The Impact of Private Participation in Infrastructure in Developing Countries: Taking Stock of about 20 Years of Experience

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1. Introduction

For over 20 years, academics, policy advisor and policymakers have been debating the extent to which private participation in infrastructure (PPI) is good or bad for developing countries² (Mukhopadhyay, 2011; Patel & Bhattacharya, 2010; Joasiah & al, 2010; Estache, 2006; Estache & Wren-Lewis, 2009 and 2010; Jerome, 2008). Much of the debate has been ideological and it is often hard to sort out fiction or partial interpretations from facts. The dominating interpretation of these facts has fluctuated during that period. It enjoyed a strong support during the 1990s but support has disappeared in many countries as seen in high profile rejections or failures (e.g. Argentina, Bolivia, Mali, Senegal or Venezuela) since the mid-2000s. This rejection is not universal. For instance, China and India were, and still are, very active signing contracts during that period. It continues to be on the agenda in many countries in Africa, Eastern Europe or Central America.

For many countries, the current weak markets for PPI is due more to a lack of access to international capital flows resulting from an increase in risk aversion—sui generis or driven by regulation in the source countries-- than to a lack of interest of potential host countries. The new global environment is indeed now riskier and the lending capacity of many commercial banks traditionally active in developing countries has decreased—e.g. many European banks have had to increase their reserves. The relative importance of bilateral and multilateral actors in the sector should be growing for developing and transition economies which are not on the top of the agenda of global financial sponsors.

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² This includes contracts ranging from those that change asset ownership—e.g. cell phones—to those covering projects where government may retain significant risks—e.g. in the water sector.
Since so much has been written about these experiences, it seems useful to summarize the economic research on the main lessons that deserve consideration as a new generation of PPI. The main source for this review is the literature published since the crisis. The note is organized as follows. First, it summarizes the main policy criteria used by researchers to assess PPI. Next it offers a brief digest of the evidence available on each criterion. It spends a bit more time on the equity criterion as in the development context, it is often the dominating concern even if in the choice of infrastructure policy, and in particular in the context of PPP, it does not always enjoy emphasis, de facto. It also includes a detailed post 2007 bibliography to give the readers a view of the main research papers on each sector and on each region of the world.

2. What did we learn conceptually that is relevant in practice?³

Many surveys take stock of recurring debates on the impact of PPI. Conceptually, for about 20 years, these surveys have highlighted that assessments of PPI need to rely on at least 4 criteria:

(i) fiscal/financial viability—is the public sector really meeting its fiscal objectives—which may include subsidies—with PPI and is the operation financially sustainable for the private actors involved.

(ii) efficiency—is it cutting cost, are cost minimized and do prices reflect costs?,

(iii) governance—does PPI impact the institutional support to sector policy and its accountability for mistakes, incompetence or corruption? Does it make it worse or better?

(iv) equity and poverty alleviation—are the poor among the winners or the losers of PPI?

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³ Note that there is a widespread confusion between PPI and privatization. Privatization is a much wider concept with much broader and complex consequences than those that can be credited or blamed to a specific project. The consequences of PPI can however approximate those usually credited to privatization when the project is large enough in relation to operation and management of the sector. This is the most common implicit assumption in the academic literature.
3. On the fiscal impact of PPI

Overview. Although not always recognized, the need to address fiscal concerns is often, if not generally, the main initial justification for the demand for PPI by governments. During most of the 1990s up to the mid-2000s, large scale private participation in infrastructure was expected to cut the fiscal burden imposed by public operation of infrastructure. Operational and capital expenditures were to be reduced while revenues were to be increased through taxes and through the sale or rental of assets.

In developing countries, these economies were not always achieved. The experience has shown that besides the short-term subsidies sometimes needed to support privatization processes, the public sector often has eventually had to commit subsidies for the long-term as well—usually as one of the outcomes of a renegotiation. The econometric evidence available from a large number of papers is that the potential short term fiscal profits from large scale PPI are not always sufficient to offset the long-term additional costs emerging from contract renegotiations. Anybody working on water in a poor region, on urban transport (rail in particular) can provide anecdotes that illustrate the econometric results. Sector specific evidence of situations in which the fiscal costs did not disappear or sometimes increased are provided next.

Some sectors are roughly subsidy free. This is the case in electricity generation which only requires subsidies under specific circumstances—e.g. incentives to change technology in an effort to green the sector. It is also the case for the telecoms sector. Mobile telephony has in fact become a tax handle in many countries. The main fiscal cost tends to be the eventual (direct or indirect) subsidy requirements for supranational projects (such as the backbones) or for the financing of universal service access, in particular in rural areas.

Some others commonly involved subsidies. In electricity distribution in regions dominated by poor population and few industries, subsidies can still be present but they often end up being replaced by cross-subsidies to cut the fiscal costs. As for transmission line extensions, they can often get financed through special
development funds which include significant subsidies as well (the story of the largest transmission expansion in Argentina in the 1990s). In transport, it is common – if not the norm – that the state ends up guaranteeing some investments and subsidies to passenger, and sometimes to freight train (Alfan, 2010; Soomro and Zhang, 2011). In many countries, the relative price of rail and road transport is often distorted by implicit and explicit subsidies to road users (road users charges – often including fuel taxes – seldom match the economic costs of roads – including their environmental and safety related costs –, even if they may match their financial costs in many countries). Subsidies are also the norm in water and sanitation. In this sector, the international rule of thumb is that tariffs should at least cover operational expenditures in W&S — 25% of total cost is the figure often quoted as a rule (Chitonge, 2011; Wang Wu Zheng, 2011).

Overall lesson. The main lesson to be learned from the analytical assessment of the experiences is that subsidies are often going to be part of the PPI financial sustainability. When dealt with ex-ante, it allows governments to factor them in the contracts and their budget. What is particularly important to recognize is that it may, as it should, influence project design ex-ante to minimize fiscal costs. Avoiding doing so forces governments to take on, ex post, project related costs which are not consistent with their ability to pay. This is what is being done for the water sector.

More systematic ex-ante assessments of the government’s needs and ability to subsidize approach should be considered in poor countries and countries in which the ability to pay of the poor and the scope for cross subsidies are limited. It will eventually make PPI easier. This is because it will reduce the opportunities to conduct opaque renegotiations which are seldom in the interest of users and taxpayers. And this will eventually reduce the fiscal cost of the sector.

At the project level, there is a reasonably good understanding of the sorts of deals for which subsidies are needed to bring the rate of return close to the cost of capital for the projects. Subsidies can also often help smooth cash flows, speeding up the positive cash flows or at least supporting them in the initial phases of a project.
Getting this right can lead to deals that would otherwise be perceived as unattractive.

4. On efficiency and PPI

Overview. There is a large volume of papers showing that the larger operational freedom from political interference allowed by the private management of small and medium projects under a PPI can pay off in term of efficiency. This is particularly strongly the case in countries where public procurement is poorly organized. Indeed, when public sector rules limit or distort competition in public markets to deliver infrastructure needs, such as roads or water and sanitation facilities, costs tend to be higher and service users and taxpayers pay more than they should (Estache and limi, 2011). However, when the project is large enough to imply a partial or total privatization of the sector, it can be associated with a number of important institutional changes to the sector. This may include the need to interact with an independent regulator—often created in the context of the sectoral changes that lead to the PPI. The evidence on this broader vision is largely in favor of PPI – both total factor productivity and labour productivity have usually increased thanks to them. It is however essential to recognize that this conclusion does not always hold: not for every region, not at any point in time and not equally strong across sectors.

It is just as crucial to point out that research shows also that PPI alone will not always lead to gains. Competition and effective regulation are crucial for the private sector to deliver on the expected efficiency gains (Zhang et al, 2005 & 2008). This is not only a theoretical finesse. It matters in practice. The econometric evidence abounds and varies across sectors (Estache and Wren-Lewis, 2010). Although it has been quite positive for the telecoms sector and largely positive for transport (largely because competition works well in these two sectors) (e.g. Perelman and Serebrisky, 2012; Serebrisky, 2011, Zheng and Ward, 2011), the story is a lot more complex for electricity and water and sanitation (Erdogdu, 2011a & 2011b).
For electricity, PPI in generation and large scale PPI such as distribution and transmission concessions has generally, but not always, lead to significant improvements in efficiency (Silvestre et al., 2010). In Asia or Latin America, PPI deals were usually associated with improvements in labour productivity and reductions in power losses, not in Sub-Saharan Africa (Eberhard et al., 2008; Estache, Tovar and Trujillo, 2008; Peres-Reyes and Tovar, 2009; Gao and Van Biesebroeck, 2011; Tankha et al, 2010). Across regions, research also shows that the efficiency gains were not fairly shared with the users. In Latin America for instance, the sharing of the efficiency rent from PPI was often highly taxed so that neither the operator, nor the consumer really benefited from the gains. The taxpayers would and should have benefited, if these revenue sources had been used to cut other taxes or debt. But there is no documented experience in which this was the case.

In W&S, the evidence of an increased efficiency due to private sector participation is at best mixed in all developing regions (Gunatilake & Carangal-San Jose, 2008; Osumanu, 2008; Chitonge, 2011; Wang & al, 2011; Marques & Berg, 2011; Banerjee et al, 2008b). The reason is that, at the end, what matters often more than ownership, and it is true for all infrastructures, is the environment in which the private sector participation will be implemented (Clarke & al, 2009). Factors such as competition, the possibility for cost recovery, good governance and regulatory levels have an influence on performance and efficiency. But the importance of these factors and the difficulty of implementing them in this sector have often been underestimated.

It may be worth to point out that the road sector offers an undesirable situation. The large number of renegotiations of toll roads may be the best indicators of the failure to achieve politically and financially sustainable improvements in the sector. However, there is no clear evidence that PPI has helped improve the overall performance of the sector significantly in a lasting way (Bullock, 2008; Vasigh and Howard, 2012; Gonzalez and Trujillo, 2009).

Overall lesson. Overall, competition seems to be what matters to efficiency. It worked for the telecoms sector and to a lesser extent for transport and electricity—
when competition and regulation were allowed to work. Private sector participation in the water sector has however not worked out as well in terms of efficiency and to a large extent because it is harder to introduce or mimic competition in this sector and the institutions needed to do this were not developed.

5. On governance and PPI

Overview. Economists but also political scientists have been very effective in recent years in increasing our collective awareness of the various dimensions of governance, from weak institutions surrounding PPI to the overwhelming politics of PPI. The telecoms and the electricity sectors have been the most researched (Howard and Mazaheri, 2009; Gasmi and Virto, 2010; Ba and Gasmi, 2011; Eberhard et al, 2008). For the transport and the water sector, it is quite difficult to find analytical information on the importance of institutions for those sectors. For transport, this is because intermodal competition allows sector specific governance requirements to be minimal and fairly well targeted (e.g. safety, time tables, access prices …). For water, most of the research on institutions is build around case studies rather than detailed analytical research. It provides useful information but it makes it harder to compare across experiences.

Regulatory agencies may be the most common theme across sectors in the governance literature. The diagnostic summarized by Dagdeviren (2009) is that regulatory effectiveness is quite weak in developing countries. Few enjoy the necessary independence needed to lead to the potential efficiency payoffs (Estache and Wren-Lewis, 2009; Yang and Lee, 2008). Wren-Lewis (2010) suggests that badly governed independent regulatory agencies (IRA) can even have a negative impact on efficiency.

This is not to say that changes have not taken place. Electricity and telecoms are the sectors in which the institutional changes achieved in the context reform seem to have been the most important, usually leading to the creation of an autonomous (but not always) independent regulator (Ba & Gasmi, 2011; Eberhard & Foster, 2008). In many countries, this regulator supervises the new actors of a usually
more competitive market when the reform has managed to go that far. The evidence on the impact of these institutional changes is mixed (Estache and Wren-Lewis, 2010) but it yields overall messages that are quite supportive of efforts to beef up institutional reforms in the sector. We review three elements in this area: the presence of regulatory agencies, their independence and the presence of corruption.

For **telecoms**, Estache (2006) finds that the existence of regulatory agencies coupled with privatization have a positive effect on access rates and they increase prices except for low income groups. Estache & al (2009b) also suggest that the introduction of an IRA can increase the average cost of a local call while it decreases the negative effect of corruption on household connection charges. For Montoya and Trillas (2009), IRAs in Latin America have a positive influence on network penetration. This may explain the increased cost in the previous paper.

For **electricity**, Ba & Gasmi (2011) focusing mostly on Latin American countries find that regulatory agencies have a significant influence on the performance of the electricity firms and improve access to their services. This is not in line with the results of Estache & al (2009b) who find no positive influence of the IRA on access rates to electricity. However, they do find an improvement in affordability for households. Wren-Lewis (2010) also shows that the presence of regulatory agencies in developing countries decreases the possibility of renegotiations and the negative influence of corruption on firms.

In **W&S**, regulatory bodies are often present—although not systematically—but they tend to lack independence and capacity to manage economic and financial regulation—even when they are quite good at the technical level (Gerlach & Fraceys, 2010). In Africa for example, half of the Sub-Saharan countries implemented a regulatory agency for the water sector and made significant improvements in this area even though the autonomy of regulatory agencies stays questionable. Indeed, very few Sub-Saharan countries managed to protect those agencies from political interferences (Banerjee & al, 2008a). Many observers would argue the same for Latin American water regulatory agencies.
In the transport sector, Estache, Juan and Trujillo (2011) suggest that developing countries would be better off, in terms of human capital and of coordination, with a global regulatory agency for the transport sector. In Latin America, regulatory agencies had been in place before the bidding process for most of the PPP contracts (Guasch, Laffont and Straub, 2008) but their independence were not strong. This led many toll road PPI contracts in Latin America to be renegotiated due to a lack of enforcement regarding contract compliance. In Sub-Saharan Africa, many PPIs failed because of a weak regulatory environment tainted with political and bureaucratic conflicts while in Asia, it is the lack of a competitive environment which led to project failures (Soomro and Zhang, 2011).

Research also provides test of the importance of these agencies’ independence (Oum et al, 2006 & 2008; Li and Price, 2011; Andres et al, 2009). Mohammed and Strobl (2011) made a distinction between functional and statutory independence. They find that functional independence influences positively mainline telecommunication penetration. However, they find no such evidence for statutory independence. Another study concludes that the more independent an agency is, the more it will affect positively technology diffusion in the telecoms sector (Howard and Mazaheri, 2009).

Concerning corruption, in the telecoms sector, Berg et al (2012) point out in their study that it affects more private firms than government-owned firms. According to them, the presence of corruption is higher in high income developing countries since the telecoms company may have more value. They also conclude that regulation works better in a competitive environment. For the transport sector, Galilea and Medda (2010) suggest that corruption has a negative impact on the success of PPIs, with African and Latin American projects being the most affected. Yet, they also evaluate the influence of democratic accountability and find a positive association between a low accountability level and a PPP’s success for all transport sectors except toll roads. The reason they offer is that less accountable governments “seem more willing to fulfil the long-term requirements”. Mu & al (2011) and Lee (2010) discuss the negative influence of corruption for China: it increases
transaction costs linked to PPPs which is due in part to the weaknesses of the regulatory bodies.

*Overall lesson.* Most of the evidence suggests that the introduction of a regulatory agency has positive impacts in terms of PPI performances (access, efficiency and quality) and helps in the reduction of corruption. However, sometimes, doing the right thing is not that popular: it may lead to increases in prices (to improve cost recovery). The message is also quite subtle in pointing out the relevance of the interaction between competition and regulation and the various legal dimensions of what is needed to ensure that agencies can be effective. Dealing with these issues is not easy but it is essential to ensure the long run sustainability of PPI deals and reassure investors to get them to come in the first place. The real challenge is that building these institutions takes time and skills and this slow birth of competent agencies is often not compatible with the need to deliver quick PPI deals.

6. On equity and PPI

*The big picture.* With equity, at least interpersonal, come two broad dimensions: access and affordability. Access is about investment and the importance of *access to infrastructure* in the day to day life of the poor – this is not news for anyone working on development. Roads lead to schools and schools eventually lead to better paid jobs.4 When a child is sick, the road, whatever its quality, leads to the clinic that will eventually allow her to go back to school. If a vaccine is needed, it will be available only if electricity was available at the clinic, because electric fridges are the most effective way of keeping the vaccine operational long enough. Improving access to safe water also means that these kids will have to go less often to the clinic, simply because they are less likely to suffer from acute diarrhea or other water born diseases. There are many case studies and a plethora of anecdotes that tend to confirm the basic positive intuition on most improvements in access, whether financed through PPI or public money. However, there is actually relatively little

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4 This note represents the views of the authors and these should not be attributed to any of the organizations we are affiliated with, nor to IFC, the World Bank or any of its members countries or agencies. Any mistake or misinterpretation is ours and ours only.
recent analytical evidence that focuses specifically on the poverty impact of small or large scale PPI.

Considering that private projects delivered, on average, around 20% of the investment needs of the utility sector, PPI has indeed contributed to the reduction in the access gap around the world, in particular Sub-Saharan Africa. This is the good news. The not so good news is that all regions and not all countries were equally successful at attracting private investment. Middle income countries have been a lot more successful at it than the poorest countries of the world which tend to also be those where the needs of the poor are the highest.

The really bad news from a poverty perspective is that providing access to the poor has proven to be not good enough. What is needed is *affordable access*. Affordability is indeed an essential dimension of the fight against poverty. And this is often not something commercial lenders are trained to think about. This is much more on the agenda of the non-commercial development agencies. What is needed to get affordability right is to get: (i) *the price level* right through the right choice of technology and service quality and (ii) the *price structure* right. If families cannot afford safe water, they will use unsafe water and their child will miss school and will not get the education that leads to better jobs. If the rural clinic cannot afford reliable sources of electricity, they will have to rely on alternative, less effective, solutions to stock the vaccines and their useful life of the medication will drop with potential health consequences for the populations. If road quality does not match the ability of the local communities to pay for them, fewer will be built and most will not be maintained enough.

Getting the price right for both the operator and the user, in particular the poor one, is an active policy decision which involves regulators to ensure a match between the project design and the ability to pay of the users. This is central to the linkages between poverty and PPI. All dimensions of quality, including technological choice, drive the *average cost and hence price*. Maybe more important is the need to recognize that the ways of costing and of pricing drive the *price structure*. What this means is that how much freedom operators enjoy in conducting price
discrimination defines the level of efficiency but also the affordability of access in the sector.

*The evidence.* This section does not claim to be an exhaustive summary of research. Its main purpose is to generate a brief summary for each sector of the recent evidence available on the access rate, the affordability of the services and the quality of service to the poor as a result of PPIs. In general, the main message is that for telecoms things worked out well - but mostly thanks to the technological revolution by the sector (Andres et al, 2008; Gasmi et al, 2011). In other infrastructure subsectors, where efficiency gains have been achieved from PPI (and matching reforms), it is not always clear how fairly gains have been shared between the various economic actors. In many countries, regulation was not designed to pass these gains on to residential users. The evidence is quite robust for electricity and water (Andres, Guasch and Azumendi, 2009; Clarke et al, 2009; Dagdeviren, 2009; Gunatilake et al, 2008; Jamasb, 2006).

For **electricity**, Estache and Wodon (2011) and Andres, Guasch and Azumendi (2009) show that industrial users have in fact been much better treated than residential users in Latin America. Andres, Guasch et al. (2008) however also show that these price increases were relatively small and achieved with significant improvements in service quality. Kundu and Mishra (2011) reach a similar conclusion for India where prices decreased—except for farmers which include many poor--- and quality increased. The results of impact evaluations, even there are not that many yet, are quite positive as the impacts of electrification on the household’s lighting usage, home studying, energy, expenditures or income tend to be quite positive. Recent evidence is available for Rwanda, comparing villages with and without access to mini-grids, which are quite easy to implement as private projects, and showing that it has a positive effect on income (Bensch et al., 2011), for Vietnam, Bangladesh (Khandker, 2009a), for Vietnam (2009b) and for a wide range of African countries (Estache and Wodon, 2011). In fact, one of the important dimensions of the research on the impact of energy projects is that it is essential to pick the right technology to meet to the local demand (Nagayama, 2009). The mini-
grid solution in the case of Rwanda (Bensch et al., 2011) is perfectly tailored for PPIs to meet the needs of the poorest regions and can increase competition at the same time. What is probably more directly operationally useful in these evaluations is that they provide insights of the best ways to subsidize both access and affordability.

For water, there are many documented instances in which PPPs failed to improve significantly efficiency and performance but they also had difficulties to address two elements that characterize equity: affordability and access to water (Lee, 2011). This was identified in one of the first stock-taking exercises of the PPI experiences in Latin America and confirmed more recently in a broad look at the African experience (Banerjee et al., 2008b; Boccanfuso et al, 2009c; Estache, 2005; Estache and Wodon, 2011). Most of these studies recognize that the main reason why average tariffs increased was simply the need to catch up with a too often postponed cost recovery. In Zambia, for example, the private participation in water utilities has led to a “yearly increase of water tariff” and it is the poor households that had the greatest difficulty to deal with this increase (Chintonge, 2011).

The need to allow improvements in cost recovery cannot be denied, unless of matching subsidy is committed by government to maintain the financial equilibrium of the operators. The problem comes from the fact that the category of consumers that tends to support the heaviest financial burden is often the lowest income groups connected. Banerjee et al., 2008b show for Africa that low-volume consumers had to face prices higher than those charged to average or high-volume consumers. The study of Osumanu, 2008 also points to the fact that privatization made water services non affordable for poor households in Ghana. For Latin America, Andres et al., 2008 find similar evidences. Water prices did increase during the transition and the post-transition periods. Note in this plethora of papers, almost all provide econometric evidence that affordability is an issue. Gassner et al., 2009, reviewing several transition and developing countries, are the exception, finding no evidence of price increases in the water sector due to PPPs. The choice of
the dataset, the time period and the econometric identification strategy are all possible explanations for this very different result.

Few studies exist of the poverty effects of PPI in transport. Vande Walle, 2009, Estache, 2010 and Kingombe, 2011 provide each a survey of the evaluation of impacts of interventions on roads and on transport. But most of these focus on feeder or rural roads and to our knowledge, none looks at the poverty impact of private toll roads, private railways or ports. Yet, there is relatively strong evidence that overall many dimensions of transport, no matter the ownership, matters for poverty. What comes out of research is that subsidies have been important to maintain urban transport affordable in many countries. The best thing to do, in addition, may be to promote competition as in the past (Evenhuis and Vickerman, 2010). It cuts costs and it has tended to protect passengers and users of freight transport in terms of prices and quality of services—although environmental impacts have sometimes been quite negative and there are many issues pointing to safety issues associated with wild competition between urban buses for instance and under-maintained railways (Estache & Serebrisky, 2004). The main risk to the poor is the end of subsidies for fiscal reasons.

A somewhat subtle dimension of inequity is the assessment of the incidence of high rates of PPI contract renegotiations which are observed in particular in Latin America but also in Africa (Bullock, 2008; Estache, Guasch et al, 2009). These often end up enjoying higher subsidies or reduced investment obligations as compared to the initial conditions of the contract. In some cases, it may be justified but often it is also the result of low-balling at the auction stage to capture the market. The outcome is a negative consequence for the users when projects are delayed and for taxpayers when subsidies are increased.

Most of this research does not deal very well analytically with distribution issues and with general equilibrium effects (including those obtained from derived demand for low skilled jobs which impact the poor the most). General equilibrium models have been developed for Mali and Senegal, for instance, and show that, in those two cases focusing on water and energy, the reforms including PPI have not
reached the poorest income classes, even when prices on average decreased and became more affordable (Boccanfuso et al, 2009a and 2009b). Access continued to be a major issue as service expansions were targeted to the rich. This is evidence of cream skimming by operators, public and private!

The main explanations for the affordability and cream-skimming problems built on the poor design of the regulatory framework that supported the PPI deals. For affordability, it would usually be easy to design a price structure that allows cross-subsidies or that manages the way blocks are designed to address both efficiency and equity concerns. For the cream-skimming exercises, the solution goes through the design of universal services obligation and a matching financing strategy (Estache and Wren-Lewis, 2011).

Overall, the messages are quite robust and consistent across methodologies. First, cream-skimming in the design of restructuring eliminated many forms of subsidies. This was often fine but not always. Indeed, when it eliminated cross-regional subsidies for instance, it slowed investment programs in the poorest regions when governments could not compensate through increased subsidies. Second, technological options that match local needs and ability to pay allow a faster and better suited delivery of services in the poorest regions. Third, across countries, the poor have significantly suffered from the mismanagement of the tariff structures. When these are properly regulated, access improvements are equivalent to improvements in affordable access. Fourth, it could be argued that the regulatory choices made for these sectors have turned potentially sound PPIs into sources of mistrust between the private operators and governments. Ensuring affordable access through PPI would have worked with fair regulation. It will take time to rebuild the confidence and in the mean-time, the poor are among those who suffer the most from the access gaps around the world. Finally, institutions building, including for regulatory purposes, takes time; few projects, unless they include a strong lasting technical assistance component, last long enough to assist in that institutional building.
7. So what are the main messages to remember?

The translation of the lessons from academic research for the impact of private participation in infrastructure that may also have operational messages can be summarized as follows.

1. Although efficiency gains from PPI are common, they are neither systematic nor guaranteed when information gaps (asymmetries) allow operators to capture rents that should be shared with users.
2. The financial and political sustainability of these gains depends on the effectiveness of competition and/or regulation for all sectors.
3. Fiscal costs/subsidies are not systematic but in general, they are relatively easily predictable unless they are driven by major sector or project specific supply or demand shocks.
4. For some projects, fiscal costs are, ex-post, a lot more sensitive to demand risk than allowed for and this cost should be estimated ex-ante and could then be built-in project design ex-ante to reduce renegotiation risks.
5. Governance also matters and private participation in large infrastructure projects requires a significantly more complex due-diligence than PPI for small projects or well targeted projects that do not drive the fate of the sector.
6. PPI are about long term commitments and not just about the deals. Too many actors in the development field initially underestimated the importance of institution building in the process of development to ensure the deals would address both efficiency and equity concerns. This demands a lot more preparation time than allowed by project resources in cash, time and skills.
7. Poverty is not just about access, it is also about market design, about affordability and hence about the careful design of tariffs (to recover connection and usage costs) but also about the right choice of technology.
8. For the most successful projects, unless regulation works, efficiency gains become rents which fuel conflicts between governments, users and operators. These can be managed ex-ante as well through the proper design of regulation and the rules of implementation of that regulation.
9. The tools to get the basics of pricing and project design right are well known and relatively easy to build in projects and sector regulation. We also understand the constraints and the challenges of using these tools better.

10. Developing tools and institutions that work for everyone—investors, users and taxpayers—requires a monitoring of outcomes and of the impact associated with PPI. This is why it makes sense to join in the international trend to increase the number of pilots to generate a collective knowledge on the various drivers of success and failures of the implementation of PPI. This requires a commitment of financial resources and the allocation to the task of people with the specific skills to do so.

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