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REVIEWING PPP PERFORMANCE IN DEVELOPING ECONOMIES*

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Abstract

The current wave of PPPs in developing economies was not determined by an endogenous process; on the contrary, it was due to a coincidence of interests between international organizations that shared the view of the Washington Consensus and a set of countries that have considered divestiture the best way to alleviate the public deficit constraints. After the euphoria of the middle 1990s, some disenchantment about the capacity of PPI policy to overcome the existent big gaps between high-income countries and developing economies appeared. Although a high interconnection between foreign companies and domestic firms has resulted from PPI policy, and this interrelationship has allowed an expansion and upgrading of some domestic firms in developing economies; these economies go on being characterized by a lack of institutional capacity, weak governance systems, and unclear or unsuitable rules and regulations, all of which increase transaction costs and risks, making PPI arrangements more ineffective in practice than in theory. In the meanwhile, poor people in poorer countries caught in poverty traps need to be served and the rationale underling the PPI approach cannot give a positive answer to these people. Here, the government and the ODA must play a more extensive role than they have played since the emergence of the PPP fashion.

Keywords: Developing economies, infrastructure, PPI, public-private partnership.

JEL codes: H41, H42, L33, O12.

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REVIEWING PPP PERFORMANCE IN DEVELOPING ECONOMIES

1. Introduction

This paper aims to appraise the PPP performance and to anticipate the PPP-related prospective crucial issues in developing economies. This is a very difficult task not only because there is large controversy about what PPPs are — and what PPPs must be — but also because developing economies are a heterogeneous universe without a unique evolution pattern. Although this is not the right place to take in hand either the debate about the PPP concept or the determinants of the current wave of private participation in public services, it is true that the way such wave emerged certainly conditions PPP performance. Therefore, in the next section we'll deal with the sources of the contemporary wave of PPPs in developing economies and with the advantages that allegedly they have as instruments that can contribute to more quickly solve the development gap.

However, the required evaluation must be context specific. There is abundant literature about evaluation of PPPs (mainly as VfM), but this is of little help for our purpose. Not only because, on the one hand, it refers to developed countries¹ and it is not conclusive (Hodge and Greve, 2009), on the other hand, our purpose is to evaluate PPPs in the context of developing countries, and these have specificities which can make a significant difference (Pessoa, 2006). So, in section 3 we'll deal both with the universe of developing economies and with the most frequent justification for the reform towards a higher participation of the private sector in providing goods that formerly were considered public: the scarcity of public funds confronted with the huge infrastructure gap in developing economies.

As any other evaluation, the evaluation of PPP performance can be affected by controversy, it therefore must be clear-headed and, so, a solid ground to base it on is needed. As the development gap is overwhelming both in infrastructure and in social services like education and health, and given that theoretically PPPs can be used both in social services and infrastructure, why are PPPs mostly referred to infrastructure? Although answering to this question would be interesting, our analysis is only about infrastructure for two explicit reasons: firstly, because there is some path dependency on this issue — PPPs have increasingly been considered as exclusively referred to private participation in infrastructure;

¹ For instance, none of the 25 studies about PPP evaluation reviewed in Hodge and Greve (2009, Table 1), is referred to developing economies.

secondly, because the scarce data available are referred to PPPs in infrastructure services². So, we'll limit our analysis to the private participation in infrastructure, using data of the World Bank databases: the WDI (World development indicators) and PPI (private participation in infrastructure) database on PPPs. The data analysis is carried out in section 4.

In a PPP, a sustained collaborative effort in order to attain a common objective is assumed. On the other hand, one important indicator of the failure of a PPP is the degree of dissatisfaction of populations covered by such arrangement. Sometimes this disappointment causes the unexpected end of the PPP. However, the cessation before the contractual end of the PPP project usually results from divergences between partners. These divergences can be originated on a multitude of factors but they always indicate problems in the design of the contractual arrangement or in its functioning conditions. Whatever the situation, termination before the contractual end is always a factor that increases the costs or decreases the potential benefits of PPPs. Section 5 thus deals with the cancellation of PPP arrangements.

If evaluation is not easy, anticipating future crucial issues is even more demanding, because we are facing reforms that correspond to pendulum movements, inserted in dependency relationships. Section 6 will draw some conclusions, which can be useful to speculate about prospective PPP related issues.

2. The current wave of PPPs in developing economies

It is well known that since the 1980s the capacity of governments to provide public services on their own in an effective and efficient way is being questioned. This point of view calls attention to both the invariably inadequate government resources and the quality and efficiency of the services they offer (World Bank, 1994, 1995; Ferreira and Khatami, 1996). Additionally, the arguments provided by the NPM (New Public Management) that traditional public services are ineffective in resource allocation and poor in management (see, e.g. Hood, 1991; Boston, 1996; Minouge *et al.*, 1998; Polidano, 1999) have contributed to the above heated discussion. Furthermore, it has been highlighted that the public sector does not need to compete because it is often the only provider of services, thus lacking incentive to improve

² In spite of the existence of some studies trying to construct infrastructure database (Canning, 1998; Estache and Goicoechea, 2005), there is a lack of available and credible data on infrastructures in developing economies. As is recognized by the Spence Commission (World Bank, 2008, p. 139), "given the importance of infrastructure for long-term growth and inclusiveness, available data are surprisingly hard to obtain". Although this is true, data on collaboration between the public and the private sector in health and education services is hugely more difficult to obtain.

quality. As a result of all the aforementioned ideas, there is a strong belief that if the services are provided directly by government they will deteriorate over time, unless a reform occurs which will alleviate the bureaucratic procedures and give the public sector the capacity to act quickly to adapt to change. Consequently, by the late 1980s private sector financing began to be viewed as the most promising avenue to explore with regard to providing public goods, and in the funding of infrastructure development.

This reform began in developed countries, partly owing to internal political beliefs, as in the UK, and partly influenced by the European Commission³. It was soon extended to developing economies, to some extent by pressure of international organizations that shared the view of the “Washington Consensus”⁴, which includes within its ten principles the reorientation of public expenditures and privatisation (Pessoa, 2004; Rodrik, 2006). Using this rationale, international funding agencies such as the World Bank had insisted on the advisability of “using markets in infrastructure provision” (World Bank, 1994; 1995).

Although these reforms were influenced by the NPM with approaches such as the outsourcing or subcontracting of functions, competition and charging for services, they were also usually connected with a new role to the Official Development Aid (ODA), adopted in reaction to the emerging recognition that conventional support to public providers through loans for capital investment has not achieved the desired results in reducing poverty (Pessoa, 2008a). Consequently, this new set of reforms relies on public-private partnerships as a policy instrument to attain multiple purposes including adequate infrastructure, improving welfare, enhancing efficiency, and so on (United Nations, 2002).

On the other hand, the observation that the developing world needs far more financing for infrastructure than can be provided by domestic public finances alone and through ODA was an important motivation, too (Ferreira and Khatami, 1996; Hammami *et al.*, 2006; ADB, 2009). The cost of maintaining existing infrastructure and undertaking necessary extensions of its coverage is estimated by OECD (2005) at 7 per cent of developing country GDP, equivalent to about 600 billion US dollars (USD) per year⁵. However, public spending on

³ By the late 1990s, the European Commission had advocated explicitly the use of public-private partnerships (PPPs) to fund Trans-European Network projects. See the communication (COM 97/453) issued regarding such partnerships by the European Commission, on 10 September 1997. More recently, the European Growth Initiative approved by the European Council in December 2003, set as one of its objectives to promote the use of PPPs, notably in order to develop growth-related infrastructures.

⁴ John Williamson coins the name “Washington Consensus” in 1989. See Williamson (1990).

⁵ According to a first estimation made by Fay and Yepes (2003) “The infrastructure (except ports, airports and canals) investment needed should amount to about \$465 billion per annum or 5.5% of developing countries’

infrastructure in developing countries is now around 3 per cent. Given the scarcity of public funds in most developing countries, the obvious solution is to invite greater private sector participation, enlarging the use of public-private agreements in infrastructure and relying on ODA to enhance the quality of projects, reduce risks and raise profitability.

Such public-private agreements were responsible for USD 1,255 billion in infrastructure investments between 1990 and 2007 (PPI database). Some of this money obviously came from public finances, with the private sector having nevertheless contributed significantly to infrastructure development over the period – according to OECD (2005) far in excess of what governments could have financed on their own – and assumed several of the risks (e.g. commercial and currency risk) that would otherwise have occurred in the public sector (OECD, 2005).

Some points must therefore be retained: first, the movement towards PPPs in developing economies began as not an exclusively endogenous process. It was advised and propelled by international organizations under a controversial set of guidelines known as the “Washington Consensus”. Second, the most used argument advocating PPPs is that the developing world needs far more financing for infrastructure than can be provided by domestic public finances. However, it is far from certain whether this should be a driver for PPPs in itself, because as is recognised by the European Investment Bank (EIB, 2005, p. 11) “In a PPP, the private-sector Provider needs to be paid – either by end-users through real tolls, or by the public-sector Promoter through shadow tolls, asset availability fees, etc. These payments have to cover the costs of funding the project, plus Operating and Maintenance (O&M) costs”.

3. The specificity of developing economies

For practical purposes one can classify economies according to relative GDP per capita. The World Bank, for instance classifies economies into basically three groups: Low Income, Middle Income and High-income countries⁶. Henceforth we’ll consider developing economies as the set composed of Low Income and Middle Income economies. As a whole, Low Income and Middle Income countries produce 26% of world GDP (current US\$), but they correspond to 74% of the world surface and 84% of the world population (WDI, 2009). This makes some

GDP over 2005-2010”. In these estimates resources that might be needed for rehabilitation or for upgrading are not included.

⁶ In the most recent classification Economies are divided according to 2008 GNI per capita using the World Bank Atlas method. The groups are: low income, \$975 or less; lower middle income, \$976 - \$3,855; upper middle income, \$3,856 - \$11,905; and high income, \$11,906 or more.

comments opportune: firstly, this is a large potential market not only for its domestic firms but also for companies worldwide; secondly, given the shortage of domestic savings in most developing countries international financing must be called to play a role (Ferreira and Khatami, 1996).

Table 1 presents some illustrative figures following the WDI (World Development Indicators), and it divides the developing economies in six geographic regions: EAP (East Asia and Pacific), ECA (Europe and Central Asia), LAC (Latin America and the Caribbean), MENA (Middle East and North Africa), SA (South Asia), and SSA (Sub-Saharan Africa). To discriminate the developing economies in those six regions evidences the differences between each other. Of course, regions themselves are not homogeneous: there are important differences between rural and urban areas and these differences are typically higher than in developed countries. For instance, in SSA where the rate of population growth is the highest in the world, while population has increased at a 1.9 percent annual rate in rural regions, such rate amounts to 4 percent in urban areas. Another example is equally significant: In 2006, in this region while 57 percent of the urban population had access to improved sanitation facilities, such access only existed for 23 percent of the rural population (WDI, 2009). This confirms the above noted high potential market for infrastructure, and particularly for urbanization-pulled infrastructure and utilities.

Table 1.
Some regional indicators in developing economies

Region:	Surface area, thousand sq. km 2007	Population, millions, 2007	Average annual growth of population, % 1980-2007	Life expectancy at birth, Years, 2007	Under-5 mortality rate per 1,000 2007	Child malnutrition, % under- weight 2000- 2007	Prevalence of HIV, Adults % ages 15-49 2007
EAP	16,299	1,912	1.3	72	27	13	0.2
ECA	23,972	446	0.4	70	23	...	0.6
LAC	20,421	561	1.7	73	26	4	0.5
MENA	8,778	313	2.3	70	38	...	0.1
SA	5,140	1,522	1.9	64	78	41	0.3
SSA	24,242	800	2.7	51	146	27	5.0

Source: Based on World Bank (2009).

As shown in table 1, given the vast surface area, the huge amount of population and, above all the growth rate of population, developing economies face important needs in terms of provision of infrastructure services. With the exception of ECA, where the demographic transition was completed long ago, the high rates of population growth exert an increasing pressure on the supply of social and infrastructure services, significantly higher than in developed countries. Moreover, the increasing rates of urbanization force the building of new

infrastructure⁷. However, table 1 also shows that in social services, as health and education, the need for provision is not less urgent than the lack of infrastructure. To this general characteristic, some particularities must be added: the level of child malnutrition, the under-5 years mortality rate, the prevalence of HIV and, consequently, the life expectancy at birth, all the impoverished health conditions, especially in SSA⁸.

Moreover, even in economies that have registered large improvements in health and education, significant gaps remain. The example of South Asia helps to elucidate this point. Extreme poverty declined from 52 percent in 1990 to 40 percent in 2005. In spite of this success, the number of poor people increased and the region remains home to the largest number of extremely poor people: nearly 600 million in 2005. The region has made large improvements in education: the primary education completion rate rose from 62 percent in 1991 to 80 percent in 2006 and the ratio of girls to boys in secondary education improved from 59 percent to 84 percent between 1991 and 2005 (World Bank, 2009). In spite of these improvements, SA has not yet attained universal primary education, a goal that was achieved by high-income countries a long time ago. To the gaps in social services mentioned above, the paucity of infrastructure can be added, as the Asia Development Bank observes: “globally, 1.1 billion people lack adequate access to clean water, 2.4 billion lack adequate sanitation, 4.0 billion lack sound wastewater disposal systems, and 2.0 billion lack electric power” (ADB, 2009, p. 2).

Consequently, the amount of resources needed in order to undertake the necessary improvements in health and education conditions and in infrastructure to overcome the development gap is extremely high. Given the level of income creation in these countries and the scarcity of public funds, the obvious solution seems to be to invite greater private sector participation, enlarging the use of public-private agreements in social and infrastructure services. Perhaps authorities in developing economies consider that there is a trade-off between social services and infrastructures, and that infrastructure has higher linkages with economic development than social services. Whatever the reason, the fact is that the existence of PPPs appears most popular in building, operating and maintaining infrastructure than in providing for social services.

⁷ Even if the poorest regions, SA and SSA, remain predominantly rural, rapid urbanization has put significant pressure on urban services and infrastructures.

⁸ Of course, there are differences among regions. For instance, the access to improved sanitation facilities is in short supply above all in SA and SSA, and the prevalence of HIV is particularly high in SSA. But, even in regions with less unfavourable indicators there is a huge gap to overcome in the road to development.

4. PPPs in infrastructure services: the available data

4.1. PPPs and infrastructure services

It is well established that there are growing demands of social services and infrastructure in developing economies. Given the also recognized constraints on public resources in developing countries, a call for larger private sector involvement in the provision of both services of social sector (education, health care) and of infrastructure and utilities through PPPs seems to be at least part of the solution (Pessoa, 2006, 2008a).

However, the way the private sector has been called to participate in reducing the short supply of social services has been very different from the one used in infrastructure services. There are two noteworthy differences: in the former, NGOs⁹ have had a more important role; in the latter the key intervention is from foreign for-profit companies, and particularly MNCs (multinational companies) coming from OECD countries. But, above all, private participation in infrastructure services is associated to a higher level of private investment, which is conducive to more formal arrangements and, consequently, leads to lesser scarcity of empiric data to work with. So, although there are a wide variety of public-private partnerships in developing economies, when one uses the expression PPP what is usually called to mind is the private sector participation in infrastructure services. This is also the reason why this chapter is only focussed on infrastructure and utilities arrangements.

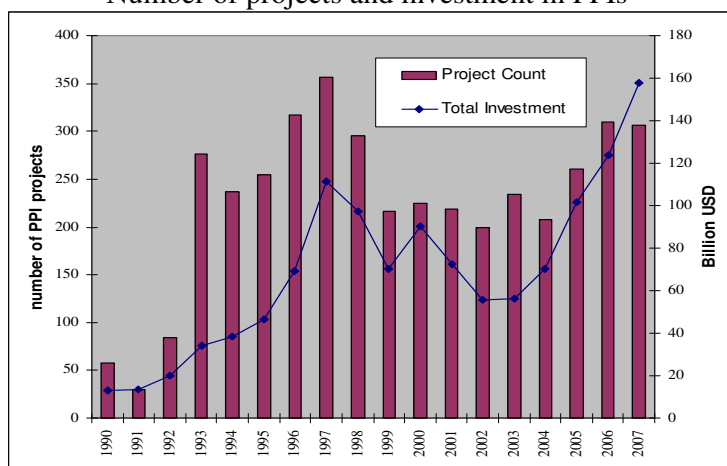
While there is an abundant literature about PPP definitions (Bovaird, 2004; Hodge and Greve, 2007), “few people agree on what a PPP actually is” (Hodge and Greve, 2009, p. 33), partly because there are many uses for the PPP concept (Hodge and Greve, 2007). Elsewhere (Pessoa, 2006), we have defined PPP as a sustained collaborative effort between the public sector and the private sector (including not-for-profit organizations) to achieve a common objective while both players pursue their own individual interests. This is a general definition that attempts to include different types of PPP families. However, our purpose in this chapter is primarily focused on policy instruments that broadly coincide with a particular PPP family: the “Long-term infrastructure contracts (LTICs)”, as named by Hodge and Greve (2007). Thus, a PPP is here identified with any sustained arrangement between a public sector party and a private sector party whereby the private sector assumes total or partial responsibility for infrastructure planning, financing, design, construction, operation, and maintenance, against

⁹ In Health, for instance a Swiss NGO, Foundation PH, is dedicated to Partnerships in Health, providing health education and training for the countries of Eastern Europe and Central Asia (see, <http://www.partnershipshealth.ch>). For an overview on PPPs in the education sector, see the examples provided by Pessoa (2008b).

the possibility of collecting payments from the users or/and from the public sector party. This may be considered a restrictive definition, because it considers a PPP as an instrument rather than a social phenomenon but it is sufficiently operative for our purpose: to confront the available data with the alleged goals of governments and international financing organizations which view PPPs as the best way to solve or reduce the development gap.

Therefore, PPPs in infrastructure and utilities are understood as projects with the private sector participation in four areas of economic activity with some monopoly or oligopoly characteristics¹⁰: energy (generation of electricity; transmission and distribution of electricity and natural gas), telecommunications (telephony, both fixed or mobile and domestic or international), transport (airports, railways, toll roads, port infrastructures), and water (generation and distribution of potable water and collection and treatment of sewerage). In these sectors, the number of PPP projects and the total investment commitments to such projects have had an uneven evolution in the last two decades with periods of expansion and slowdown, as depicted in figure 1.

Figure 1.
Number of projects and investment in PPIs



Source: Based on PPI database.

In effect, according to data from the Private Participation in Infrastructure Project Database¹¹, from 1990 to 2007, 140 developing countries implemented at least 4,111 projects with private

¹⁰ More competitive activities, such as airlines and gas production, are not included.

¹¹This database (hereafter PPI database) collects and disseminates information on infrastructure projects with private participation in low- and middle-income countries. The PPI Database is a joint product of the World Bank's Infrastructure Economics and Finance Department and the Public-Private Infrastructure Advisory Facility (PPIAF). The PPI Project Database collects information from publicly available sources and includes transactions worth \$1 million or more or, in water and electricity distribution, transactions that would provide 5,000 or more new connections. See <http://ppi.worldbank.org>.

participation (hereafter, PPI projects), involving investment commitments (henceforth, investment) of more than 1,255,613 million US\$. As figure 1 shows, there is not a linear trend both in the number of PPI projects and the investment volume they have associated. Why is there a sharp increase in investment until 1997, and a decreasing trend from 1997 to 2002? Are these PPI projects evenly distributed across infrastructure sectors? Are they equally distributed across geographic regions? Do these projects depend on the country's level of development? The assessment of the performance of PPIs in developing economies calls for answers to these questions.

4.2. Distribution across infrastructure sectors

Looking at the economic activity, it is apparent from table 2 that, the bulk of investment was directed to telecommunications, which accounted for 49% of the cumulative investment in 1990-2007, although the highest number of projects corresponds to energy, with particular emphasis to electricity. The technological change verified in telecommunications has contributed to this leading position, reducing sunk costs and diminishing the barriers to entry.

Table 2.
PPI by area of economic activity

Primary Sector	Subsector	Project Counts		Total Investment		Investment per project
		Number	Percent	Million USD	Percent	Million USD
Energy	Electricity	1,261	30.82	315,132	25.35	250
	Natural Gas	328	8.02	55,974	4.50	171
	Total	1,589	38.83	371,106	29.86	234
Telecom	Telecom	807	19.72	604,811	48.66	749
Transport	Airports	128	3.13	30,580	2.46	239
	Railroads	100	2.44	38,891	3.13	389
	Roads	546	13.34	99,754	8.03	183
	Seaports	325	7.94	41,696	3.35	128
	Total	1,099	26.86	210,921	16.97	192
Water and sewerage	Treatment plant	316	7.72	12,461	1.00	39
	Utility	281	6.87	43,705	3.52	156
	Total	597	14.59	56,166	4.52	94
Total		4,092	100	1,243,004	100	304

Source: Based on PPI Database.

However the technological change was not the sole cause: the big wave of privatization in the sense of assets selling has also played a significant role. In fact, there was a significant

amount of assets to be sold in Latin America as a consequence of policies following the “Washington Consensus” and in ECA resulting from the disintegration of the former Soviet Union.

Energy, which includes electricity and the distribution of natural gas, attracted the second largest share of investment, accounting for 30% of the cumulative investment in private infrastructure projects. In contrast, private participation in the water and sewerage sector has been limited, accounting for 5% of cumulative investments over the same period. The scarce amount of private involvement in water and sewerage is likely to reflect the “inherent difficulties” that face reforms in this sector, “in terms of the technology of water provision and the nature of the product” (Pessoa, 2008a, p. 319), but above all it reveals the scarce private investment in water treatment plants.

This scarcity of investment in water and sewerage sector has many causes. As Hammami et al. (2006, p. 5) have shown ‘private sector decisions to commit resources are a function of the expected marketability of the goods and services, the technology required, and the degree of “impurity” of the goods or services’. The services supplied by the water and sewerage sector are usually viewed as public goods and this characteristic affects the way consumers react to reforms that increase the private participation in the sector, moreover reforms that sell assets to the private sector or that put private companies to collect tariffs from consumers. So, the public good characteristics of this sector explain the political and social opposition to such type of reforms, and also at least partly justify the scarce willingness to invest in the water and sewerage sector.

Additionally, other factors contribute to the low motivation to invest in the water sector¹²: i) water supply and sewerage services constitute a natural monopoly and so competition in the sector is limited; ii) the underground assets are difficult to assess, introducing much uncertainty in investment plans; iii) the sector as a whole is plagued with entrenched social and cultural issues (Marin, 2009) and consequent threat of riots; and iv) the historical level of residential water tariffs, which in most countries do not consider any cost recovery, does not allow the use of PPP modalities that involve assumption of demand risk by the private party, as is recognized by the ADB (2009).

Recognizing the specificities of the water sector, some consider that the main focus of water PPPs should not be about attracting direct private investment, but rather about using private

¹² These factors can also explain why projects in the water and sewerage sector have the highest tendency to cancellation (see, Harris and Pratap, 2008).

operators to improve service quality and efficiency (Marin, 2009). Although concessions have worked in a few places, contractual arrangements that combine private operation with public financing of investment appear to be the most sustainable option in many countries (Marin, 2009).

The number of projects in the transport sector represents near 27 percent of total PPI projects, but only 17 percent of the total investment. Near one half of this investment has gone into toll roads, with the rest into railways, seaports, and airports. These disparities are likely due to the different expected returns of the activities. While highways are usually seen as luxury goods in developing economies and so the tolls don't face much opposition, the passenger railways, seaports and airports usually have subsidized tariffs, in the first case because transport by rail is traditionally associated to low cost of labour, and the other two because of an association with some sovereignty functions. This explains why freight railways, a less hot politically activity, has attracted more private investment than passenger railways.

4.3. PPI Types

Table 3 illustrates the relative importance of private involvement grouped in four main types of PPI in four sectors of infrastructures and public utilities and in regions of the developing world. For example, in the energy sector there were 1,587 PPIs with an investment of 369,939 million USD. Greenfield projects represent 61.18 percent of total number of projects in this sector and the majority of the investment (at 55.58 percent). Unsurprisingly, greenfield together with divestitures¹³, represent 71.8 percent of the total number of PPIs, 86.1 percent of total investment. On average, while greenfield projects are the most frequent, both in number (53 per cent) and in cumulative investment (50 per cent), management and lease contracts are the least widespread in both dimensions (5 and less than 1 per cent, respectively). In developing economies, greenfield projects are the ones that face the lowest opposition and even sometimes enthusiasm on the part of population because they are new projects with a high dimension and so they employ large amounts of labour force in the construction phase. Additionally, they are built and operated by the private sector, which takes on the commercial risk, and they are also projects that national and local governments like to exhibit as a sign of its venture capacity.

¹³ By divestiture we mean that the assets of a public utility are totally or partially sold to the private sector.

Table 3.
Prevalence of PPI Types in sectors and regions

Cumulative investment by sector (Project counts by sector)	Total Million USD (Project counts)	Concession (percent)	Divestiture (percent)	Greenfield project (percent)	Management and lease contract (percent)
Energy	369,939 (1587)	3.73 (6.49)	40.63 (30.12)	55.58 (61.18)	0.06 (2.21)
Telecom	604,811 (807)	0.93 (1.24)	46.69 (25.15)	52.38 (72.99)	0.00 (0.62)
Transport	210,272 (1097)	51.58 (54.15)	5.85 (5.93)	40.22 (34.28)	2.35 (5.65)
Water and sewerage	56,166 (597)	67.36 (40.37)	12.64 (4.36)	16.76 (37.86)	3.24 (17.42)
Total	1,241,188 (4088)	13.35 (23.19)	36.42 (18.88)	49.66 (52.89)	0.56 (5.04)
Cumulative investment by Region (Project counts by Region)					
EAP	276,114 (1249)	16.29 (24.26)	21.10 (11.13)	62.41 (63.01)	0.20 (1.60)
ECA	229,631 (702)	4.40 (6.13)	47.54 (48.86)	45.52 (37.61)	2.54 (7.41)
LAC	474,592 (1245)	17.04 (32.53)	50.57 (18.07)	32.32 (45.14)	0.07 (4.26)
MENA	64,558 (121)	14.59 (14.88)	22.84 (7.44)	62.32 (62.81)	0.25 (14.88)
SA	127,577 (414)	10.23 (26.09)	11.01 (4.83)	78.75 (66.67)	0.00 (2.42)
SSA	68,716 (357)	10.58 (19.89)	23.07 (10.08)	66.20 (55.18)	0.15 (14.85)
Total	1,241,188 (4,088)	13.35 (23.19)	36.42 (18.88)	49.66 (52.89)	0.56 (5.04)

Source: Based on PPI Database. Note: figures in parenthesis are the corresponding value in project counts.

On the other hand, management arrangements, which usually have shorter duration than Greenfield projects, are sometimes used in situations of uncertain political environment and limited availability of baseline data, as is the case of the 4-year contract of the Gaza Strip in water and sewerage (see, Pessoa, 2008a). Lease arrangements are also sometimes used where uncertainty is high and, if succeeded, as a first step for a concession. It is the case of water supply in Conakry and 16 other towns in Guinea (see Pessoa, 2008a). In both types of arrangements (management and lease) as the public entity remains responsible for investments while the commercial risk is borne by private sector, the asymmetry of information, and consequent difficulty in enforcing any potential gains, can be a disincentive which helps to explain the low share of this type of PPI in the total investment.

By sectors, greenfield projects predominate in energy and telecom while concessions are prevalent in transport, and water and sewerage. Management and lease, clearly in minority in all sectors, have some importance in water and sewerage, both in number (17 per cent) and in volume of investment (3 per cent). This observation also confirms the above said about the difficulty in transferring public water and sewerage assets to the private sector. This also justifies why concessions are by far the most important form of PPI, not only in transport but

also in the water and sewerage sectors, both in number of projects and in cumulative investment.

Among the developing regions, LAC accounts for the great bulk of the cumulative investment in infrastructure. Latin America presents the largest share of concessions, both in number and in total investment. Although divestitures have occurred more frequently in ECA, Latin America presents the highest volume of money was invested. Greenfield projects were preferred in EAP. While contracts of Management and lease are evenly distributed by ECA, LAC and SSA, the small cumulative investment in this form of PPI is concentrated in ECA.

Table 4 shows the importance of PPIs by sector and region. So, we can see that concessions correspond to 948 PPI projects with a cumulative investment of 165,689 millions of USD. It is also evident that 8.33 percent was invested in the energy sector, with this corresponding to 10.86 percent of total concessions.

Table 4. Importance of PPIs by sector and region

Cumulative investment by sector (Project counts by sector)	Type of PPI (in percent)			
	Concession	Divestiture	Greenfield project	Management and lease contract
Energy	8.33 (10.86)	33.25 (61.92)	33.35 (44.91)	3.24 (16.99)
Telecom	3.38 (1.05)	62.46 (26.30)	51.40 (27.24)	0.00 (2.43)
Transport	65.45 (62.66)	2.72 (8.42)	13.72 (17.39)	70.73 (30.10)
Water and sewerage	22.83 (25.42)	1.57 (3.37)	1.53 (10.45)	26.02 (50.49)
Total				
Millions of USD	165.689	452083	616423	6992
(number of PPIs)	(948)	(772)	(2162)	(206)
Cumulative investment by Region				
	27.15	12.89	27.95	7.89
EAP	(31.96)	(18.01)	(36.40)	(9.71)
	6.10	24.15	16.96	83.47
ECA	(4.54)	(44.43)	(12.21)	(25.24)
	48.80	53.09	24.88	4.77
LAC	(42.72)	(29.15)	(25.99)	(25.73)
	5.69	3.26	6.53	2.35
MENA	(1.90)	(1.17)	(3.52)	(8.74)
	7.88	3.11	16.30	0.02
SA	(11.39)	(2.59)	(12.77)	(4.85)
	4.39	3.51	7.38	1.50
SSA	(7.49)	(4.66)	(9.11)	(25.73)

Source: Based on PPI Database. Note: figures in parenthesis are the corresponding value in project counts.

By region, policymakers appear to have a preference for greenfield projects, which allow new infrastructure to be built without necessarily having to embark on major structural reforms. Exceptions are found only in Latin America and ECA where divestitures were more widespread, reflecting major privatization programs in many countries in these regions. The greatest prevalence of greenfield projects in Asia and of divestitures in the volume of

investment in Latin America show that private investment has tended to complement public expenditure in Asia and replace it in Latin America. As a matter of fact, in Latin America private participation in infrastructure was often part of a broader reform program where divestitures and concessions of existing assets predominated in the cumulative investment in private infrastructure projects¹⁴. In contrast to Latin America, the Asia region with higher average economic growth rates has focused on the creation of new assets through greenfield projects. As noted by Ferreira and Khatami (1996, p. 16), in Asia the promotion of private infrastructure was above all seen as a way of “complementing public sector efforts to keep pace with economic growth”.

4.4. Distribution across countries and regions

Table 5. Number of PPI projects and total investment, by income group, 1990-2007

Income Group	Project Counts		Investment		Investment per project	
	Region	Number	Percent	Million USD	Percent	Million USD
Low income		771	18.75	180,021	14.44	233.49
	EAP	72	1.75	12,115	0.97	168.26
	ECA	21	0.51	1,354	0.11	64.47
	LAC	6	0.15	437	0.04	72.79
	MENA	8	0.19	900	0.07	112.46
	SA	390	9.49	124,879	10.02	320.20
	SSA	274	6.67	40,337	3.24	147.22
Lower middle income		1691	41.13	370,824	29.75	219.29
	EAP	1084	26.37	215,050	17.26	198.39
	ECA	103	2.51	19,743	1.58	191.68
	LAC	353	8.59	70,166	5.63	198.77
	MENA	98	2.38	60,182	4.83	614.10
	SA	24	0.58	2,698	0.22	112.41
	SSA	29	0.71	2,986	0.24	102.97
Upper middle income		1649	40.11	695,423	55.80	421.72
	EAP	97	2.36	50,204	4.03	517.57
	ECA	579	14.08	208,534	16.73	360.16
	LAC	895	21.77	406,190	32.59	453.84
	MENA	16	0.39	3,477	0.28	217.29
	SSA	62	1.51	27,019	2.17	435.79
Total		4,111	100	1,246,268	100	303.15

Source: Based on PPI database.

¹⁴ As Ferreira and Khatami (1996) observe, if in Chile the infrastructure services were reformed owing to “the emerging recognition of private infrastructure’ advantages”, mainly in other Latin American countries, like Argentina and Mexico, “infrastructure privatisation has often been used to generate revenues for government and retire external debt” (pp. 15-16)

Although there are PPI projects in 140 out of 144 economies classified as developing ones by the World Bank, PPI projects are not evenly distributed across regions and across countries. Table 5 summarises the volume of investments and the number of projects for the 1990-2007 period. It shows in fact that, while the 50 low-income countries have registered 771 projects, the 53 lower-middle income economies more than doubled such amount with 1691 projects, a number that slightly exceeds the value registered by the 37 upper-middle-income countries. Moreover, the dimension of the projects varies with the level of development, with higher investments on average located in upper-middle-income countries, as is apparent in table 5.

Even though almost all developing countries have used some form of private investment in infrastructures since 1990, private investors have tended to be directed to a small group of developing countries: the ones with relatively large, rich or fast-growing markets. Table 6 shows the top 12 countries with highest number of PPI on the left side and the top 12 destinations for investment in infrastructures in developing economies in the 1990-2007 period, indicating a high concentration in both number and cumulative investment.

Table 6.
Top 12 of private sector involvement by country, 1990-2007

Ranking by number of PPI projects			Ranking by investment		
Country	Project counts	Per cent	Country	Million USD	Per cent
China	805	19.58	Brazil	196,308	15.63
Brazil	328	7.98	China	99,953	7.96
Russian Federation	310	7.54	Mexico	86,126	6.86
India	306	7.44	Malaysia	50,204	4.00
Argentina	193	4.69	Philippines	42,243	3.36
Mexico	176	4.28	Indonesia	40,676	3.24
Colombia	132	3.21	Turkey	36,851	2.93
Chile	107	2.60	Thailand	31,954	2.54
Thailand	96	2.34	Poland	31,853	2.54
Malaysia	96	2.34	Hungary	27,111	2.16
Philippines	88	2.14	Chile	26,291	2.09
Indonesia	87	2.12	South Africa	25,341	2.02
Top 12	2,724	66.26	Top 12	694,911	55.34%

Source: Based on PPI database.

The 12 countries presented on the left side of table 6 justify roughly two thirds of the total number of projects, and absorb 55 per cent of the investment. To sum up, Latin America accounted for the great bulk of the cumulative investment in infrastructure. Two Latin

American countries (Brazil and Mexico) account for more than one fifth of the total PPP investment in the developing world. However, the countries and regions that have absorbed the greatest bulk of investment are not the ones that need the most in terms of reducing the development gap.

As table 7 shows, the access to improved water sources is particularly low in SSA. However, this region together with SA have profited the least from PPI investment in the water and sewerage sector. As is visible from table 7, only 0.47 percent of the total investment in water and sewerage was spent in SSA in the 1990-2007 period. There is also a clear paucity of Telecoms in SA and SSA, where land line and mobile phone subscribers are respectively, 26 and 25, per 1,000 people. However, of the total investment in telecom only 8.2 percent was applied in SSA and 10.45 percent in SA. Respecting to paved roads the two regions with lowest percent, EAP and SSA, have different performances: while EAP benefited from 35.17 percent, SSA have only absorbed 1.86 percent of total investment¹⁵. So, a first conclusion can be drawn: the PPI investment was directed not to countries that need the most but to countries and regions that are more attractive to foreign investment.

Table 7.
Some key indicators of developing economies

Region:	Development indicators					PPI investments, 1990-2007				
	GNI per capita PPP \$ 2007	FDI, net inflows \$ Billions 2007	Net aid received per capita, \$ 2007	Access to improved sanitation facilities % 2006	Paved roads, % of total 2000-06	Phone subscribers, per 1,000 people, 2007	Access to improved water source, % 2006	Roads	Telecom	Water and sewerage
EAP	4,969	175	4.5	66	11.4	67	87	35.17	12.75	49.47
ECA	11,262	156	13.0	89	...	121	95	6.32	24.90	7.16
LAC	9,678	107	12.2	78	22.0	85	91	46.65	37.07	40.82
MENA	7,402	29	56.1	77	81.0	68	89	0.10	6.66	1.62
SA	2,532	30	6.8	33	56.9	26	87	9.89	10.45	0.45
SSA	1,870	29	44.2	31	11.9	25	58	1.86	8.17	0.47

Sources: Based on World Bank (2009) and PPI database.

5. When the third P drops: Cancellations and Projects under distress

When the third P drops, that is, when the partnership is broken, three factors acquire particular relevance: the increase in transaction costs, the emergence of termination risk and the decrease in PPPs trust. All three factors must be considered in evaluating the PPI performance.

¹⁵ According Yepes et al. (2009), Africa has the worst infrastructure endowment of any developing region today, particularly with respect to electrical generating capacity.

One important indicator of the failure of a PPP is the degree of dissatisfaction of the populations covered by such arrangement. Sometimes this disappointment causes the unexpected end of the PPI. However, the cessation before the contractual end of the PPI project usually results from divergences between partners. These divergences owe to a multitude of factors but they always hint at problems in the design of the contractual arrangement or in its functioning conditions. The existence of such problems is likely to increase the transaction costs and so to reduce the effectiveness of PPPs over the traditional way of procurement.

One important feature of the PPP way of providing for infrastructure is the correct allocation of risks, which must be ex-ante identified. The superiority of the PPP way over the traditional public provision implies a comparison of risks. But there is a risk in PPP procurement, which is not applied to traditional public procurement: the termination risk (EIB, 2005). This risk is borne both by the public partners and the private partners. It is the risk that the PPP arrangement will be terminated early, either through private partner financial failing or by private partner failure to perform technically, e.g., by not providing the contracted service adequately¹⁶. This is a risk for the private sector partners, as they will almost certainly suffer a material financial loss on termination. However, it is also a risk for the public sector partners: they will still need to arrange for the service to be provided after the termination, based on the available project. The risk can be partially mitigated by selecting suitable bidders. However, these are long-term contracts and there is a trend for the original technical members of a consortium to be displaced by purely financial investors that may not have the relevant experience and expertise. Public partner failure, on the other hand, may owe to an inappropriate allocation of risk from the beginning. Whatever the situation, termination before the contractual end is always a factor that increases the costs or decreases the potential benefits of PPPs.

The trust in PPP policy can also be negatively influenced if partners of the private sector leave infrastructure projects before the contract ends. The confidence reduction can also happen when projects face problems that put them under distress. Such problems can have impact both on the private sector's confidence and on the government's self-belief in the robustness and "value for money" of arrangements similar to the distressed ones. In both cases

¹⁶ Most cases of early termination of contracts involved significant disobedience with contractual responsibilities on one or on both sides (Marin, 2009), followed by a degradation of the partners' relationship to the point that ending the partnership is the chosen solution. When PPPs end after having been in place for many years, its anticipated end usually reflects difficulties in adapting the contract over time to changing conditions (Marin, 2009).

uncertainty emerges, and it becomes more difficult to correctly assess the value of PPPs over other alternatives.

However, besides the increased costs and problems affecting the evaluation of projects, the relative importance of the number of projects and volume of investment involved in cancellations is an important indicator on the prospects of policy based on PPIs and particularly on the interest of investors. As is recognized by the Asian Development Bank (ADB, 2009), project cancellations have affected the interest of international investors and operators in PPI. Table 8 shows the number and the total investment of projects cancelled¹⁷ and under distress¹⁸ compared with the total number and investment on PPIs reaching financial closure, in developing regions.

Table 8.
Importance of projects cancelled or under distress, 1990-2007

Region:	Number of countries with private participation	Projects reaching financial closure		Projects cancelled or under distress	
		Number	Total Investment (Million USD)	Number	Total investment (Million USD)
EAP	18	1253	\$277,368	70	\$30,663
ECA	26	703	\$231,331	21	\$3,788
LAC	29	1254	\$479,844	118	\$48,955
MENA	13	122	\$66,858	6	\$1,017
SA	8	414	\$127,577	7	\$3,930
SSA	46	365	\$72,635	31	\$1,890
Total	140	4,111	\$1,255,613	253	\$90,243

Source: Based on PPI database.

According to data presented in table 8, 253 projects of a total 4,111 reported by the PPI database as reaching financial closure in 1990–2007 were canceled or under distress by 2007. Those accounted for 6.2 percent of all projects and 7.19 percent of investment commitments, with a significantly contribution of EAP (11.1 percent) and LAC (10.2 percent) in the cancelled or distressed investment. However, the principal problem is that in the latest six years an increasing trend in cancellations has been observed: the rate of private sector exit has increased more than twice, between 2001 and 2007, representing a high increase in the

¹⁷ A project is considered to have been canceled if, before the end of the contract period, the private company sold or transferred its economic interest in the project to the public sector; the private company physically abandoned the project (such as withdrawing all staff); or the private company ceased operation or closed down construction for 15 percent or more of the license or concession period, following the revocation of the license or repudiation of the contract. See Harris *et al.* (2003).

¹⁸ Although PPI database distinguishes between cancellations and distressed projects defining these as projects “in which the government or the operator has requested contract termination or that are in international arbitration”, for our purposes we consider that both are an indicator of problems in PPI.

cancellation rate. In fact, Harris *et al.* (2003) found that for the 1990–2001 period the corresponding figures were only 1.9 percent of all projects and 3.2 percent of all investment commitments. This increasing rate of cancellations as time elapses is likely to have negative effects on the popularity of these instruments and shows that the return to the euphoria of the first seven years of 1990s will not be easy.

Sometimes difficulties in public-private partnership projects with impacts on the cancellation rate can be the outcome of macroeconomic shocks. Toll road projects in Mexico, water projects in Argentina, and power generation projects in Indonesia, all of which suffered from macroeconomic shocks occurring in these countries at different times, contributed significantly to the list of canceled PPI projects. In fact, the financial crisis increased the cost, and reduced the availability of project financing, which had likely implications on the cancellation rate. In addition, financial crises have usually led to the renegotiation of many contracts. For instance, it was estimated that the Asian financial crisis drove to the renegotiation of 71 per cent of contracts in East Asia (Reside Jr., 2008).

However, often the problems can be endogenous, that is, they can result from the behavior of the partners, as for example, the aggressive bidding of the private sector or failures in the design of the policy instruments, including bad project or concession design. Several cases of early termination can be traced to contracts whose design was not viable or whose bidding process led to unrealistic financial conditions, or both. An example is Cochabamba (Bolivia), where the contract was awarded following a tender from which all but one consortium had withdrawn. Substantial tariff rises were needed to turn the large investment required from the private operator viable, something that proved socially unsustainable and brought about the rapid failure of the contract (Marin, 2009)¹⁹.

6. Conclusion

In this chapter we have tried to review the PPP performance in developing economies, using data of World Development Indicators and of the PPI database, for the 1990-2007 period. Some points deserve consideration.

First, the current wave of PPPs in developing economies was not determined by an endogenous process. On the contrary, it was due to a coincidence of interests between

¹⁹ As Graeme Hodge remembered me, this is probably the most high profile failure in water privatisation. A consortium controlled by U.S. multinational Bechtel, signed a 40-year deal to increase water supplies and services to Cochabamba, but six months later, rioting Bolivians chased the company out of the country.

international organizations that shared the view of the Washington Consensus and a set of countries notably in LAC²⁰ that have considered divestiture the best way to alleviate the public deficit constraints (for instance, Argentina, Mexico). This coincidence explains the huge increase both in the number of PPI projects and in the volume of investment from 1990 to 1997 while it highlights, at least partially, the high volume of investment in PPIs in energy and telecommunications, sectors where divestiture was more extensive.

Second, data reveal a picture of concentration. Two in six regions are responsible for 60 percent of the total investment in PPI projects: LAC and EAP with 38 per cent and 22 per cent of total investment, respectively. We also observe that within these regions investments are neither evenly distributed across countries nor are the least developed countries those that benefit the most. On the contrary, 12 in a total of 140 developing economies with PPI projects are responsible for the absorption of 55 per cent of the investment in PPPs. These are countries with relatively large, rich or fast-growing markets, characteristics that always attract foreign investment. On the other hand, the poorest economies, notably in SSA, to which the privatization receipt of Washington Consensus was also blindly applied (Nellis, 2003), went on increasing the development gap.

Third, if, as is frequently advocated by international organizations, the advantage of the PPIs, results from the capacity of this type of procurement to reduce the infrastructure gap in developing economies we can only conclude that the target was not attained. What is apparent is that Governments used private sector involvement to provide infrastructure projects as they see PPPs as a quicker way than other alternatives to have infrastructure in place. But, although PPPs may be attractive to governments, as they allow a reduction — and often delay — of government expenditures in infrastructure investments, certain PPP types effectively create (off-budget) future liabilities.

Fourth, there is some disenchantment about the capacity of PPI policy to overcome the existent big gaps between high-income countries and developing economies. This is visible in the fact that after 1997 the increase trend of PPI projects both in number and in amount of investment never reached the earlier rate. Furthermore, the yearly amount of investment in PPI projects has never recovered the value achieved in 1997. This disillusionment is also

²⁰ According to the World Bank (1995) the revenues from divestiture in developing economies, from 1988 to 1993, amount to 0.1, 2.0, 7.4, and 22.5 billions of US dollars, in Africa, ECA, Asia and Latin America, respectively.

visible in the increasing amount of investment that corresponds to cancelled and under distress projects.

Fifth, the results of a PPP policy must also be evaluated in a dynamic perspective. A high interconnection between foreign companies and domestic firms has resulted, and this interrelationship has allowed some expansion and upgrading of domestic firms in developing economies. As is shown by Marin (2009), while in 2000 five international water companies accounted for about 80 percent of the water PPP market in developing countries, by 2007 28 large private operators from developing countries, were in place, each serving a combined population of at least 400,000 people, totaling about 40 percent of the market.

Sixth, international organizations use to say that PPPs, if structured as they should be, could in reality be the most effective and fastest way of improving utility performance. For instance, the Asian Development Bank is very explicit in this regard: "The challenge in introducing PPPs is to make political leaders at all levels understand that PPP, if structured properly, could indeed be the most effective and fastest way of improving utility performance, and the quality and reliability of services provided" (ADB, 2009, p. 33). The continuing advocacy of international organizations may be enough for the stream of PPI projects to go on. However, the appropriate conditions in most of these economies are lacking. As the same organizations recognize these economies are characterized by a "lack of institutional capacity, weak governance systems, and unclear or unsuitable rules and regulations, all of which increase transaction costs and risks" (ADB, 2009, p. 4).

Therefore, a crucial issue for the future is how to provide institutional capacity, how to build strong governance systems and how to increase the rule of law in the majority of developing economies. This is a huge agenda to tackle and it probably depends on the countries' economic growth. In the meanwhile, poor people in poorer countries caught in poverty traps need to be served and the rationale underlying the PPI approach cannot give a positive answer to these people. Here, the government and the ODA must play a more extensive role than they have played since the emergence of the PPP fashion. Especially, the ODA cannot be limited to enhance the quality and raise the profitability of PPI projects.

Furthermore, the way international organizations look at the development policy is important. The substitution of the Washington Consensus for the recommendations of the Spence Commission (World Bank, 2008) is a first step in the right direction. For the great bulk of developing economies the means used to provide social and infrastructure services in future

depend on the way governments and multilateral organizations will regard the development policy. If the rationale of the Spence Commission is capable of substituting the confident assertions of the Washington Consensus and simultaneously avoid both market fundamentalism and institutional fundamentalism, it is likely that new forms of relationship between public and private sectors will emerge, forms that avoid episodes like Cochabamba and other abundant but less visible episodes in the media in the poor regions of developing economies.

This chapter was also supposed to focus also on ‘getting the right balance’ between PPPs and other alternatives. In a developing economy a PPI is not limited to having one partner of the public sector and another partner of the private sector, but the private sector involving several agents and organizations: one or a consortium of foreign companies linked to domestic firms usually subcontracted, commercial banks and multilateral organizations. Given the lack of institutional capacity, governments need to rely on multilateral organizations for advice and technical assistance but the organizations that assist governments are the same that provide credit to the companies that build, manage and operate the infrastructure. The way this critical role is played will be fundamental to the credibility of the PPI approach in the future.

Given the huge technological change in the infrastructure sector in the last two decades, developing economies cannot overlook foreign participation in building and managing infrastructure. The critical challenge to a developing economy is how to use such participation to learn and consequently to increase domestic production and management capacity. However, there is a problem: this is better said than done.

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