

THE ROLE OF PUBLIC-PRIVATE PARTNERSHIPS IN BUILDING RESILIENT INFRASTRUCTURE IN EMERGING MARKETS AND DEVELOPING ECONOMIES

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Abstract

This paper explores the role of Public-Private Partnerships in building resilient infrastructure in Emerging Markets and Developing Economies (EMDES). Changes in the social economic structure over the past several decades have led to radical responses toward the economic development policies of many governments. Policy officials at different levels of government have discovered that greater economic development and resilient economic stability might be reached only if a more active approach toward attracting investment is made. Rather than passively waiting for business interests to seize on new incentives in the taxes, public officials proactively court businesses in an attempt to secure contractual agreements. This policy has come to be known as Public-Private Partnerships (P-P-P). P-P-Ps assume that the public and private sectors can cooperate and create new value and benefit for all concerned parties. The study reviews literature on Emerging and Developing Economies (EADs), to show how, when and under what conditions P-P-P can be utilized for participating countries. The findings indicate P-P-Ps can contribute significantly to economic growth with proven effective means of bridging gaps between demand and resource, quality, accessibility, risk and benefits. The study concludes that, the ability to share risk with the private sector, tap resources, and profitability from the private-sector investment is contingent to intellectual capital of policy makers, and flexibility in allocating resources.

Keywords: *Infrastructure, Emerging Markets, Developing Economies, Public-Private-Partnerships*

Introduction

Since the end of the second world war, infrastructure development has become a key policy concern of many governments. This is as a result of population growth, migration, urbanization, and a search for best practices to deal with infrastructure development, especially in Emerging Markets and Developing Economies (EMDES). In the 1970s and 1980s, the pressure to change the traditional mode of public procurement arose due to concerns about the level of public debt, which grew rapidly during the macroeco-

nomie dislocation at that time. Since then, governments sought to encourage private investment in infrastructure base on accounting fallacies arising from the fact that public accounts did not distinguish between recurrent and capacity expenditures. Changes in the social economic structures over the past several decades have led to radical responses toward the economic development policies of many governments (Beck, Demirguc-Kunt, & Levine, 2009). Policy officials at different levels of

government have discovered that greater economic development and resilient economic stability might be reached if a more pragmatic approach toward attracting investors is made. Rather than passively waiting for business interests to seize on new incentives in the tax policies, public officials proactively court businesses in an attempt to secure contractual agreements. This policy has come to be known as Public-Private Partnership, abbreviated variously as; P-P-P, 3Ps, P3, or P3. The assumption behind P-P-P is that the public and private sectors can cooperate and create new value and benefit for all concerned parties. Whereas the conventional approach is to procure separate roles for the public and private sectors, P-P-Ps combine the forces of public and private sectors to create added value projects. Proponents of P-P-P claim that the public and private sectors benefit immensely under the P-P-P approach (Pinto & Slevin, 1988).

Traditionally, private sector participation for infrastructure development has been limited to separate planning, design or construction contracts on a fee for service basis – based on the public agency's specifications. Expanding the private sector role allows the public agencies to tap private sector technical, management and financial resources in new ways to reach some public agency objectives such as greater cost and schedule certainty, supplementing in-house staff, innovative technology applications, specialized expertise or access to private capital. The private partner can then expand its business opportunities in return for assuming the new or expanded responsibilities and risks.

Some of the primary reasons for public agencies to enter public-private partnerships include, accelerating the implementation of high priority infrastructure by packaging and procuring services in new ways, turning to the private sector to provide specialized management capaci-

ty for large and complex programs, enabling the delivery of new technology developed by private entities, and drawing on private sector expertise in accessing and organizing the widest range of private sector financial resources, encouraging private entrepreneurial development, ownership, and operation of facilities and/or related assets. The infrastructure risks are then allocated to the party that is best equipped to manage them.

P-P-P models often include incentives that reward private partners for mitigating risk factors and can be applied to a large range of infrastructure across several modes including project conceptualization and origination, design, financial planning and financial management, construction, operation, maintenance, toll collection and program management. These activities are usually bundled into contract packages showing the public agency's objectives related to: schedule and cost certainty, innovative finance, or transfer of management and/or operational responsibility. Typical procurement packages under the P-P-P offering include, private sector operations and maintenance on a performance basis, private sector program management for a fee and/or with program costs and schedule maintenance incentives, design-build for fixed fee on fixed time frame, project Build-Operate-Transfer (BOT) and Design-Build Finance-Operate-transfer (DBFO).

It is factually established within the annals of the World Bank (World Bank Group, 2014) and its development partners that building a modern, sustainable and resilient infrastructure is crucial for meeting the increasing aspirations of billions of people; around the world. Industrial and infrastructure investment helps raise economic growth, offers new economic opportunities, and facilitates investment in human capital.

A significant increase in infrastructure investments in EMDEs is needed to sustain achieve poverty reduction and share prosperity, reach the Sustainable Development Goals (SDGs) and even tackle climate change (World Bank Group, 2014). The emerging markets and developing economies, also known as emerging economies or developing countries, are nations that are investing in more productive capacity are crucial for the study because they account for close to 80 percent of global economic growth, almost double their share from two decades ago (IMF, 2016).

In this study literature is therefore reviewed on EADEs, to show how, when and under what conditions P-P-P can be utilized for participating countries. we seek to find out if there are evidence for effective and efficient delivery of P-P-P in emerging and developing economies as derived from credible and valid evaluative studies.

The problem is, that there is little indication that public investment can address infrastructure's full funding needs in a pragmatic way and the mechanisms for sustaining the funding also appear sketchy. In the light of expected benefits many studies have been conducted, however, the empirical results do not give conclusive evidence of the role that P-P-P plays in building a resilient infrastructure for emerging economies. This review is important from the stand point that, understanding the linkage between P-P-P and infrastructure development may be key to unravel channels through which P-P-P can be used to foster economic performance and consequently, identify the policy levels that may be activated to maximize P-P-P and the gains from P-P-P. The remaining paper is organized as follow; the next section gives an overview of P-P-P in EMDC, followed by brief discussion on the theoretical and empirical studies on the performance of P-P-P. Finally, policy implications are

made based on the findings of the study followed by, direction for future research and concluding remarks.

Overview of P-P-P in Emerging and Developing Economies

On account of the World Bank Group's (2016), Private Participation in Infrastructure (PPI) database, from 8,700 infrastructure projects with private participation, dating back from 1984s to 2016, analysis of trends in investment over the past four years shows a decline. However, investment commitments in infrastructure with private participation in (EMDE) in the First Half Year (FHY) of 2017 seems to be showing signs of recovery, with the investment level during the FHY slightly more than half that of the full-year of 2016 level, and historically, higher investment levels are typically recorded in the latter half of each year as indicated in figure 1. If this trend continues, there is the likelihood that the full-year 2017 investment levels could possibly be higher than those of 2016.

The number of projects dropped slightly from 138 in FHY of 2016 to 132 in FHY of 2017. The average project size increased marginally by three percent from US\$269 million in full-year 2016 to US\$278 million in the first year of 2017. This figure demonstrates a slight drop in project size below the average project size of US\$280 million for projects recorded over the past five years. Further, the World Bank Group (2017) reports that the median project size increased from US\$80 million to US\$99 million denoting that small- and medium-sized projects received higher investment commitments than in the previous year.

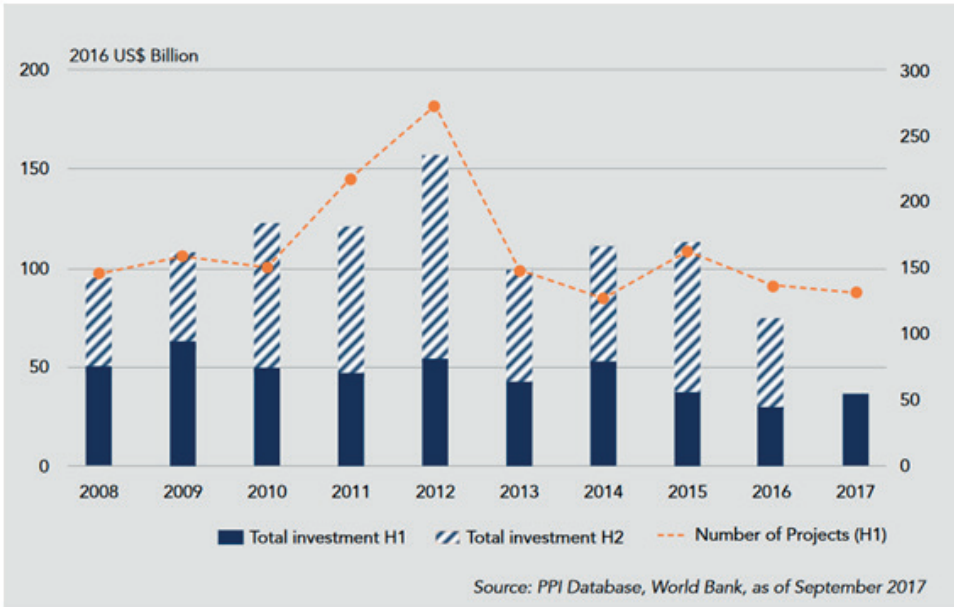


FIGURE 1: INVESTMENT COMMITMENTS IN INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN EMDES, FHY-2008 TO FHY-2017

In 2016, 242 projects were recorded, representing 27 percent lower than the number of projects in 2015, which had 334 projects reach financial closure, and 57 percent lower than the annual average of 421 projects per year over 2011–2015. Furthermore, not counting concession fees, which gave 2015 a disproportionate bump, average project sizes stayed relatively constant throughout the six-year period at approximately \$240 million. This indicates that the declining trend in investment is due to fewer projects, not smaller project sizes.

In the FHY 2017, greenfield projects accounted for more than two-thirds of the total investment commitment, or US\$24.9 billion, while brownfield projects accounted for the remaining 32 percent, with US\$11.8 billion. There was only one management contract of US\$7 million for a water project in China; no divestiture transactions were recorded. The number of divestitures have been declining over time with only three

recorded in full-year 2015, but in full-year 2016 there was a slight revival recorded with seven divestitures. Among greenfield projects in FHY 2017, projects adopting a build, operate, and transfer (BOT) model account for US\$14.2 billion of investments, followed by build, own and operate (BOO) model projects, with investments of US\$8.9 billion.

The problem is that there is little indication that public investment can address infrastructure’s full funding needs.

Investment commitments (investments) in infrastructure with private participation in EMDEs fell sharply in 2016. The US\$71.5 billion committed across 242 projects in 2016 represents a 37 percent decline in investment compared to 2015 and a 41 percent decline compared to the annual average of US\$121.4 billion over 2011 to 2015. The year-on-year drop in 2016 can be explained by a precipitous decline in investment in Turkey, which had a banner year in 2015, as well as steep declines in South Africa and Peru.

Similarly, the lower investment relative to the five-year average is largely driven by declining private investment in infrastructure in three key markets, which together accounted for a majority of investment from 2011–2015: Turkey, India, and Brazil. All are countries where large programs over the last decade boosted the total number of investments in EMDEs. The number of infrastructure projects with private participation in EMDEs also declined substantially as shown in figure 2.

percent decline, and discounting all projects in Turkey, investment from 2015 to 2016 would have stayed even. However, investment amounts in 2016 were 41 percent lower than the preceding five-year investment average of US\$121.4 billion, hence the decline in investment remains significant. The commitment amount in 2016 was also the lowest in 10 years.

On the Regional front, East Asia and Pacific (EAP) received the highest level of private initiative investment in FHY of

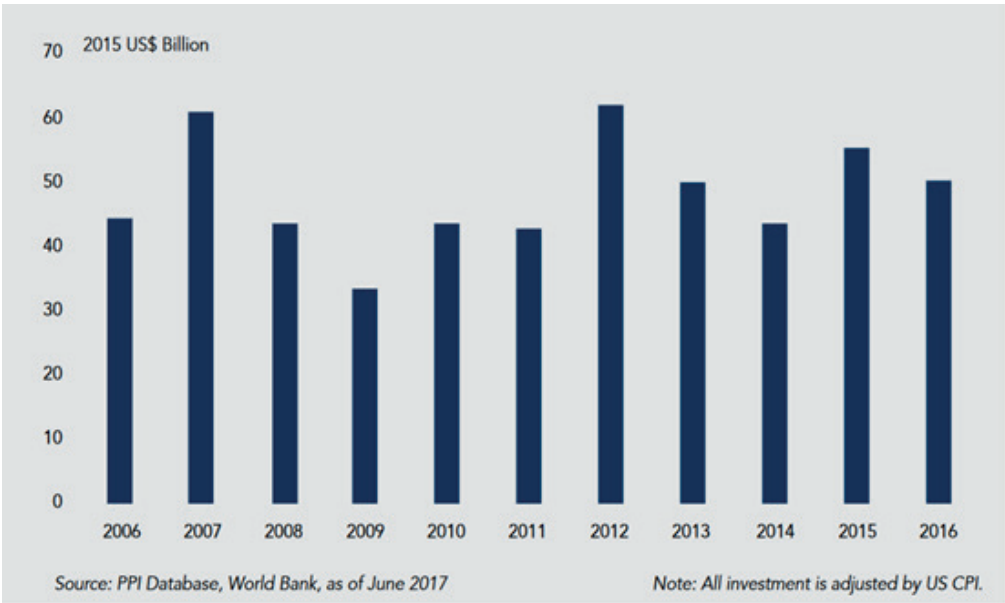


FIGURE 2: INVESTMENT COMMITMENTS IN INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN EMDES WITHOUT TURKEY, BRAZIL AND INDIA 2006 TO 2016.

It should be noted, however, that commitments in 2015 included several large projects in Turkey, including one of particularly significant value: the US\$35.6 billion IGA airport project in Turkey, which included US\$6.5 billion in investment in physical assets and US\$29.1 billion in expected concession fees to be paid over the life of the concession. If this project is subtracted from the 2015 data-set, investment in 2015 would have totaled US\$77.8 billion, only an 8.2

2017 (US\$12.7 billion), led by China and Indonesia. The region’s 48 new PPI projects account for more than one third (35 percent) of total global investment during the first half-year of 2017. China and Indonesia together account for 91 percent of EAP PPI investments in H1 2017. In China, 36 projects received investments amounting to US\$3.7 billion, which accounted for 29 percent of EAP investment, while Indonesia captured 62 percent of total EAP regional investment

(US\$7.8 billion) with only six projects. Several large projects in Indonesia, including two multibillion-dollar coal fired power projects (worth US\$4.2 billion and US\$2.2 billion) also made it the country with the highest PPI investment level globally. While PPI investment for China relative to its global counterparts appears large, it is a small proportion of the GDP or the total infrastructure spend in the country.

traditional public-sector approach could be more appropriate.

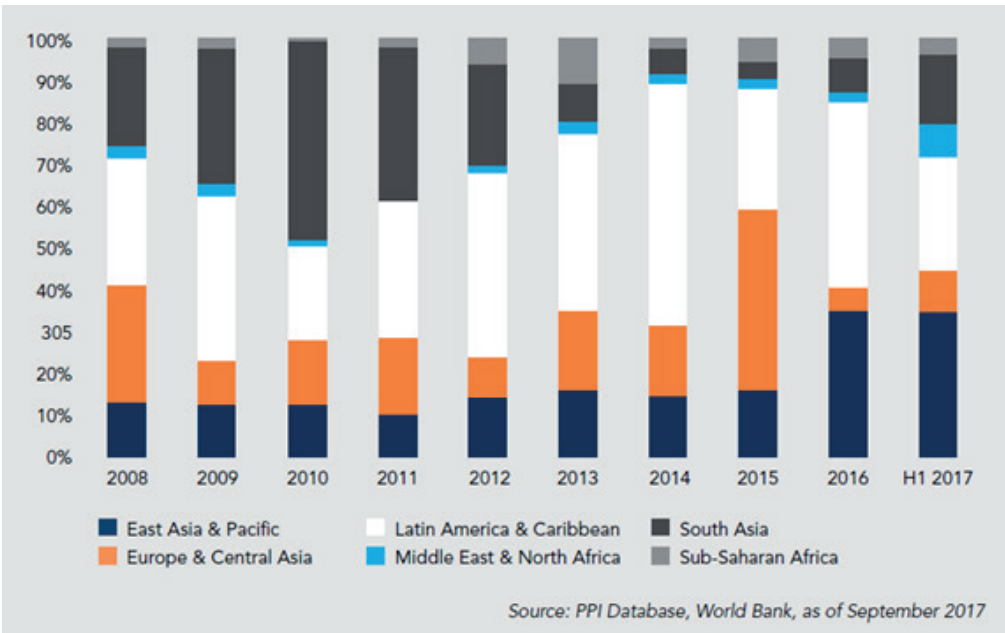


FIGURE 3: REGIONAL SHARE OF INVESTMENT COMMITMENTS IN INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN EMDES, 2008-2016 AND FHY-2017

The overview information of Public-private partnership project indicated above give credence to two main facts; first, even though the volume of P-P-P funding continue to increase increased substantially over the years there still remains large infrastructural deficit in EMDEs. Second, every country has its own unique challenges, priorities, and financial constraints. In some cases, PPPs can provide benefit by leveraging the management capacity, innovation and expertise of the private sector, but other times a

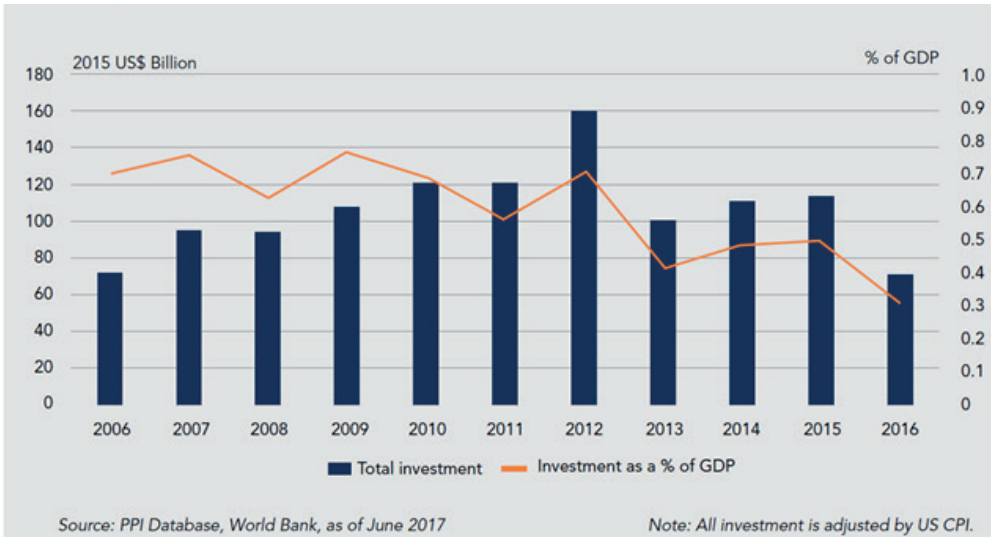


FIGURE 4: INVESTMENT COMMITMENTS IN INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN EMDES AS PERCENTAGE OF GDP, 2006-2016

In the first half year of 2017, private initiative in investment in Middle East and North Africa (MENA) tripled compared to the level in FHY-2016 and has already surpassed the region's full-year 2016 investment level. This increase is driven primarily by investment in Jordan, where a US\$2.1 billion oil shale-fired power plant reached financial closure in FHY-2017. Three additional projects in the region include a port project in Egypt and solar power projects in Morocco and Jordan.

Theoretical Literature

Several models and theories underpin research on P-P-P initiatives. The ones that resonates the most are those that appear in strategic research. The strategic research explores three theoretical perspectives, namely; transaction cost economics, innovation economics and economic geography.

First, transaction cost economics deal with coordination, control, governance, and regulation, with hierarchy in cooperation relations, with trust, opportunistic

behaviour, and the absorptive capacities of the partners. The fundamental prerequisite for this theory is anchored on incentive that reward private partners for mitigating risk. Hence, in the transaction cost approach, P-P-Ps are one form of coordination in the field of research and development. As all market transactions, they are not free from risks and they pose a spectrum of challenges to the partners involved in such relationships (Bapuji et al. 2011; Caloghirou et al. 2004; Escribanonet al. 2009; van de Vrande et al. 2010; Du et al. 2014). Within the transaction cost economics, we seek to fine answers to the question on how the political, legal, social, economic and financial environment in host countries influence risk perceptions and hence, the participation of the private sector in infrastructure PPPs.

Second is innovation economics which can be applied for analyzing the kind of distributed-ness of innovation processes, the openness of innovation, knowledge generation and exploitation processes, the role of human resources, and market

orientation. According to innovation economics' recent understanding, innovation is an interactive and systemic process that creates novelties (Bathelt and Glückler, 2012: 51-52). These novelties (inventions) become an innovation when they successfully reach the market stage and create demand. Innovation can be technological, process-related, organizational, social and cultural. Concerning the level of private sector investments, the effect of such "social" factors, if any, is not so clear, as for instance, if we try to explain private sector participation in infrastructure projects, given their "development" mission. Nevertheless, recent empirical studies have showed that civil freedom may encourage foreign direct investment (Harms & Ursprung, 2002).

Economic geography, brings in the perspective of spatial and cultural proximity in exchange processes, the role of embeddedness, and the kind of knowledge which is relevant for face-to-face contacts. Geographical proximity refers to the spatial or physical distance between economic actors, while social proximity is related to the fact that economic relations are always embedded in a social context (Boschma, 2005: 66-69). The macroeconomic environment can also affect project risks and the participation of private sector in PPPs.

Empirical Literature

The literature on P-P-P covers a wider spectrum of research area and like the theoretical part it is not conclusive in its findings. In the light of expected benefits many studies have been conducted, however, the empirical results do not give conclusive evidence of the role that P-P-P plays in building a resilient infrastructure for emerging economies. For example, Boyer, Cooper, & Kavinoky, 2012 and Shediak, Abouchakra, Hammami and Najjar (2014) show significant role that P-P-P can play

on economic growth, others give evidence to the contrary (Vining and Boardman, 2008). Further, other studies suggest that, the use of P-P-P on improvement of emerging economies, depends largely on the participating country's market size, purchasing power of infrastructure flows and institutional quality matters (Basilio, 2011) mostly for the decision to invest in emerging countries. Hammami, et al. (2006), also intimate that larger markets, stable inflation and more political competitiveness lead to more P-P-Ps investments. In addition, a significant time effect has also been reported. Other seminal works confirm that PPPs can indeed lead to improvements inefficiency but not necessarily so. The econometric evaluation of various types of P-P-P experiences shows indeed that the careful choice of control variables, the proper framing of the P-P-Ps institutional and sectoral context and the careful avoidance of selection biases in sample choices matter to the conclusions reached by empirical tests of the impact of PPPs on efficiency. Recognizing the relevance of these factors allows the identification of the circumstances under which PPPs are likely to enhance efficiency and those under which they will not.

Hodge (2010) points to the multidisciplinary character of P-P-Ps as one of the major challenges. Law disciplines raised their interest in PPPs. Economists study the societal impact of PPPs and will assess the social marginal cost. Engineers will be involved in the feasibility studies and project management scholars will ensure an adequate planning of the project. Due to the often-high dependency on the capital market for e.g. financial risk management, raising equity capital and debt

finance, financial institutions and finance practitioners will also be involved. Bloomfield (2006) identifies substantial public benefits, cost savings and the risk sharing opportunities in P-P-Ps, of course, the appraisal often depends on a country-specific infrastructure. Some governments are not yet prepared to engage in P-P-P projects and other legislations will never be suitable for P-P-P contracting. Other popular criticism relates to the more expensive to raise capital from the market for the private company than for the public sector. Consequently, in order to create value for money, the cost savings and efficiency gains should outweigh the higher cost of capital. Other often encountered disadvantages are based on the complexity of the contract and the inherent dangers (e.g. lock-in, moral hazard and adverse selection) (Zou and Fang, 2008).

In a recent survey conducted by Pricewaterhouse Cooper and Esorys (2013) on behalf of the European Union, corrupt procurement processes was cited as a significant issue, in particular in infrastructure. In a sample of 8 EU countries, the survey finds that the highest probabilities of corruption are the staff development services (23–28%) and the construction of wastewater plants (22–27%). The probability of corruption is lower for rail (15–19%), for road (11–14%), and airport runway construction works (urban & utility construction): (11–13%). The overall direct costs of corruption in public procurement in 2010 ranged between EUR 1.5 billion and EUR 2.3 billion, about 19% of the estimated value of tenders for public expenditures on works, goods and services published in the EU electronic tendering system in the 8 EU Member States covered by the survey.

Conclusion and Policy implications

The review from the theoretical and empirical overview of research on P-P-P as a vehicle for building a resilient infrastructure shows that countries all around the world are confronted with glaring infrastructure deficits, particularly the EMADs. The developed economies are grappling with the problems of high cost of re-investment to replace or modernize the ageing infrastructure while in developing countries the large and growing gap between infrastructure availability and needs is due to higher growth leading to unprecedented demand for infrastructure services in producing goods and services and in maintaining supply and distribution chains efficient, reliable and cost effective. To narrow the infrastructure deficits governments have increasingly turned to PPPs, which once used to be rare and limited to a handful of countries and infrastructure sectors. One offshoot of the rapid worldwide growth of P-P-Ps for infrastructure is that countries remain at vastly different stages of understanding and sophistication in using innovative partnership models. Another general conclusion to be derived from this short theoretical and empirical overview of research on P-P-Ps' efficiency is that they deal with specific hazards that are not present for private contracts and that understanding the drivers of these hazards is essential to understanding the extent to which P-P-P will help or hurt efficiency. Spiller (2009) wisely argued that: "the perceived inefficiency of public or governmental contracting is simply the result of contractual adaptation to different inherent hazards, and as such is not directly remediable". Although PPPs may not be appropriate for every infrastructure project, they offer an additional delivery mechanism for public officials seeking out innovative approaches for leveraging limited fiscal resources. The

final dimension deals with the sustainability of any efficiency gain achieved by a P-P-P. Economists and political scientists have been very effective in recent years in increasing collective awareness of the various dimensions of governance, from weak institutions surrounding P-P-P to the overwhelming politics of P-P-P. Berg et al (2012) point out in their study of telecoms that it affects more private firms than government-owned firms. For transports, Galilea and Medda (2010) suggest that corruption is not just about procurement. Governance and democratic accountability also matter to the impact of a P-P-P on the sustainability of the sectoral efficiency gains they may have delivered. Galilea and Medda (2010) find a positive association between a low accountability level and a P-P-P's success for all transport sectors except toll roads. Less accountable governments "seem more willing to fulfil the long-term requirements" or are maybe easier to make accountable when the PPP process increases the transparency of transactions in the sector.

Those different hazards linked to institutional context are now well-identified and increasingly well documents. They are, however, still waiting for a general theory (Estache and Wren-Lewis, 2009) to guide and structure empirical research. This is particularly important as politicians continue to make efficiency commitments on behalf of PPPs that do not really determining the ways to improve PPPs efficiency. In this context, the evidence also shows that regulators and competition agencies have a stronger role to play that they are credited for by the policymakers betting on PPPs.

Future studies should focus more on theoretical developments and empirical investigations to understand how economic sectors tentatively deal with the various

challenges identified with P-P-Ps, and whether this could be enhanced by innovation in contractual and/or institutional design. This should be a top research agenda, especially because problems that plague P-P-Ps are increasingly recognized and are also present in traditional procurement contracts in a business.

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