



THE STATE OF PPPs

Infrastructure Public-Private Partnerships in Emerging Markets & Developing Economies 1991-2015

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Executive Summary

Investments in Public-Private Partnerships (PPPs) have grown in absolute terms since 1991 with two notable periods of expansion and one period of contraction. Countries turned to PPPs throughout most of the 1990s, during which time there were massive commitments. PPPs grew steadily from \$7 billion in 1991 to \$91 billion in 1997, when governments felt the repercussions of the Asian financial crisis (1997-1998). After that, there was a period of contraction until investments in PPPs reached a minimum of \$21.9 billion in 2002. When the global economy picked up steam in the mid-2000s, a second growth phase culminated in record investment of \$158 billion in 2012. This second growth phase was unaffected by the global financial crisis of 2008 because many countries increased the public share in the financing of infrastructure projects to help boost investment. A significant decline of about 40% occurred in 2013. Since then, however, investment commitments in PPPs have grown, albeit slowly, reflecting the overall slowdown in key emerging markets, particularly Brazil and India.

Investments in PPP projects as a percentage of GDP have remained flat in the last decade, without recovering the levels achieved prior to the Asian financial crisis. The trend in infrastructure investments for PPPs as a share of GDP grew solidly all through the 1990s—from 0.1% in 1991 to over 1.1% in 1997. Post-Asian crisis, however, this figure declined steadily over the next seven years. Although slight growth occurred, it never fully recovered from the Asian crisis. Total global investment in PPPs experienced a second wave of expansion (2005-2012) in absolute terms with levels of investments much higher than the previous growth phase. During the same period, infrastructure investments as a percent of GDP remained relatively low between 0.2% and 0.6% and these investments did not surpass the previous record of 1.1% in 1997.

The growth cycles of PPP investments have been influenced by five big economies-- Brazil, China, India, Mexico, and Turkey -- that have increased their market share over time. The top five's share of total investment has been trending up from 40% in the early 1990s to a peak of 81% in 2009. Since then total investment has decreased to 63% (2014). The top five economies have contributed to the global PPP investment total in numbers that are out of proportion to their share of GDP among emerging markets and developing economies, or EMDEs (52%). In 2015, the top five's share of total investment declined to 54%, a level not seen since 2001. This was driven mainly by India and Brazil's decline in investments.

The top five economies also remain dominant in terms of investment as percentage of GDP. In 2005, the top five countries surpassed the rest of the EMDEs in terms of average annual investments as a percentage of GDP. They remained higher until 2015, when, for the first time in two decades, the rest of the EMDEs invested a percentage of their GDP higher than the economies of the top five countries.

PPP investments as a percentage of GDP in the rest of the EMDEs have not grown after the Asian financial crisis, but these countries are starting to present signs of health. The group is slightly more balanced across regions, increasing its share in the energy sector, and welcoming to greater market

participation. In contrast to the top five, the rest of the EMDEs showed relative strength in 2015. They have grown in absolute and relative terms, indicating the potential for a new wave of expansion.

While observing global and sectoral trends is important, understanding the development of the PPP market requires a closer look at the selection, procurement, and financial characteristics of PPPs. A significant number of PPPs (23%) originate through unsolicited proposals (USPs), which raises some concerns about transparency in project selection. Lack of competition in contract award, in the form of direct negotiations, is also prevalent in the energy sector (33%) and among projects in low-income countries, or LICs (39%).

A significant percentage of projects (69%) require government transfers or purchase agreements with public entities. Projects that did not require government transfers include those funded exclusively by user fees (22%), and those that have Power and Water purchase agreements (PPA/WPA) with private entities and projects selling into wholesale markets (9%). The projects that do require some type of government transfer need it in the form of fixed or variable government payments. A significant number of projects required PPA/WPA involving a public entity. In these cases, the government bears a significant part of the risk. Transport, and more specifically, airports and ports, were the top subsectors, with the highest percentage of projects funded by user fees without any type of government support.

Multilateral Development Banks (MDBs) provide financial support to PPP projects mainly in the form of loans (70%) and guarantees (13%). Within LICs, 18% of projects received MDB support, compared to 14% in lower middle income (LMI) countries and 9% in upper middle income (UMI) countries. Within low-income countries, guarantees were usually employed far more than in upper middle income countries. Most MDB support went to Latin America (89 of 226 projects) and into energy (186 of 226 projects), specifically renewables. Significantly, MDBs have teamed up to finance 144 renewable energy projects in the past five years alone.

Despite government and MDB support in bringing PPP projects to the market, however, empirical evidence shows that good institutions and regulations impact results. The literature on the determinants of PPP investment confirm that overall macroeconomic conditions, coupled with a country's sound institutional and regulatory framework, are critical for PPP markets to grow. The Economist Intelligence Unit's Infrascope index of countries' capacity to do PPPs confirms this theory, as countries with established and stable institutions and regulatory systems were able to advance more PPP projects.

The percentage of PPP projects cancelled remains low (3.7%) at aggregate levels, but this rate is significantly higher among water and sanitation projects (28%). Overall, projects were cancelled, on average, 5.7 years after reaching financial closure. When looking at the entire life of an average project, the probability of a project to survive decreases sharply during the first five years. Cancelling a project can have a sustained and meaningful impact on a country's PPP market, reducing the credibility of the government's commitment to contracts.

For PPPs to play a prominent role in the post-2015 development agenda, PPP investment as a percent of GDP must increase. For PPPs to increase significantly, EMDEs will have to further develop their PPP

markets, especially outside the top five economies. This will require them to strengthen their institutional and regulatory framework for PPPs. Data also confirms the potential for increasing competitiveness in the bidding processes, as well as for boosting the effective preparation of sound projects.

Acknowledgments

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Introduction

Governments have long acknowledged the key role infrastructure plays in economic growth and poverty reduction. As countries face growing demand for infrastructure, Public-Private Partnerships (PPPs)¹ continue to play a crucial role in improving efficiencies in delivering public services, one of the key elements to narrowing the infrastructure gap. This becomes even more important as history shows that shifting the development, maintenance, and operational risk on to the private sector often results in higher quality and overall better results than government provisioning.

While investment in infrastructure remains dominated by the public sector, the role of the private sector has been growing. Cross-country comparable data is limited, but information from the Latin America and the Caribbean (LAC) region² shows that public infrastructure investments were around **2.5-3% of GDP since 2008** while the commitments to infrastructure PPPs in LAC were around 0.6-1% of GDP during the same period. For other regions the proportion of PPPs in infrastructure are expected to be even smaller, but data is not available. PPP models were adopted in the 1990s and remain notable as investment in infrastructure in developing countries has surged. As PPPs continue to evolve and demonstrate short- and long-term fluctuations, the World Bank Private Participation in Infrastructure (PPI) Database is uniquely positioned to present the historical trends of PPPs in the past 25 years.

This report uses data from the PPI Database to analyze broad trends of PPP investment in infrastructure from 1991 to 2015. Specifically, it examines factors behind the growth and declines in investment; it explores the use of financial instruments, the role of

The World Bank's PPI Database

The Private Participation in Infrastructure (PPI) Database is a product of the World Bank's Public-Private Partnerships Group. Its purpose is to identify and disseminate information on private participation in infrastructure projects in low- and middle-income countries. The database showcases the contractual arrangements used to attract private investment, the sources and destination of investments, and information on the main investors. It provides information on more than 8,000 infrastructure projects dating from 1984 to 2015. It contains over 50 fields per project record, including country, financial closure year, infrastructure services provided, type of private participation, technology, capacity, project location, contract duration, private sponsors, debt providers, and development bank support (see <http://ppi.worldbank.org/>).

¹ A PPP is defined as “any contractual arrangement between a public entity or authority and a private entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility.” It includes brownfield and greenfield projects as well as performance-based management contracts.

² www.infralatam.info

government support, MDB assistance and the procurement process; and it assesses renegotiations and cancellations, and the overall readiness of countries to implement PPPs.

The PPI Database gathers data on investment commitments in infrastructure projects with private sector participation, including different contractual agreements³. It does not distinguish public from private investments. Therefore, the analysis that follows includes PPP arrangements only, and excludes divestitures and merchant projects. This report covers the energy, transport, and water and sanitation sectors, and excludes the telecom sector. All monetary values are expressed in U.S. dollars at 2015 prices (adjusted by the U.S. Consumer Price Index). Hereafter, this series is denominated as “PPP investments.”

Historical Trends

From 1991 to 2015, investment in PPP infrastructure projects has been ambitious as developing countries pushed forward with the construction of roads, bridges, light and heavy rail, airports, power plants, and energy and water distribution networks. Over these 25 years, investment commitments totaled \$1.5 trillion in over 5,000 infrastructure⁴ projects⁵ in 121 low- and middle-income countries.⁶ During that period, there were two notable periods of expansion and one period of contraction. Strong growth took place leading up to the 1997 Asian financial crisis as the private sector’s role in financing and delivering infrastructure services grew steadily from 16 projects totaling \$7 billion in 1991 to 230 projects totaling \$91 billion in 1997. This period of brisk activity reflected a healthy global economy and structural reforms in many developing countries.

But the Asian financial crisis in 1997-1998 and the economic crisis in Argentina in 2001-2002 soured investor appetite as commitments steadily declined from 1997 to 2004. At the onset of the Asian financial crisis, year-over-year investments decreased from \$37 billion in 1997 to just \$11 billion in 1998. The number of new projects also dropped from 91 to 40 year-over-year. And because the East Asia and Pacific (EAP) region captured a disproportionately large share of total investment (56%) among the six World Bank regions in the years previous to the crisis (1994-1997), this impacted global totals significantly.

In the case of Argentina, a brewing economic crisis in 2001-2002 further exacerbated the already vulnerable investment landscape. Although Argentina was a global leader up to that point, it went from being a massive success story—consistently commanding no less than \$3 billion annually from 1992-2000—to not reaching the \$1 billion mark in any given year since 2008.

³ It is important to note that some countries have their own PPP databases and they may differ in scope and nature from the PPI Database.

⁴ “Infrastructure” refers to energy, transport, and water projects, excluding oil and gas extraction but including natural gas transmission and distribution.

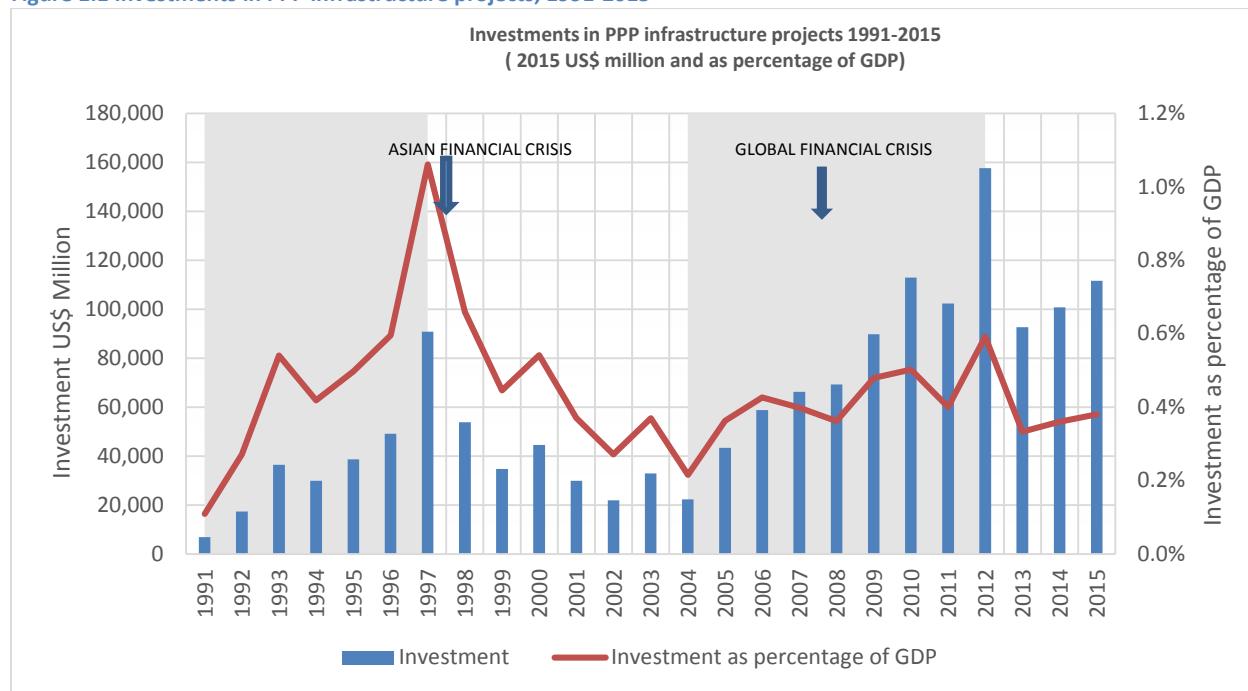
⁵ “Projects” refers to brownfield concessions, greenfield projects, and management and leases, but excludes merchants, as defined by the Private Participation in Infrastructure Database available at http://ppi.worldbank.org/resources/ppi_methodology.aspx.

⁶ As classified by the World Bank.

The global decline from 1997 to 2004 was observed across all sectors: energy fell from \$51.8 billion to \$14.9 billion; transport declined from \$25.1 billion to \$5.4 billion; and water commitments dropped from \$14.0 billion to \$1.6 billion. Among income groups, low-income countries suffered the greatest declines (-90%), followed by lower middle income countries (-85%) and upper middle income countries (-71%).

When adjusting the data by the size of the economy, the Asian financial crisis proves to be an inflection point (see Figure 1.1). The trend in infrastructure PPP investments as a share of GDP grew solidly all through the 1990s—from 0.1% in 1991 to 1.1% in 1997. Post-crisis, however, this figure declined steadily over the next seven years (from 1.1% to 0.2%), reflecting investment falling at a faster rate than GDP.

Figure 1.1 Investments in PPP infrastructure projects, 1991-2015



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1991-2015, excluding telecom, divestitures, and merchants. All investment is 2015 US\$ price level.

Nonetheless, a wave of structural reforms, favorable growth policies, and a global economy that picked up steam in the mid-2000s resulted in a second growth phase that witnessed a seven-fold increase in total commitments. Indeed, this eight-year expansion from 2005 to 2012 culminated in record investment of \$158 billion. Commitments in energy grew by 414%; transport by 166%; and water by 96%.

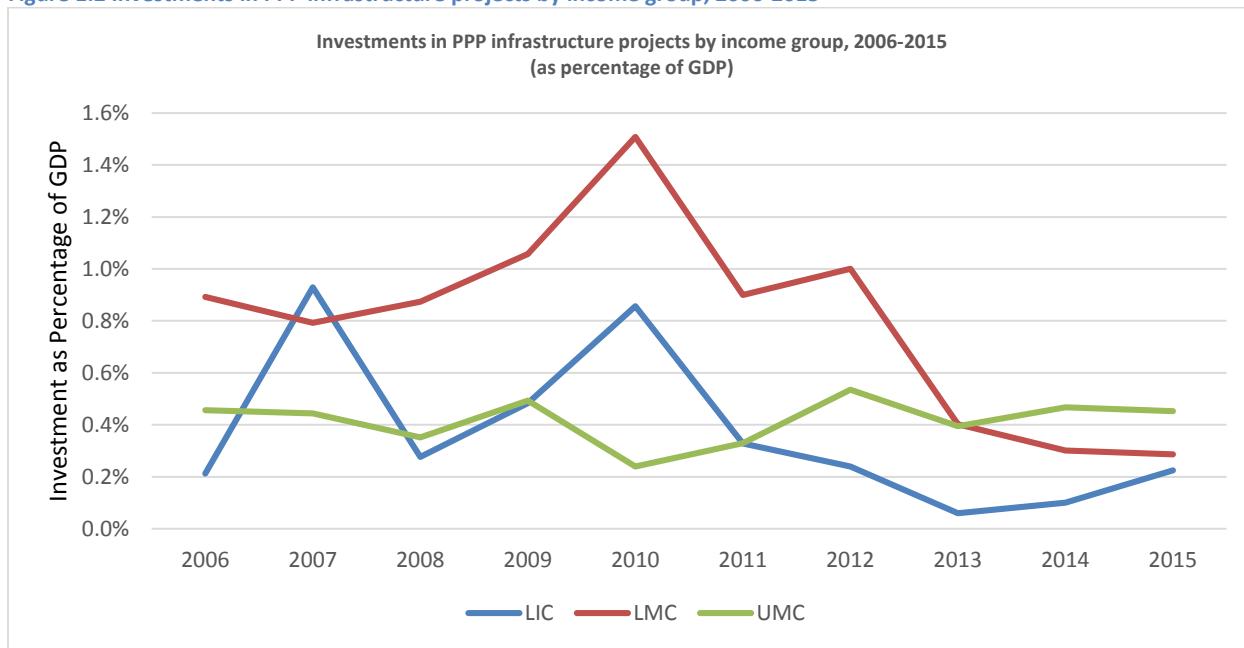
The global financial crisis in 2008 had a much smaller impact on investment than the Asian financial crisis in 1997-1998. Many countries increased the share of public financing in infrastructure projects to help boost investment after the global financial crisis, particularly in infrastructure with strong MDB support. In addition, lower interest rates and higher oil prices continued to propel investment in energy, which

increased over six-fold from \$10 billion in 2004 to \$92 billion in 2012. Power generation projects in South Asia and more notably in India, flourished from 2006 to 2010, growing each year before culminating in record investment of \$35 billion in 2010.

While total global investments in PPPs in absolute terms experienced a second expansion (2005-2012) with levels of investments much higher than the previous growth phase, infrastructure investments as a percent of GDP remained relatively low, between 0.2% and 0.6%. It did not surpass the previous record of 1.1% in 1997.

A significant decline occurred in 2013 when total investments decreased from \$158 billion in 2012 to \$93 billion in 2013. Investments as a percentage of GDP also dropped from 0.6% to 0.3% year-over-year, a level not seen since 2004. Since 2013, investments have been growing slowly in absolute terms (7% annual growth rate compared to 27% during the 2004-2012 period) and with almost no increase as percentage of GDP. Investments in LIC reached a low of 0.06% of GDP in 2013, but since then, it is the only income group that is showing a clear growth path (see Figure 1.2).

Figure 1.2 Investments in PPP infrastructure projects by income group, 2006-2015



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1991-2015, excluding telecom, divestitures, and merchants. All investment is 2015 US\$ price level.

The Influence of the Top Five Economies

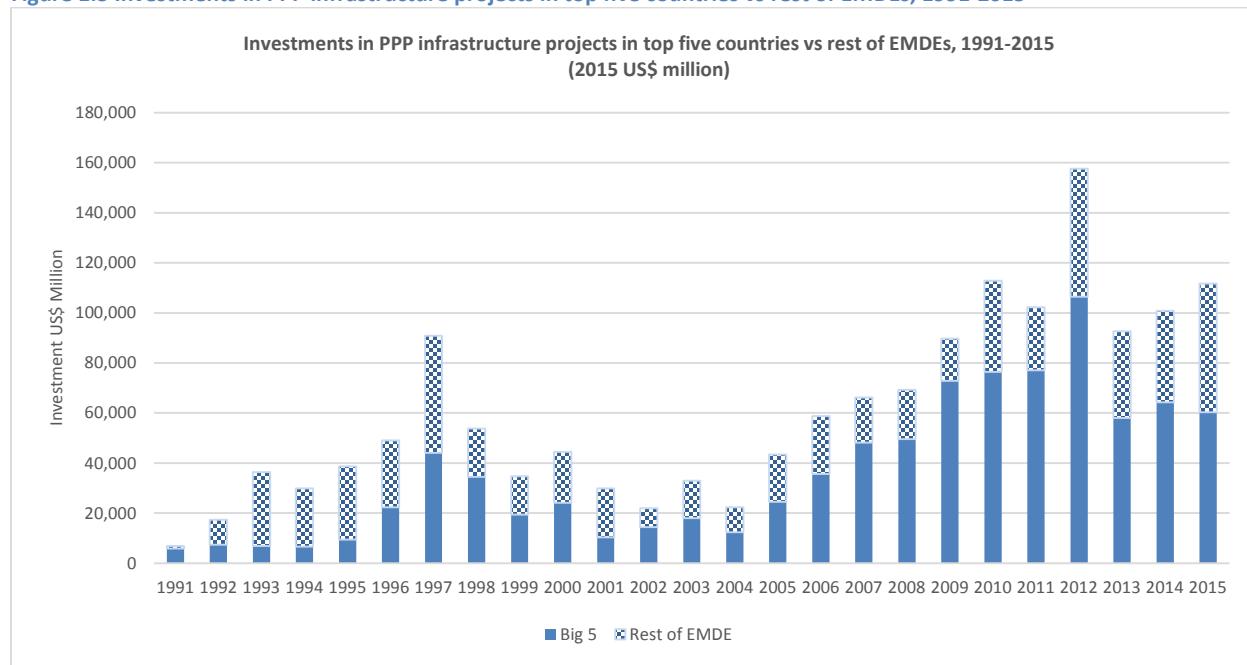
Over time, the evolution of PPPs in infrastructure projects can be divided into two groups: the top five countries and the rest of the EMDEs. The global expansion and contraction periods have been driven mainly by the top five countries.

When using total PPP investment commitments from 1991-2015 as a metric, the top five countries include Argentina, Brazil, China, India, and Mexico. But this list of top five varies each decade. For instance, in the 1990s Argentina ranked second in total investment, whereas it fell to ninth place in the 2000s and even lower post-2010. A financial and economic crisis in 2001-2002 left Argentina vulnerable and investment failing. Because of this volatility and Argentina's front-loaded investment activity in the 1990s, the country was excluded from the top five, despite having the fifth highest overall investment commitments from 1991 to 2015. With more consistent annual totals and the fifth highest investment commitments during the last 15 years, Turkey replaced Argentina and was used for analysis as the top five. Therefore, Brazil, China, India, Mexico, and Turkey earned the distinction of being the top five countries in terms of total investment commitments in infrastructure PPPs.

From 1991 to 2015, these top five countries, which account for 52% of the GDP of EMDE nations, comprised an impressive \$909 billion of the \$1.51 trillion, or 60% of investment to infrastructure PPPs (See Figure 1.3). They also accounted for 58% of all new projects during that period.

The top five's share of total investment has been trending up from 40% in the early 1990s to a peak of 81% in 2009. Since then it has decreased to 63% in 2014 but the group has always contributed more than what is proportional based on their share of GDP among EMDE countries. In 2015, the top five's share of total investment declined to 54%, a level not seen since 2001.

Figure 1.3 Investments in PPP infrastructure projects in top five countries vs rest of EMDEs, 1991-2015



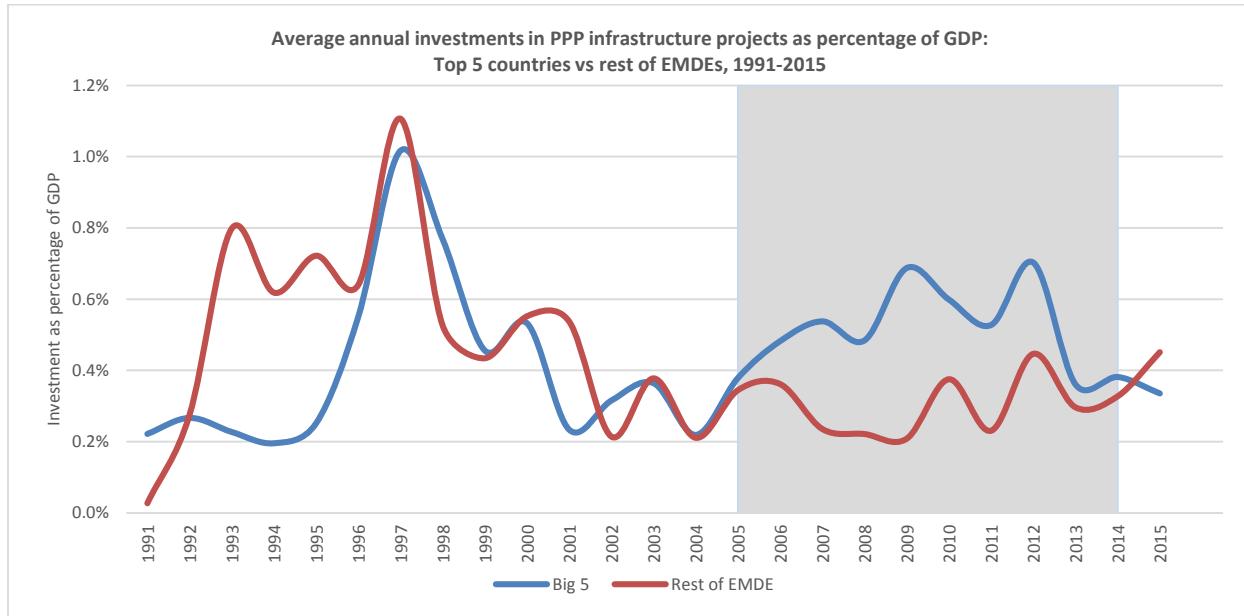
Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1991- 2015, excluding telecom, divestitures and merchants. All investment is at 2015 US\$ price level.

Brazil, China, and India have contributed to this decline in the last few years, with Brazil driving the drop in 2015. India's investments have been falling from \$53.3 billion in 2010 to \$4.1 billion in 2015. Investment in China has also been weak, commanding just \$2.9 billion in 2015 compared to \$8.1 billion in 2013. Brazil, too, is showing cracks: investment in 2015 was merely \$4.5 billion—its lowest level since 2004. Brazil's preparation for two mega-events (FIFA 2014 World Cup and summer Olympic Games 2016) required large infrastructure investments in the preceding years, so a decline in 2015 is not surprising. In addition, an ongoing recession and political uncertainties have left private investors questioning governance, accountability, and transparency when it comes to doing business in the country.

Since the top five countries account for a significant share of the GDP of EMDEs (52%), it is important to analyze investments as a percentage of GDP. When considering the size of their respective economies, figure 1.4 shows that investment as a percent of GDP and its fluctuations have largely moved in similar fashion for the top five and the rest of the EMDE countries up to 2005. After that, they began diverging, with the top five investing a higher percentage of their GDP (0.4% to 0.7%) while the rest of the EMDEs fluctuated between 0.2% and 0.45%. While still too early to confirm, the rest of the EMDEs may be starting a new expansion period with the highest share of GDP (0.45%) invested in PPP projects for the first time since 2002. The rest of the EMDEs have surpassed the top five countries for the first time since 2002 (0.34%).

Figure 1.4 Average annual investments in PPP infrastructure projects as percentage of GDP: Top 5 countries vs rest of EMDEs, 1991-2015

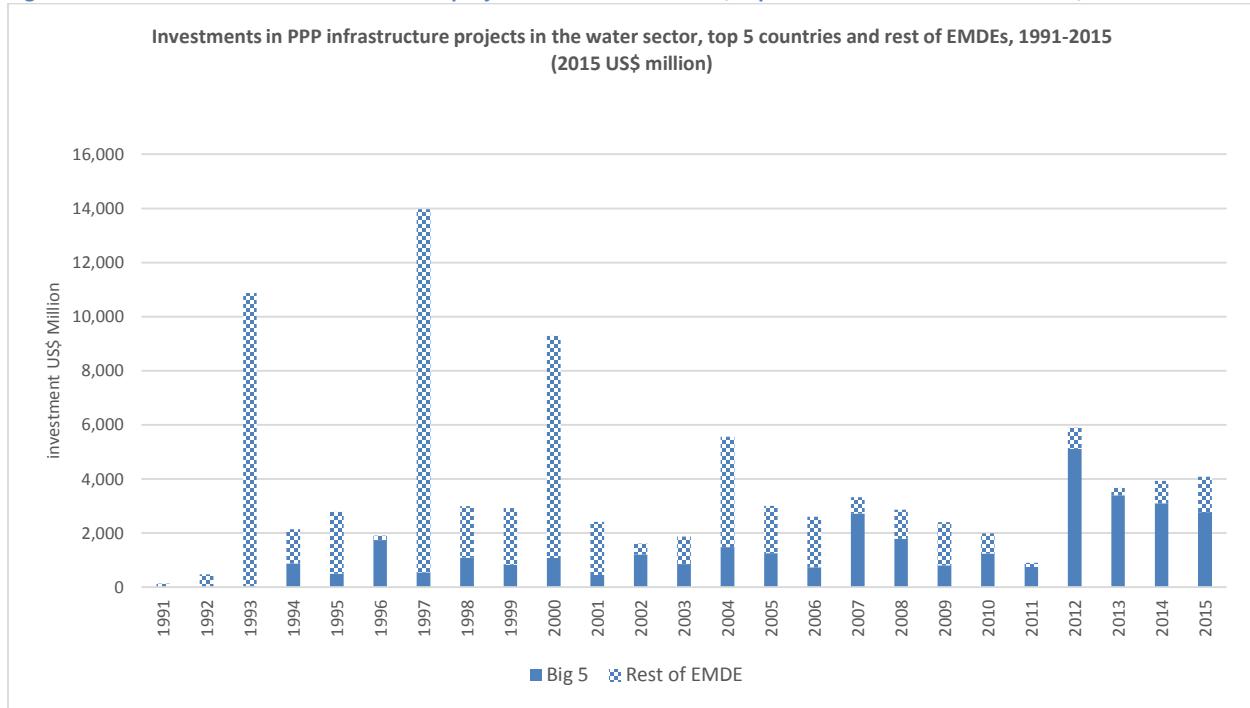


Source: PPI Database, World Bank, as of November 2015.

Note: Data cover the projects in energy, transport, and water and sanitation reaching financial closure 1991-2015, excluding telecom, divestitures and merchants. All the investments are at 2015 US\$ price level.

Trends in Water. Overall, since 1990, the top five countries have captured a modest 37% of total water investment (\$33.4 billion of \$91.3 billion) and 64% of all new projects (616 of 875). However, the top five have been gaining significant share since 2010. Despite smaller project sizes, the past five years have witnessed the top five capture, on average, 87% of total water investment (2011-2015) and 90% of all new projects (see Figure 1.5).

Figure 1.5 Investments in PPP infrastructure projects in the water sector, top 5 Countries and rest of EMDEs, 1991-2015



Source: PPI Database, World Bank, as of November 2015.

Note: Data cover the projects in water and sanitation reaching financial closure 1991-2015, excluding divestitures and merchants. All the investments are at 2015 US\$ price level.

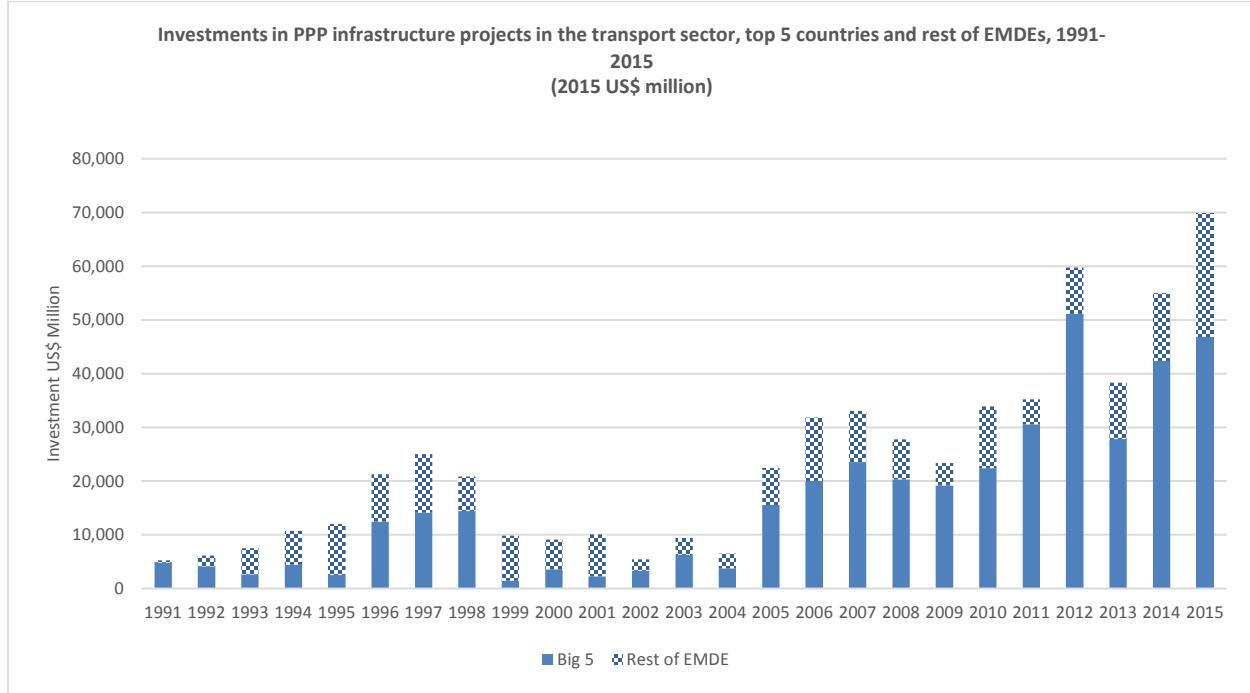
Trends in Transport. Within the transport sector, the top five countries over the past 25 years have also captured a large share of overall investment, attracting 66% of total transport commitments and 60% of all new projects, with an increasingly larger share and more mega projects over the last decade.

The top five countries, particularly over the last 10 years, represent an increase in investments in road projects—traditionally the richest source of PPPs within transport. More specifically, highway programs in India and Brazil have led the way by receiving nearly one-quarter of global transport commitments from 1990 to 2014. Within India, a large number of relatively small road projects propelled investment as the country closed on 379 deals over the 25-year period—the most deals of any country. This compares to 263 highway deals among all other EMDEs during the same time period.

Among the remaining subsectors, railroads, seaports, and airports were the next largest destination for PPP investment. Brazil alone closed on 23 mega transport deals topping \$1 billion each, exceeding all other EMDEs combined. The best example of a landmark deal is Rio de Janeiro's (Galeao) Airport—a 25-year concession closed in 2014, valued at \$10.5 billion⁷. It comprised nearly one-fifth of global transport investment.

⁷ \$2 billion of which is capital cost, and \$8 billion of which is a concession fee.

Figure 1.6 Investments in PPP infrastructure projects in the transport sector, top 5 countries and rest of EMDEs, 1991-2015



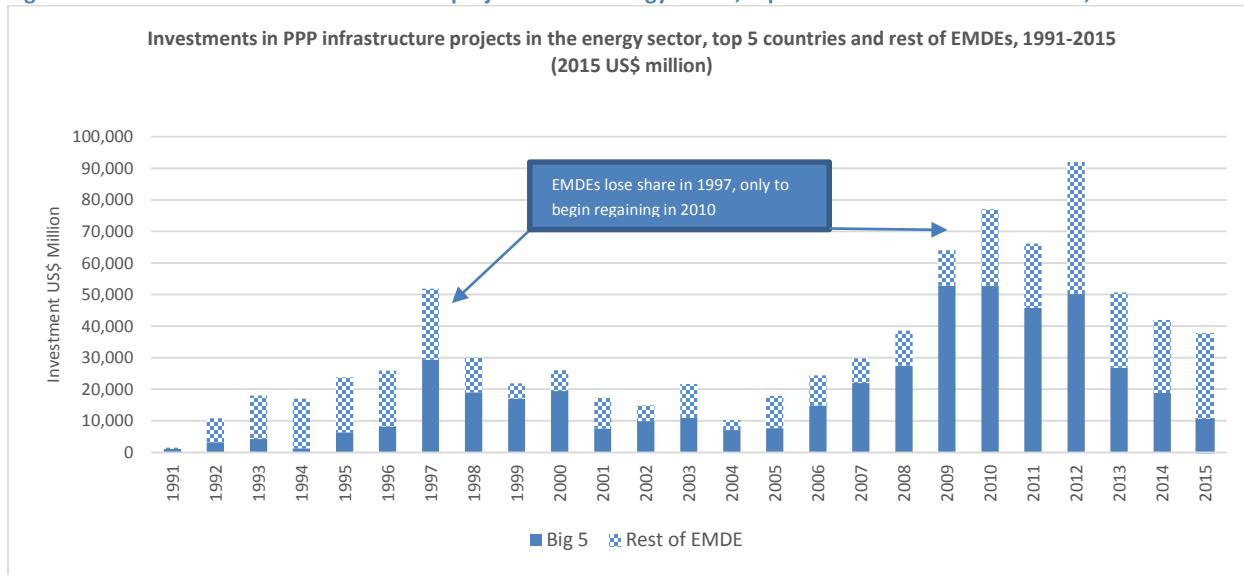
Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in transport that reached financial closure from 1991- 2015, excluding divestitures and merchants. All investment is at 2015 US\$ price level.

Trends in Energy. Although the top five countries' dominance within energy has been equally powerful over the years, all other EMDEs have begun to show strength since 2009, growing at a rate of 3% annually (see figure 1.7).

The top five's dominance peaked in 2009 when the cohort accounted for four out of every five dollars invested in energy. But that figure has been dropping steadily. In a marked departure from historical trends, that figure reached a 22-year low in 2015 by capturing only one out of every five dollars. This was prompted by massive declines of investments in PPPs in Brazil, China, India, and Turkey. Only Mexico was able to maintain a steady flow of commitments of late, and this resulted from broader reform that ended the monopoly of state-run PEMEX. Interestingly, 2015 data confirms that the rest of EMDE countries are gaining a bigger share of the market by closing on 59 projects totaling \$12 billion in the first half of 2015 alone—the second highest amount.

Figure 1.7 Investments in PPP infrastructure projects in the energy sector, top 5 countries and rest of EMDEs, 1991-2015



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy that reached financial closure from 1991- 2015, excluding divestitures and merchants. All investment is at 2015 US\$ price level.

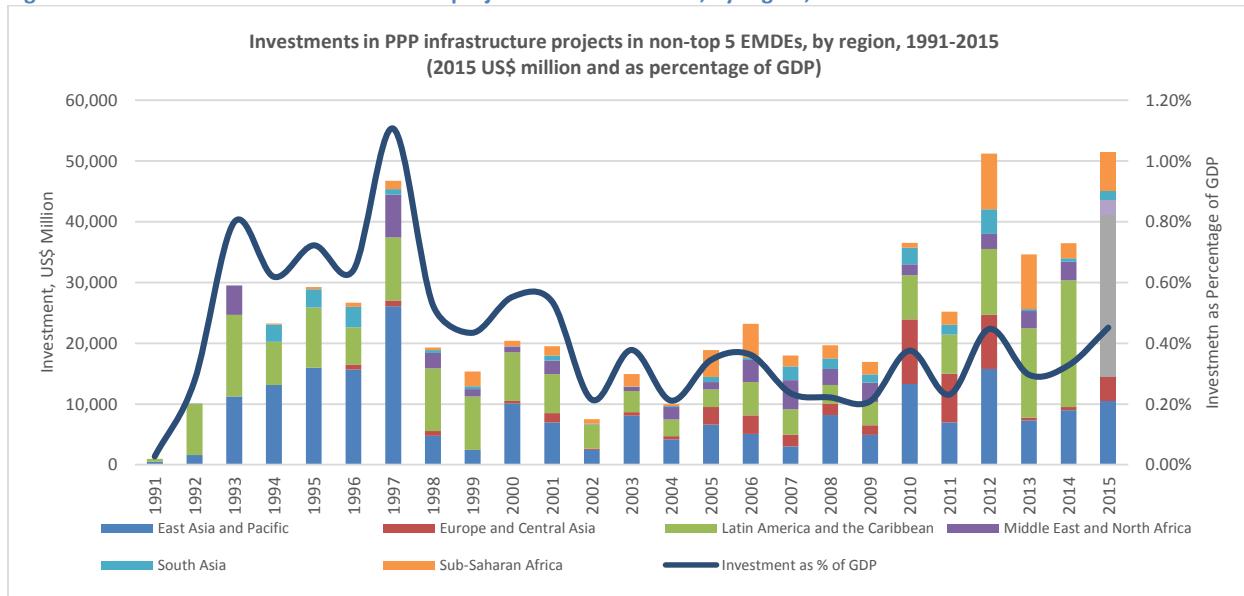
Rest of EMDEs

After bottoming out in 2002, investments in countries outside the top five has been growing slowly in absolute terms, with almost no growth in relative terms (investment as a percent of GDP). However, the group is (i) increasing their share in the energy sector (see figure 1.7); (ii) becoming slightly more evenly distributed across regions (See figure 1.8); and (iii) deepening the market: an average of 42 countries had at least one project per year from the period 2005 to 2015, exceeding the average of 23 countries during the 1990s.

In contrast to the top five, the rest of the EMDEs have shown relative strength in 2015: they have growth in absolute and relative terms, showing potentially a new expansion wave that started in 2013.

Another interesting fact is that the EMDE countries outside the top five have been quite successful in bringing cross-border projects to the market. These projects are often complex and face many political challenges, but 13 out of the 18 cross-border deals involved non-top five countries (see box 1).

Figure 1.8 Investments in PPP infrastructure projects in rest of EMDEs, by region, 1990-2015



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1991- 2015, excluding telecom, divestitures and merchants. All investment is at 2015 US\$ price level.

Box 1. Cross-Border Projects

Through investment and the removal of physical and non-physical barriers, cross-border projects produce results that exceed what any single country could achieve on its own. From 1991 to 2015, there were a total of 18 cross-border PPP projects totaling \$16.2 billion, involving five of the six regions. Except for Brazil, all other cross-border projects involved non-top five countries. Moreover, some of the countries included had very limited PPP experience, such as Mali and Togo. Sub-Saharan Africa, one of the regions with the lowest level of PPP investments, was the most active region with seven of the 18 deals, followed by Latin America and the Caribbean, or LAC (4), East Asia and Pacific, or EAP (4), Europe and Central Asia, or ECA (2), and Middle East and North Africa, or MNA (1). By sector, there were 12 energy and six transport projects. The 12 energy deals are all operational greenfield projects: mainly natural gas power generation, often pipelines or transmission lines spanning two countries and, in a few cases, three and four countries. The largest project was MNA's only deal—the \$3.8 billion Maghreb Gas Pipeline spanning Algeria and Morocco in 1993. Latin America had its own natural gas mega project, the \$3.2 billion Bolivian Brazilian Gas pipeline, in 1998.

The vast majority (16 of 18) of cross-border projects reached financial close prior to 2006, and since the last projects closed financially in 2011, there have not been new cross- border PPP projects.

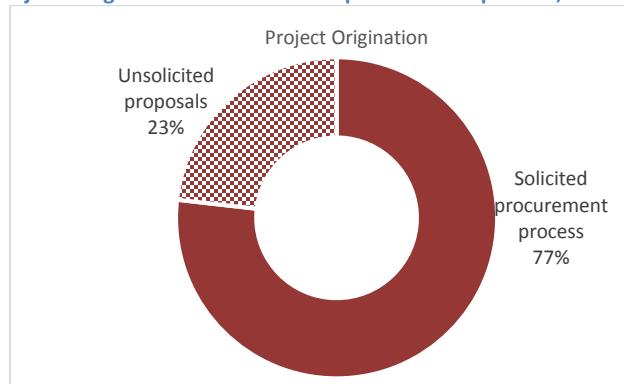
Procurement, Planning, and Financial Structure of PPPs

Although analyzing global and sectoral trends is critical in understanding the nuances of the PPP market, gaining awareness of the development of PPPs requires a closer look at the procurement, planning, and financial characteristics of individual projects. For instance, what are the common characteristics of projects that have reached financial closure? This section evaluates key procurement and financial variables. However, due to data limitations, the following analysis includes only PPP data from the 2010–2014 period.⁸

Procurement

Among all EMDE countries, one of the biggest constraints to bringing PPP projects to the market has been lack of planning and lack of capacity to properly prepare projects. Most developed countries with strong PPP programs are able to have a pipeline of projects that attract private investors throughout the year, without relying on unsolicited proposals.⁹ While proposals initiated by a private party may offer some advantages—for example, bringing innovation to the sector—many cases deviate from a competitive process of procurement, which then results in higher project costs. Over the last five years, 23% of PPP projects were originated through unsolicited proposals. (See figure 2.1).

Figure 2.1 PPP infrastructure projects origination under solicited procurement process, 2010-2014 (% of number of projects)



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data are based on the number of projects which have award method information.

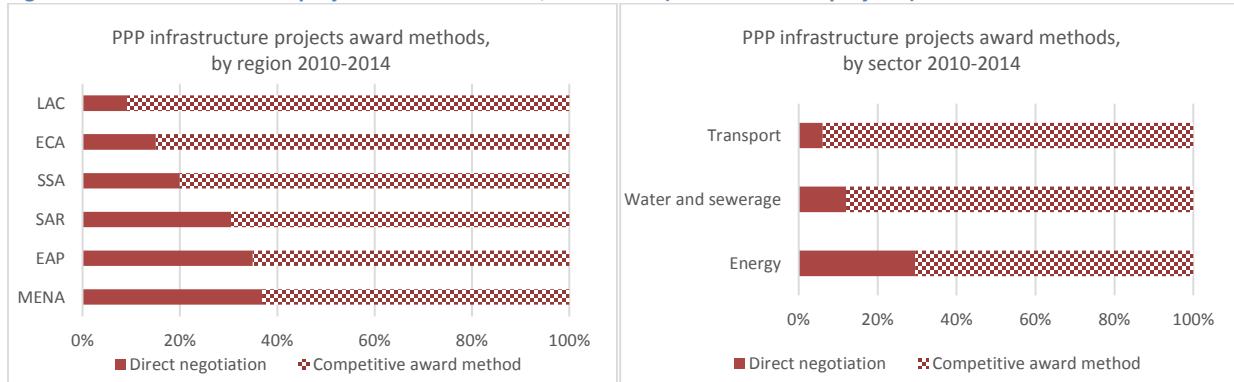
Projects are awarded through different methods that can be referred to as “competitive bidding” and “direct negotiations.” Competitive bidding is a method in which bids from competing private consortium are invited by openly advertising the scope, specifications, and terms and conditions of the proposed contract as well as the criteria by which the bids will be evaluated. By contrast, under direct

⁸ In order to maintain the most accurate, current, and robust dataset, PPI Database researchers engaged in a multi-month process of backfilling historical data for the period 2010 to 2014. The process involved inserting missing data in six essential fields in the PPI Database, including project status, government support, MDB support, revenue source, bid criteria and contract award method. Because the newly backfilled dataset represents the most recent and robust figures, the analysis below will largely focus on data from the last five years—2010 to 2014.

⁹ An unsolicited proposal (USP) is a proposal made by a private party to undertake a PPP project, submitted at the initiative of the private firm, rather than in response to a request from the government.

negotiations, the contract is awarded on the basis of a direct agreement with the private consortium without going through the competitive bidding process. The contract award methods vary greatly by sector and, to a lesser extent, by region (see Figure 2.2).

Figure 2.2 PPP infrastructure projects award methods, 2010-2014 (% of number of projects)



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures, and merchants. The data are based on the number of projects that have award method information.

Among sectors, transport projects were almost exclusively awarded through competitive methods. In the water sector, the story is similar. Within energy, however, the award method was split between one-third direct negotiation and two-thirds competitive methods. By region, in Latin America and the Caribbean, where most investment takes place in upper middle income countries (such as Brazil, Mexico, and Chile), projects had the fewest direct negotiations (9%). The Middle East and North Africa —a region characterized by large projects—had the most (34%).

When broken down by income level, low-income countries had the highest percentage of projects (39%) awarded through direct negotiation. In contrast, lower and upper middle income countries typically had a much lower percentage of projects awarded through direct negotiation (33% and 15% respectively).

When bidding a new project, governments establish criteria that is used to select the winning proposal among competing bidders. Criteria often vary based on the type of project, the size of the deal, or any number of other factors. Data from 2010 to 2014 shows that, on average, only four types of bidding criteria were used in roughly 80% of all projects. Nearly one-third (30%) of all winning projects were selected based on the use of the lowest tariff to users as the main criteria; another 19% were selected based on the lowest subsidy required; 16% were selected based on the highest price paid to the government, and 13% to lowest payments from government.

Who Pays for the Infrastructure? Revenue Sources

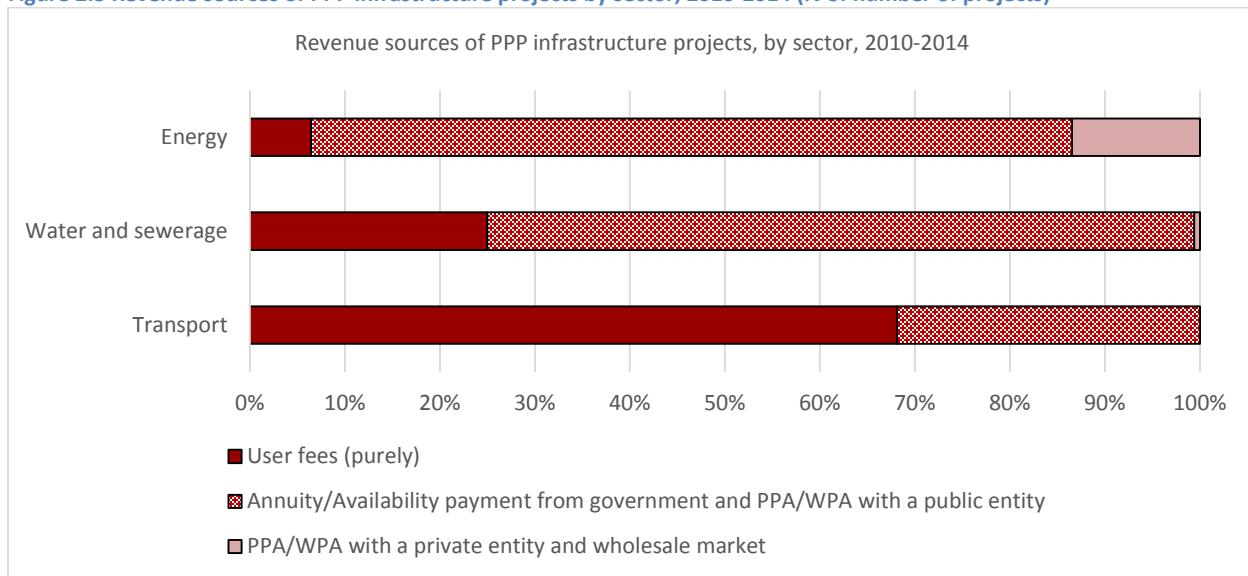
The bidding criteria analyzed in the previous section is closely linked to the type of revenue source of the project. Highest price paid to the government and highest percentage of revenue transfer to the

government are usually present in projects that can finance themselves without government transfers. Therefore, it is important to look at the composition of the revenue sources.

It is possible to group the sources of revenue of a project in three groups: (1) user fees¹⁰; (2) power or water purchase agreements (PPA/WPA) with private entities and sales to wholesale markets¹¹; and (3) annuity/availability payments from government and PPA/WPA with public entities. In this last category, the government make direct transfers in the form of fixed or variable payments or a public entity sign a PPA or WPA with the government usually bearing a significant part of the risk¹². Of the 1,793 projects that reached financial closure in the last five years, 69% did require government transfers or PPA/WPA with public entities; 22% were funded exclusively by user fees and 9% with PPA/WPA with private entities and wholesale markets. Among country income groups, 90% of the projects in low-income countries required government transfers or PPA/WPA with public entities compared to only 68% in LMI and UMI countries.

User fees were the main source of revenue (68%) among projects in the transport sector—particularly in port and airport projects.

Figure 2.3 Revenue sources of PPP infrastructure projects by sector, 2010-2014 (% of number of projects)



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have revenue sources information.

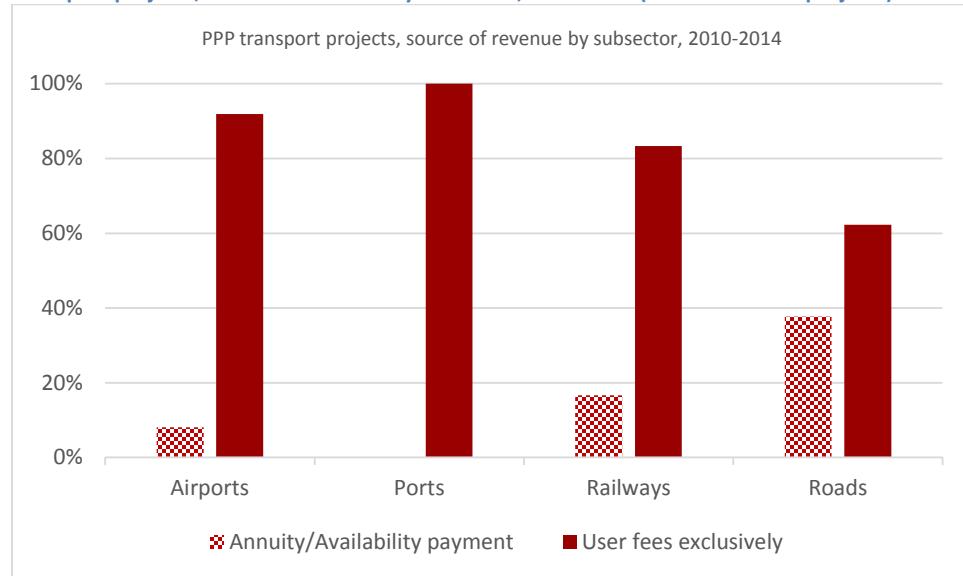
¹⁰ When the PPI project relies exclusively or mainly on user fees to cover its cost.

¹¹ This includes power/water plants or transmission lines that sell to or transport electricity/water to private off-takers. Wholesale markets include cases when outputs are sold to a single buyer or a group of buyers at market prices.

¹² This is when the government agreed to make payments to the project company in exchange for the provision of infrastructure. It also includes PPA/WPA with the participation of public entities, and may include the combination of public and private entities. In some cases the government may collect user fees, but still bears the demand risk.

During 2010-2014, all projects in the port sector and 92% of the projects in the airport sector were funded exclusively by user fees. While the road sector has the lowest percentage of projects funded exclusively through user fees (62%), this share is high compared to projects in the energy (6%) and water and sanitation sectors (25%).

Figure 2.4 PPP transport projects, source of revenue by subsector, 2010-2014 (% of number of projects)



Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have revenue sources information

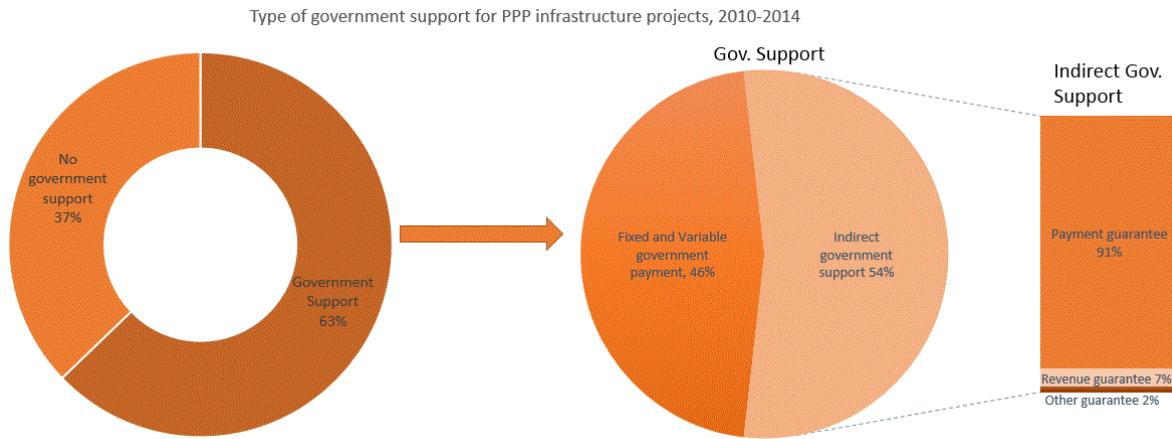
Government Support

When projects are neither funded through user fees nor PPA/WPAs with private entities or wholesale markets, governments must support the deals through fixed and variable payments from their budget¹³ (direct support). In some cases, governments can offer indirect support through guarantees to reduce specific project risks—for example, payment, revenue, and exchange rate guarantees.

Direct and indirect government support continues to play a critical role in facilitating private sector investment in infrastructure projects. From 2010 to 2014, approximately 63% of all PPP deals had some form of government support through direct or indirect contributions.

¹³ In some cases, government may collect user fees but pay availability payments to the private entities bearing the demand risk.

Figure 2.5 Main type of government support for PPP infrastructure projects, 2010-2014 (% of number of projects)



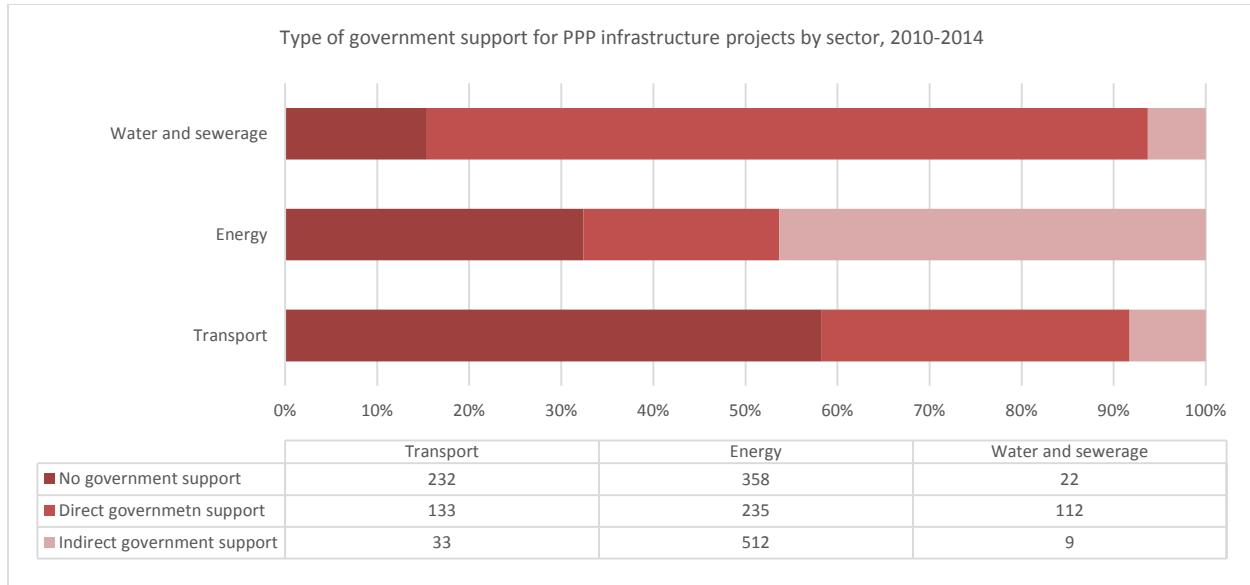
Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have government support information.

Of these projects, roughly half received direct support (46%) and the other half received indirect support (54%). The overwhelming form of indirect support was payment guarantees (91%) and, to a far lesser extent, revenue guarantees (7%). The remaining projects received other indirect safeguards including protection against currency fluctuations, construction cost overruns, and swings in interest rates.

Among sectors, 85% of all water projects received some type of government support—by far the highest proportion of any sector. Following water was energy with 68% and transport with 42%. Transport projects (mainly ports and airports) likely required little government assistance as most deals in the sector generate revenues from user fees, thereby having the ability to self-finance. Water and energy, on the other hand, require greater incentive and government support.

Figure 2.6 Type of government support for PPP infrastructure projects by sector, 2010-2014 (% of number of projects)



Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have government support information.

About 58% of all greenfield projects received some form of government support, compared to only 41% of brownfield projects. This is not surprising given that greenfield projects are riskier and require significant upfront capital. When it comes to income groups, a higher percentage (93%) of projects in low-income countries are greenfield compared to the lower global average of 74%. Among greenfield projects in low-income countries, 70% of them receive some form of government support compared to only 57% of greenfield projects in lower and upper middle income countries.

Table 2.1 Percentage of brownfield and greenfield PPP infrastructure that receive some form of government support, by country income level, 2010-2014 (% of number of projects).

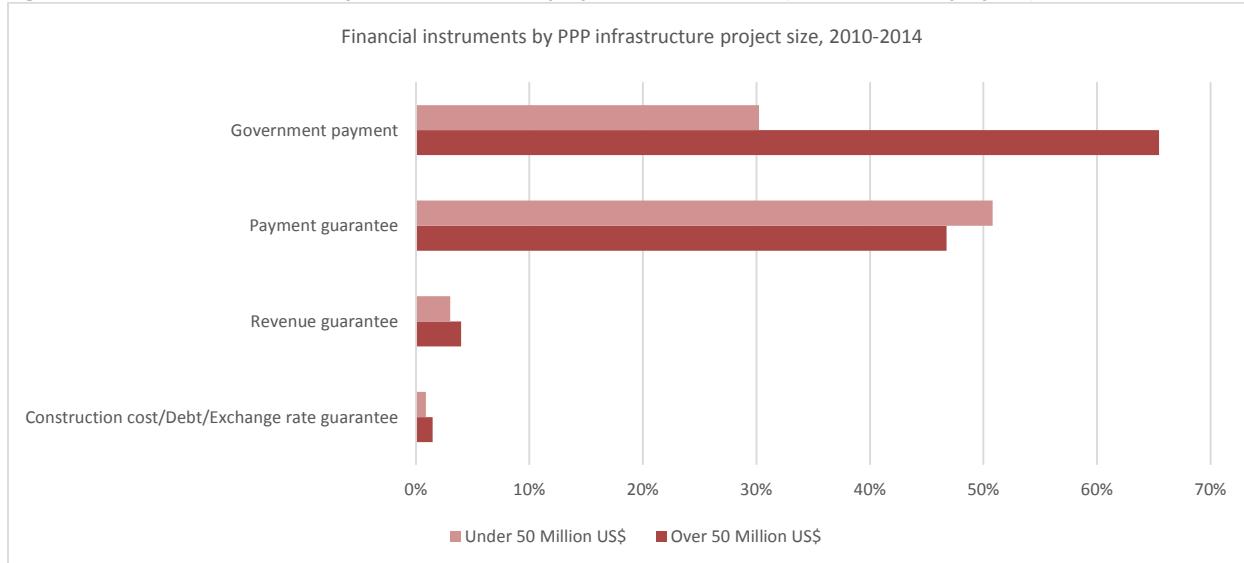
	Brownfield	Greenfield
Low income	40%	70%
Lower middle income	37%	57%
Upper middle income	46%	57%
Total	41%	58%

Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have government support information.

Government support also differed among projects of different size, but mainly for deals with direct support. This was particularly true for projects over \$50 million that received some form of government payments. Data shows that these larger deals received support 65% of the time, versus only 30% for smaller projects under \$50 million. When it comes to indirect government support with different types of guarantees, the project size was mostly irrelevant.

Figure 2.7 Financial instruments by PPP infrastructure project size, 2010-2014 (% of number of projects)



Source: PPI Database, World Bank, as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have government support information.

Role of Multilateral Development Banks

As in the case of government assistance, instances of MDBs supporting PPP investment in infrastructure have also played a key role over the years. MDBs have helped to facilitate, prepare, and structure complex PPPs to mobilize private sector and institutional capital, and they have helped expand the pipeline of bankable infrastructure projects. The PPI Database defines MDB support as financial assistance to the project company including loans¹⁴, guarantees¹⁵, equity, quasi-equity¹⁶, syndications,¹⁷ and risk management instruments¹⁸. From 2010 to 2014, 12% of all projects received some type of financial

¹⁴ Direct loan using the multilateral institution funds (also referred to as A-loan).

¹⁵ Guarantees include political risk coverage and partial credit guarantees, which turn medium-term finance into a longer-term arrangement by guaranteeing longer maturity or offering liquidity guarantees in the form of put options and take-out financing.

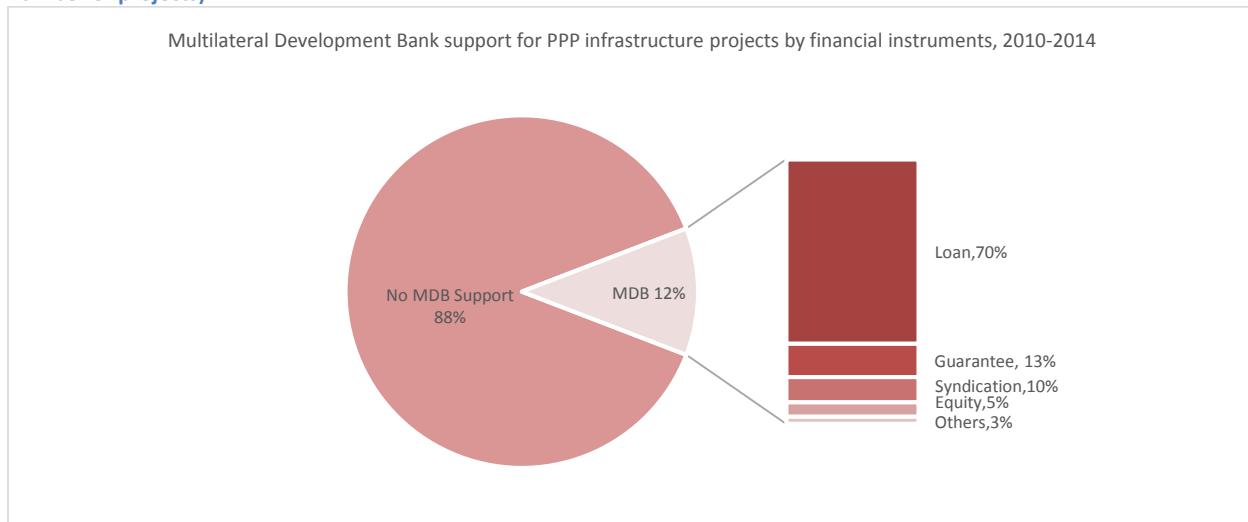
¹⁶ Quasi-equity includes both debt and equity characteristics and some of them are convertible debt, subordinated loan investments, and preferred stock and income note investments (also referred to as C-loan).

¹⁷ A multilateral institution arranges the financing with the resources of other investors, but the institution is always the lender-of-record (also referred to as B-loan).

¹⁸ The risk management products, or derivatives, allow project companies to hedge currency, interest rate, or commodity price exposure. Some of them are currency and interest rate swap, options, and forward contracts and derivatives.

backing from MDBs. Direct loans were most common, comprising 70% of all MDB support projects; guarantees and syndication were less common, with 13% and 10%, respectively.

Figure 2.8 Multilateral Development Bank support for PPP infrastructure projects by financial instruments, 2010-2014 (% of number of projects)



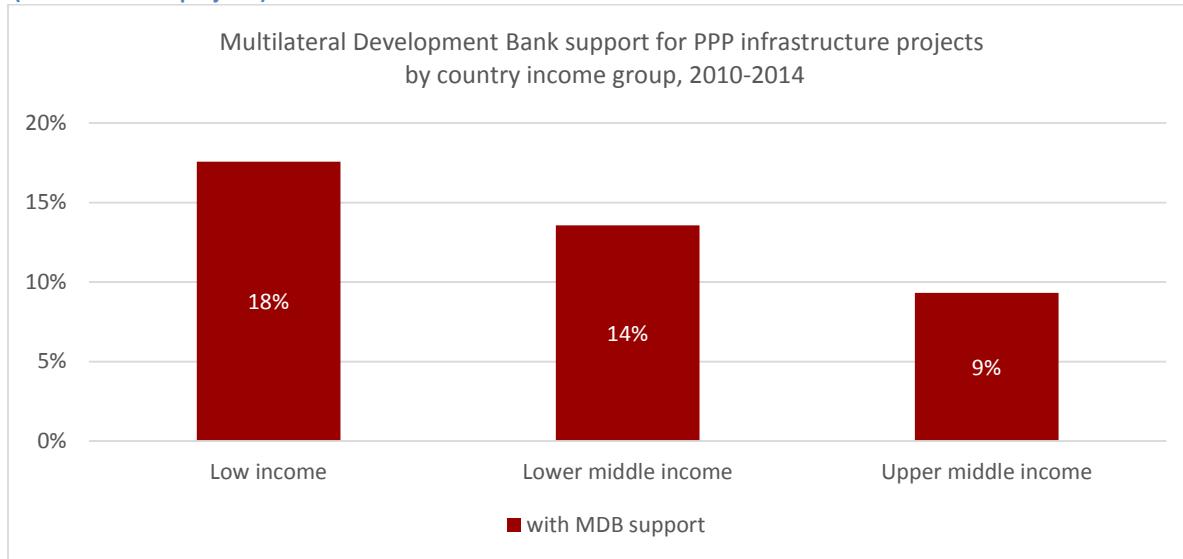
Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have MDB support information.

MDB support was heavily concentrated in the energy sector (86%), and this was focused on renewable energy projects; that was followed by transport (11%), and water and sanitation (3%).

When it comes to income levels, MDBs typically played a stronger role in low-income countries. Among projects in these LICs, MDBs supported 18% of them, which is double the percentage among projects in UMI countries (9%).

**Figure 2.9 Multilateral Development Bank support for PPP infrastructure projects by country income level, 2010-2014
(% of number of projects)**

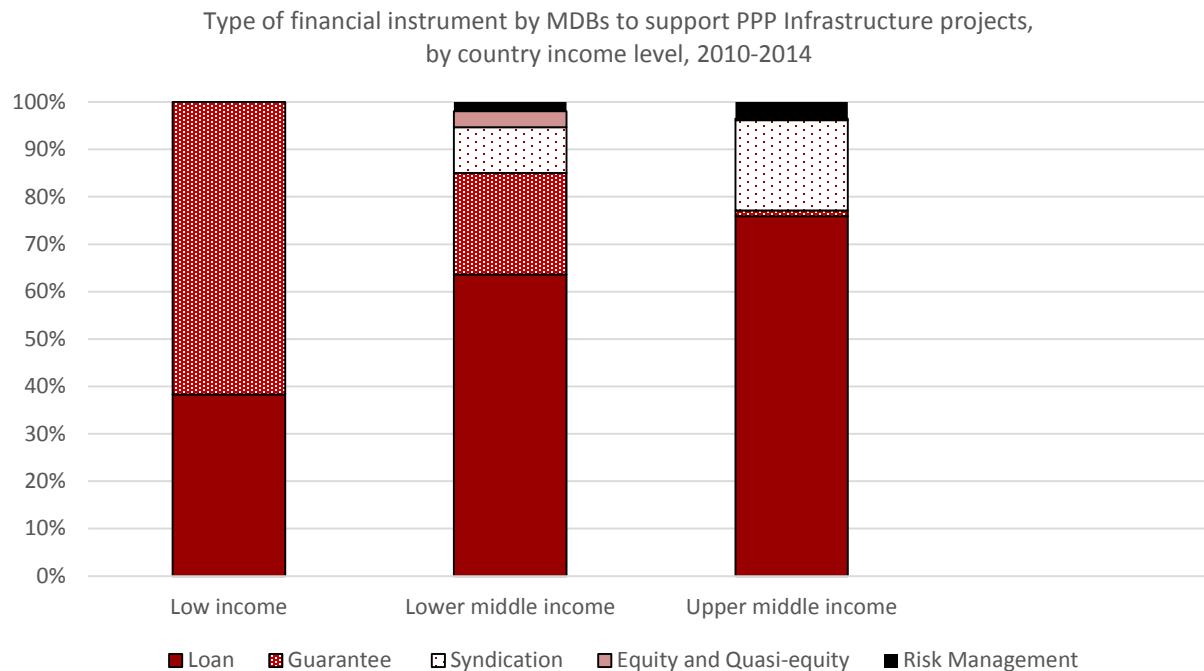


Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have MDB support information.

When MDB support was used, the type of support also varied based on country income level. Within low-income countries, guarantees were usually employed far more than in upper middle income countries. The category of guarantees includes coverage of political risk as well as other risks resulting from not honoring a sovereign obligation. The fact that infrastructure projects in low-income countries utilized guarantees in a significant number of deals from 2010 to 2014 suggests that risks tend to be greater in this cohort, especially when compared to upper middle income countries, which employed guarantees in less than 2% of projects.

Figure 2.10 Type of financial instrument used by Multilateral Development Banks to support PPP infrastructure projects, by country income level, 2010-2014 (% of number of projects)



Source: PPI Database World Bank, as of November 2015

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 2010-2014, excluding telecom, divestitures and merchants. The data presented in this graph are based on the number of projects which have MDB support information.

Enabling Environments: The Regulatory and Institutional Framework for PPPs

While direct and indirect support from governments and MDBs had a significant role in bringing PPP projects to the market, literature on the determinants of investment confirms that strong macroeconomic and institutional and regulatory conditions of a country are critical for PPP markets to grow.

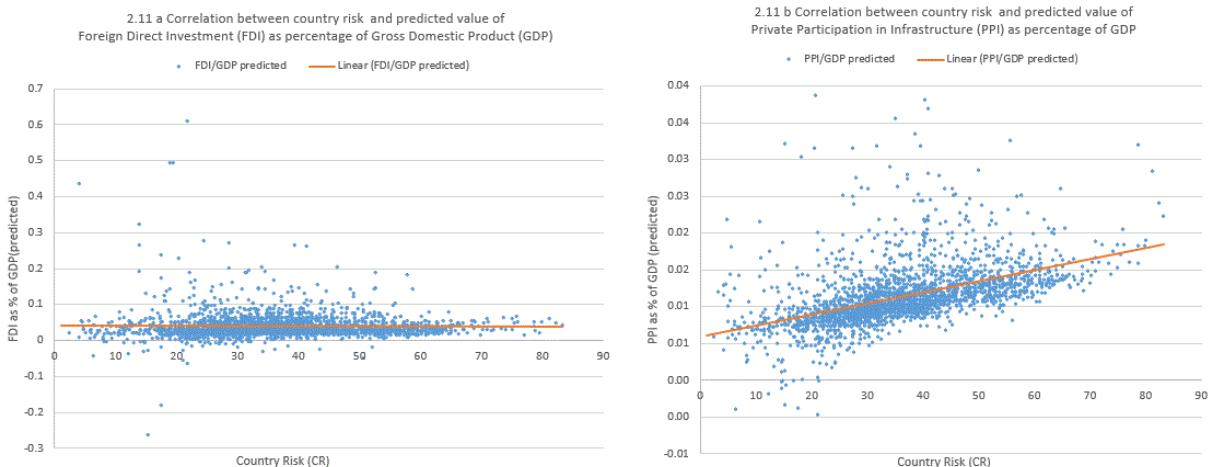
A robust institutional and regulatory framework is critical in attracting private investment for infrastructure projects. In fact, given the high costs and risks investors face, numerous criteria must be met, particularly in EMDEs where economic and financial conditions are often more tenuous. For example, there must be peace and stability, a rule of law, good governance with accountability and transparency, clear property rights, and enforceable contracts, just to name a few.

Yet another key element to attracting private investment is instilling confidence in investors. One way to do this is by maintaining a stable environment in which both domestic and foreign investors can operate with limited risk in unpredictable circumstances. Moszoro *et al.* (2014) shows that PPI investment in infrastructure is highly sensitive to conditions such as freedom from corruption, rule of law, quality of

regulations, and the number of disputes in a sector. Moreover, decreasing corruption by 10 points can increase PPI by 15%; improving rule of law by one standard deviation can increase PPI by 3%; improving quality of regulation by one standard deviation can increase PPI by 4%; and having one more project going to court decreases investment by 4%. Clearly, then, EMDEs can greatly influence private sector involvement by offering stable and reliable political conditions. When reliable political conditions suffer, investment will too.

These factors are especially important as empirical evidence confirms that country sovereign risk is negatively correlated with PPI investment in infrastructure: the riskier the country, the lower the investment by the private sector. One example of this is the length of time it takes to attract notable investment in a conflict-affected country. While it can often take six to seven years to reestablish private investment once a conflict has ceased, commitments in sectors where assets are more difficult to secure—such as water, power distribution, or roads—are often slower to come back or, in some cases, never materialize. In addition, PPI seems to be more sensitive to country risk than foreign direct investment (FDI) as shown in the graph below (Araya *et al.* 2013).

Figure 2.11 Correlation between country risk and economic variables



Source: Araya, Andres & Schwartz (2013)

Note: The panel data cover 124 developing countries within 1990 and 2010. The country risk ratings were obtained from Euromoney. For 2.9a: The predicted Foreign Direct Investment (FDI) as percentage of GDP were the result of the random effect model. The graph fits the form of $(FDI / GDP) = \alpha + \beta_1 CR + \beta_2 Growth + (FDI / GDP)[-1]$. For 2.9b the graph excluded the 11 outliers that PPI/GDP were greater than 0.04.

The graph fits the form $(PPI / GDP) = \alpha + \beta_1 CR + \beta_2 Growth + (PPI / GDP)[-1]$

Many countries, particularly those with emerging economies, have made significant efforts to improve and enable their investment environment for PPPs. Empirical evidence suggests that a favorable regulatory and institutional framework corresponds with a successful PPP investment environment,

despite limited data on the subject. One such gauge is the Infrascope Index, which attempts to measure country readiness and capacity for sustainable, long-term PPP projects (transport, energy, and water and sewerage). By scoring various aspects of the enabling environment for doing PPPs, including project experience and success, investment climate, financial facilities, and subnational domestic PPP activity, the index provides an assessment of a country's attractiveness to private investors (see full definitions in EIU 2014). So far, eight Infrascope reports have been produced on four regions: Latin America and the Caribbean (2009, 2010, 2012, and 2014), Asia-Pacific (2012 and 2014), Eastern Europe (2012), and Africa (2015). This includes data for 73 countries.

One of the most prominent measures of success for investment in PPP projects is a country's history of achieving financial closure. Using the latest Infrascope score available (LAC 2014, Asia 2014, ECA 2012 and Africa 2015) and PPI data from 2010-2014, we are able to correlate average PPP investment as a percentage of GDP with a country's readiness to do PPPs, as measured by the Infrascope index.

Figure 2.12 shows a positive relation between overall Infrascope¹⁹ score and investments in PPP as a percentage of GDP. Nascent markets (Infrascope score: 0-30) and developed markets (Infrascope score: 60-80) are more sensitive to having a robust enabling environment than emerging markets (Infrascope score: 30-60). The same pattern is observed when looking at the sub-index for investment climate²⁰.

The operational maturity²¹ and the financial facilities²² sub-indexes show a linear positive relation but mainly for mature and developed markets. When looking at the regulatory²³ and institutional²⁴ framework sub-indicators of the Infrascope index, there is not a clear relationship pattern with PPP investments as percentage of GDP. This could indicate a lag effect -- for example, it may take several years for reforms to spur investment (preparing and financially closing a project make take a few years). This was confirmed by data from the Latin America and the Caribbean region.

¹⁹ The overall indicator and the operational maturity indicator of Infrascope excludes number of projects from the PPI Database to avoid spurious correlations.

²⁰ It assesses if the country has a strong business environment characterized by a stable, effective, and transparent government, a policy commitment to enabling PPPs, and a healthy overall market.

²¹ It assesses if the country has a track record of implementing a strong pipeline of projects to a high standard, adhering to sound principles at all stages.

²² It assesses if the country faces low government payment risk; ample sources of long-term finance for infrastructure from mature local financial markets; and effectively-targeted subsidies for low-income users of infrastructure.

²³ It assesses if the country has a sound legal/policy basis for enabling and regulating the selection and oversight of PPPs.

²⁴ It assesses if the country has a clear allocation of roles and responsibilities with regard to PPP selection and monitoring, with provision for independent checks, and backed up by a reliable judiciary.

Figure 2.12 Infrascore Score and 2010-2014 Average PPP Investments as Percentage of GDP

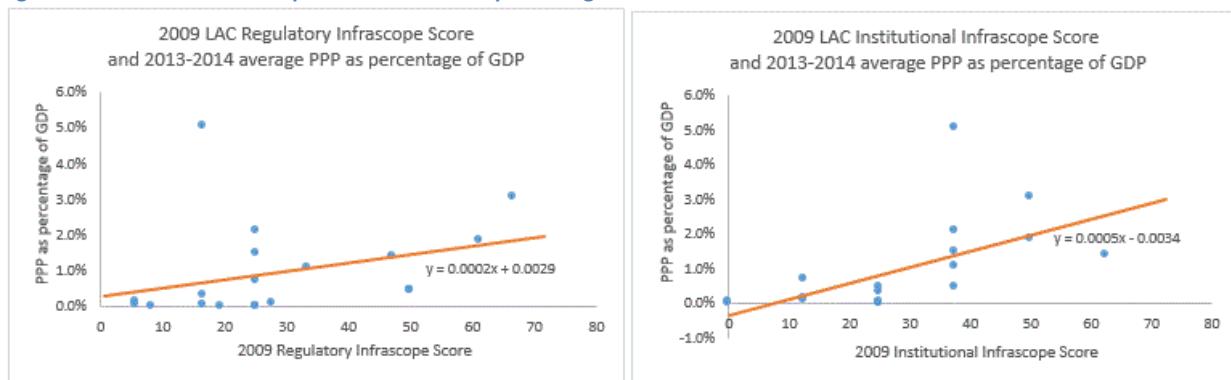


Source: PPI Database World Bank and Economist Intelligence Unit (EIU) Infrascore

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1990-2014, excluding telecom, divestitures and merchants. The operational maturity indicator of Infrascope excludes number of projects from PPI database to avoid spurious correlation.

Outside of LAC, there is not historical Infrascope data: as a result, assumptions must be made based on a limited sample of 19 countries in LAC. Figure 2.13 shows a positive correlation between the quality of regulations and institutions in LAC in 2009 (Infrascope sub-indicators for regulatory and institutional framework) and the average PPP investments as percentage of GDP four to five years later (2013-2014).

Figure 2.13 2009 LAC Infrascope score and PPP as percentage of GDP



Source: PPI Database, World Bank, Infrascope Economist Intelligence Unit (EIU)

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1990-2014, excluding telecom, divestitures, and merchants.

The graphs above provide insight into the importance of having a robust enabling environment. However, results remain biased as the sample size is relatively small. Efforts are underway to collect more frequent and reliable data as in the Benchmarking PPP Procurement report that assesses key aspects of a country's PPP regulatory framework and practices focusing on the different stages of the PPP procurement process (World Bank, 2015).

Implementation of PPP Projects: Renegotiations and Cancellations

Reaching financial closure on infrastructure projects is a reliable metric to assess the efficacy of PPP markets; implementing those projects, however, remains quite challenging. Over the past 25 years, long-term contracts signed under healthy economic conditions often failed to predict and mitigate future changes in the economic and sectoral landscape, which resulted in numerous contract renegotiations and some cancellations.

A 2014 report on the renegotiation of PPP contracts in Latin America (Guasch *et al.* 2014) shows that during the 1990-2013 period, a significant number of PPP projects in Latin America (68%) were renegotiated, usually within the first three years of financial closure. Issues involving poor planning and lack of effective contract monitoring were often responsible. Disputes and differences in interpreting contracts were the main reasons, although such issues are often expected and considered business as usual. In the past years, most countries in the Latin America region have improved their regulatory framework in their PPP legislation by instituting changes such as freezing renegotiations for the first three years and clarifying the risk allocation, compensation, and rates of return (Peru, 2008; Chile, 2010; Colombia, 2011; and Mexico, 2012). But despite these initiatives, more work needs to be done. Greenfield projects continue to be frequently renegotiated, and water and transport deals—particularly large,

complex ones—remain plagued by poor risk allocation and improper minimum requirements, selection criteria and procurement procedures. Among PPPs, greenfield projects were found to be most susceptible to renegotiations, largely because of their complexity and riskiness along with improper selection criteria and procurement procedures. By sector, water and transport deals were most often renegotiated due to the difficulty involved in forecasting variables, such as future traffic patterns. Unfortunately, renegotiations in other regions is known to be significant but it was not confirmed empirically due to lack of data.

Cancellations, too, have taken place. Although cancelling a project is a last resort, it can still have a meaningful impact on the PPP market. From 1990 to 2015, relatively few infrastructure projects witnessed the private investor exit before the contract ended. Although rare, such cancellations can have a sustained impact on a country's PPP program, reducing the private sector's confidence in the government's commitment as well as the government's confidence in the robustness and "value for money" of these arrangements. As shown by Moszoro *et al.* (2014), an increase in one additional project reaching court decreases private sector investment by 4%. Canceled projects can also reduce the credibility of the government's commitment to contracts from a private sector standpoint. According to the annual MIGA-EIU Political Risk Survey (MIGA, 2013), breach of contract remains the most important political risk concern for investors in developing economies. A full 45% of investors in developing countries named breach of contract as the most important political risk they will face in the next three years, and 34% of survey respondents mentioned that, over the past three years, they have experienced financial losses through breach of contract.

Of the 4,901 infrastructure projects reaching financial closure²⁵ from 1990–2014, 179 were cancelled,²⁶ accounting for 3.7% of all projects and 6.1% of investment commitments (see Table 3.1). The average median size of cancelled projects was \$177 million, which is below the average deal size for all projects (\$207 million).

²⁵ Financial closure is defined by the PPI Database based on contract type. Methodology available at <http://ppi.worldbank.org/methodology/ppi-methodology>

²⁶ A project was deemed to have been cancelled 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 halted construction for 15 percent or more of the license or concession period, following the revocation of the license or repudiation of the contract. A project is also considered cancelled if the host government issued a decree cancelling the project.

Table 3.1. Cancelled PPP infrastructure projects by cancellation year, 1995-2014 (US\$ Million)

Cancellation Year	Number of Projects	Total Investment	Median Size
1995	3	354	0 ²⁷
1996	1	361	361
1997	11	7,391	481
1998	0	0	0
1999	10	4,451	198
2000	10	6,472	294
2001	15	7,813	198
2002	19	9,783	120
2003	15	2,960	201
2004	14	7,571	48
2005	12	2,362	86
2006	16	10,824	81
2007	12	2,186	76
2008	6	726	103
2009	6	1,768	263
2010	3	1,224	43
2011	3	385	133
2012	8	2,665	254
2013	8	2,659	291
2014	7	3,173	311
Cancelled Projects	179	74,086	177 (avg)
Total Projects	4,901	1,240,859	179
Percent of Total	3.7%	6.1%	--

Source: PPI Database, World Bank as of November 2015.

Note: Data covers projects in energy, transport, and water and sanitation that reached financial closure from 1990-2014, excluding telecom, divestitures, and merchants.

Overall, among projects that reached financial closure from 1990 to 2014, projects were cancelled, on average, 5.7 years after reaching financial closure. When looking at the entire life of an average project and controlling by the fact that the sample is censored²⁸, the probability of a project to survive decrease sharply in the first five years and drops to 94% by the 18th year. After that, the probability of a project to be cancelled remains at six percent.

Among regions, projects in Sub-Saharan Africa had the highest cancellation rates. Among low-income countries, only 13 of 229 projects were cancelled; however, this represents the highest cancellation rate (5.7%) among all income groups. Despite having the highest cancellation rate among income groups, however, it accounts for less than 1% of investment commitments versus 6.5% for upper middle income countries. More likely than not, weaker institutions and smaller countries with fewer recurring projects

²⁷ Two out of three projects had zero investments.

²⁸ The sample of projects analyzed is right censored because we do not observe the life of the project after 2015, and projects that reach financial closure in more recent years can be cancelled later in their life.

resulted in a perception that private investors may incur fewer penalties from abandoning a deal (Harris and Pratap, 2008).

TABLE 3.2 Percentage of Cancelled PPP Infrastructure Projects by Income Level, 1990-2014

Income Level	Projects reaching financial closure		Cancelled Projects		Cancelled Projects as %	
	Number	Investment Commitments (US\$ Million)	Number	Investment Commitments (US\$ Million)	%	By Investment Commitments
Low-income	229	26,362	13	220	5.7%	0.8%
Lower middle income	1,426	404,053	37	22,539	2.6%	5.6%
Upper middle income	3,246	810,444	129	52,368	4.0%	6.5%
Total	4,722	1,165,732	179	75,127	3.7%	6.1%

Source: PPI Database, World Bank, as of November 2015.

Note: Data cover the projects in energy, transport, and water and sanitation reaching financial closure 1990-2014, excluding telecom, divestitures, and merchants.

Project cancellation rates vary greatly among sectors—for instance, deals in transport (5.1%) and water (5.7%) have a much higher cancellation rate than those in the energy sector (2%). With the lowest cost recovery among all sectors, it should be no surprise that water has the highest rate of cancelled investment commitments at 28.3%. In addition, the water sector has been plagued by the negative perception among stakeholders that water supply should not be provided by the private sector.

TABLE 3.3 Percentage of Cancelled PPP Infrastructure Projects, 1990-2014

Sector	Projects reaching financial closure		Cancelled		Cancelled Projects as % of Sector Total	
	Number	Investment commitments (US\$ Million)	Number	Investment Commitments (US\$ Million)	By Number	By Investment Commitments
Energy	2,460	655,434	51	19,195	2.00%	2.80%
Transport	1,456	448,530	79	31,533	5.10%	6.60%
Water and sewerage	806	61,767	49	24,399	5.70%	28.30%
Total	4,722	1,165,732	179	75,127	3.70%	6.10%

Source: PPI Database, World Bank, as of November 2015.

Note: Data cover the projects in energy, transport, and water and sanitation reaching financial closure 1990-2014, excluding telecom, divestitures, and merchants.

Interestingly, projects that received a guarantee had higher cancellation rate (2.1%) than those without a guarantee (1.6%), and this difference was statistically significant. This should be no surprise as projects that use guarantees are typically more risky, making the characteristics of these two groups of projects very different.

Although relatively few projects have been cancelled overall, they could potentially have significant ramifications. Also true, however, is that commercial discipline and the “freedom to fail” are a big part of the rationale for turning to the private sector. Project cancellations should therefore be expected, since some projects or concessionaires will underperform.

Looking Ahead

Over the last 15 years, total investment commitments as a percent of GDP remained relatively low—between 0.2% and 0.7%. It also failed to recover the peak of 1.1% reached in 1997 before the Asian financial crisis. And while the top five countries (Brazil, China, India, Mexico, and Turkey) had sizeable commitments during the 2005-2012 period, their investments in relative terms have significantly weakened in the recent years—particularly in India and Brazil, affecting the global trends. After 2013, global investments have been growing slowly in absolute terms (7% annual growth rate compared to 27% during the 2004-2012 period) and with almost no increase as percentage of GDP.

The current global landscape is not very promising. Macroeconomic factors, such as depreciating emerging market currencies, a commodities deflation, and Basel III regulatory requirements, have recently affected the investment landscape. Country-specific issues, such as the liquidity crunch, coupled with land acquisition issues, have affected investment in India for the fifth straight year. Political distress has also inhibited investor sentiment in developing countries and particularly in Brazil.

The post-2015 development agenda offers an opportunity to think more broadly about development finance and the role of PPPs. One of the targets of the Sustainable Development Goals (SDGs) is to *“Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.”* If public-private partnerships are to play a prominent role in the post-2015 development agenda, PPP investment as a percent of PPPs must increase. This will require all EMDE countries to develop their PPP markets, especially those outside the top five economies.

Significant efforts have been made by EMDE governments and MDBs to facilitate PPP investment in infrastructure, but there are still areas that could be further enhanced. As shown by the Infrascope index, there is room to improve country readiness and capacity for sustainable PPP projects, particularly the institutional and regulatory framework. The ongoing efforts to collect cross-country comparable data on the quality of the institutional and regulatory framework at different stages of the PPP project cycle (Benchmarking PPP Procurement, World Bank 2015) can be a tool to identify areas of improvement and inform policy choices.

Data also confirms the need and potential for increasing competitiveness in the bidding processes, as well as boosting the effective preparation of sound projects. Additional data is required to identify areas of reform.

While the PPI Database presents unique information that allows us to better understand the historical trends of PPPs in the past 25 years, it refers only to the initial stages of the PPP cycle. Little is known about a project’s implementation and the achievement of the expected efficiency gains. This is an area where

data is almost non-existent; therefore, efforts to gather and analyze sound data could prove extremely valuable.

In addition, this report raises important questions for future research about the regional dimension of PPPs, risk profile contrasts among national and sub-national projects, the role of MDBs beyond financial support, the links between renegotiation and cancellation of contracts, and the effectiveness of the use of guarantees in bringing project to the market. Answers to these questions require a different and more in-depth type of analysis, and in most cases additional data gathering.

Lack of data blocks other important conclusions that could help set a more targeted PPP agenda and refine our understanding of what is needed, ultimately expanding PPPs' effectiveness and impact.

References

- Araya, Gonzalo, Jordan Schwartz, and Luis Andrés. 2013. "The Effects of Country Risk and Conflict on Infrastructure PPIs." World Bank Policy Research Working Paper No 6569. Washington, DC: World Bank.
- Economist Intelligence Unit. 2014. "Evaluating the Environment for Public-Private Partnerships in Africa: 2015 Infrascope." Extracted from <http://www.eiu.com/Handlers/WhitepaperHandler.ashx?fi=Africa-Infrascope-2015.pdf&mode=wp&campaignid=AfricaInfrascope2015>.
- Guasch, J. Luis. 2004. "Granting and Renegotiating Infrastructure Concessions: Doing it Right." Washington, DC: World Bank.
- Guasch, J. Luis, Jean-Jacques Laffont, and Stéphane Straub. "Renegotiation of Concession Contracts in Latin America." USC Law School, Olin Research Paper No. 02-7; USC CLEO Research Paper No. C02-22; and World Bank Policy Research Working Paper No. 3011. October 2002.
- Guasch, J. Luis, Daniel Benitez, Irene Portables, and Lincoln Flor. 2014. "The Renegotiation of PPP Contracts: An Overview of its Recent Evolution in Latin America." International Transport Forum Discussion Paper No. 2014-18.
- Harris, Clive, and Pratap V. Kumar. 2008. "What Drives Private Sector Exit from Infrastructure? An Analysis of the Cancellation of Private Infrastructure Projects." Washington, DC: World Bank.
- Lamech, Ranjit and Saeed Kazim Saeed. 2002. "Private Power Investors in Developing Countries: Survey 2002 — Preliminary Findings." Washington, DC: Energy Forum.
- MIGA (Multilateral Investment Guarantee Agency). 2013. "World Investment and Political Risk 2013." Washington, DC: MIGA, World Bank Group.
- Moszoro, Marian, Gonzalo Araya, Fernanda Ruiz-Nuñez, and Jordan Schwartz. 2014. "Institutional and Political Determinants of Private Participation in Infrastructure." In *Public Private Partnerships for Transport Infrastructure: Renegotiations, How to Approach Them and Economic Outcomes*. Washington, DC: ITF Roundtable.
- World Bank. March 2009. "What Drives Private Sector Exit from Infrastructure? Economic Crisis and Other Factors in the Cancellation of Private Infrastructure Projects in Developing Countries." *Gridlines*, Note No. 46. Washington, DC: World Bank.
- World Bank. 2015. "Benchmarking PPP Procurement: A Pilot in 10 Economies." Extracted from <http://bpp.worldbank.org/~media/WBG/BPP/Documents/Reports/BenchmarkingPPPProcurement-2015.pdf?la=ens>

The World Bank Group provides assistance to governments in developing countries to improve access to infrastructure and basic services through public-private partnerships (PPP). When designed well and implemented in a balanced regulatory environment, PPPs can bring greater efficiency and sustainability to the provision of such public services as water, sanitation, energy, transport, telecommunications, health care and education.

The World Bank Group's unique value proposition rests with its capacity to provide support along the entire PPP cycle —upstream policy and regulatory guidance, transaction structuring advice, as well as financing and guarantees to facilitate implementation.



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