Measure from the WCY	WCY
Credit availability	Availability of credit to the private sector	Credit to the private sector as % of GDP	WBDI
Government expenditures	Extent of domestic government spending in the country	Government expenditures as % of GDP	WBDI
Year	Year-specific dummies	Coded 1 if the project was signed in a given year, 0 otherwise	PFI, SDC
Sector	Sector-specific effects	Coded 1 if the project is in a given sector, 0 otherwise	PFI, SDC

Note: PFI: Private Finance International by Thomson Reuters; SDC: SDC Platinum Database by Thomson Reuters; WCY: IMD World Competitiveness Yearbook; WBDI: World Bank Development Indicators; SPV: special purpose vehicle.

Appendix 5. Robustness checks

	Adding count of past non-PPPs ^a		Quality variable from WGI ^b		Changing the coding of scope ^c			
	Low inst. qual. (6a)	High inst. qual. (6b)	Low inst. qual. (7a)	High inst. qual. (7b)	Low inst. qual. (8a)	High inst. qual. (8b)	Low inst. qual. (9a)	High inst. qual. (9b)
<i>Public capabilities in PPPs</i>								
Past PPPs executed in the country	-0.004 (0.004)	0.008*** (0.002)	-0.003 (0.003)	0.004** (0.002)	-0.002 (0.004)	0.008*** (0.002)	-0.004 (0.004)	0.008*** (0.002)
Specialized PPP unit	0.049*** (0.014)	-0.009 (0.017)	0.023* (0.013)	-0.014 (0.017)	0.048*** (0.014)	0.003 (0.019)	0.049*** (0.014)	-0.007 (0.017)
<i>Private capabilities in PPPs</i>								
Past PPPs executed by the firm	0.010 (0.019)	-0.016 (0.023)	0.008 (0.017)	-0.013 (0.023)	0.016 (0.024)	-0.028 (0.017)	0.012 (0.019)	-0.017 (0.023)
Ability to partner with governments	0.389 (0.326)	1.984*** (0.331)	0.329 (0.320)	2.031*** (0.261)	0.188 (0.246)	1.958*** (0.309)	0.394 (0.336)	1.982*** (0.323)
<i>Institutional environment</i>								
Quality of institutions	0.193** (0.096)	0.323** (0.130)	0.489*** (0.183)	1.803*** (0.493)	0.204** (0.093)	0.374*** (0.116)	0.194** (0.095)	0.331** (0.132)
<i>Control variables</i>								
Contract value	-0.083 (0.138)	0.022 (0.097)	-0.110 (0.146)	-0.053 (0.114)	-0.012 (0.135)	-0.041 (0.080)	-0.083 (0.136)	0.025 (0.097)
Government partner	0.184 (0.206)	-0.272** (0.125)	0.237 (0.197)	-0.227* (0.135)	0.261 (0.216)	-0.268*** (0.101)	0.198 (0.202)	-0.297** (0.127)
Population	-0.01 (0.025)	0.015 (0.017)	0.009 (0.023)	0.018 (0.016)	-0.012 (0.023)	0.013 (0.020)	-0.007 (0.026)	0.013 (0.017)
GDP per capita	-0.005 (0.109)	-0.205 (0.291)	-0.033 (0.141)	-0.433 (0.411)	0.047 (0.105)	-0.114 (0.307)	-0.002 (0.109)	-0.196 (0.291)
Skilled labor	-0.077* (0.047)	-0.156** (0.069)	-0.142** (0.055)	-0.239*** (0.063)	-0.092** (0.045)	-0.07 (0.055)	-0.076 (0.047)	-0.157** (0.068)
Competition legislation	-0.254*** (0.086)	-0.215* (0.122)	-0.255*** (0.084)	-0.337** (0.160)	-0.330*** (0.097)	-0.310** (0.143)	-0.246*** (0.088)	-0.251** (0.127)
Financial development	-0.066	-0.117	-0.077	0.029	-0.014	-0.014	-0.068	-0.124

Credit availability	(0.049) 0.212	(0.086) -0.044	(0.061) 0.049	(0.097) 0.083	(0.051) 0.155	(0.117) -0.129	(0.050) 0.199	(0.088) -0.075
Government expenditures	(0.150) -0.168	(0.245) 3.872**	(0.156) -0.601	(0.220) 1.211	(0.147) -0.286	(0.238) 3.245**	(0.150) -0.188	(0.233) 3.802**
Past non-PPPs by country	(0.600) -0.001	(1.517) -0.002***	(0.538) -0.001	(1.316) -0.002**	(0.609) -0.001*	(1.269) -0.002***	(0.595) -0.001	(1.505) -0.002***
Year and sector dummies	(0.001) Yes	(0.001) Yes	(0.001) Yes	(0.001) Yes	(0.001) Yes	(0.001) Yes	(0.001) Yes	(0.001) Yes
<i>N</i>	490	513	379	368	490	513	490	513
Wald test of model significance	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .001$

*** $p < .01$; ** $p < .05$; * $p < .10$. Robust standard errors in parenthesis, clustered on each country.

^a Models 6a and 6b add variable coding the cumulative number of projects in the same set of sectors that were not structured as PPPs

^b WGI: World Governance Indicators database; ^c Model 8 classifies LROT as 0, while model 9 classifies both BOT and LROT as 0 and the other types as 1 and 2.