

Development Finance Institutions and Infrastructure: A Systematic Review of Evidence for Development Additionality

Dr Stephen Spratt and Lily Ryan Collins

Institute of Development Studies & Engineers Against Poverty

Executive Summary

Infrastructure is a vital foundation for all forms of development, but remains seriously underprovided throughout much of the developing world. According to current estimates, more than 1 billion people in rural areas lack access to adequate transport (World Bank, 2012), over 780 million do not have access to safe drinking water (WHO/UNICEF, 2012), 1.3 billion had no reliable source of energy (IEA, 2011), and 2.4 billion lack sanitation facilities (WHO/UNICEF 2012). The World Bank finds that infrastructure investment in Africa falls short of the level required by US\$48 billion per year (Foster & Briceño-Garcia, 2010).

For decades it was assumed that infrastructure should be funded and provided by the public sector, but the failure of public investment to get close to necessary levels – and problems with the quality of public provision in some instances – led to an increasing focus on private investment. Private infrastructure investment increased significantly in the 1990s, from US\$20 billion at the start of the decade, to more than US\$140 billion in 1997¹. The East Asian financial crisis saw this figure abruptly halved, after which a steady recovery ensued, so that by 2008 investment commitments had reached US\$161 billion. In more recent years, the global financial crisis saw another fall, and investment commitments are now around 5% below their 2008 peak.

Thus, while private investment in infrastructure is significant, it is both volatile and insufficient to fill the funding gap. There is every reason to believe this will remain the case, with public investment remaining central to infrastructure provision. Rather than focusing either on purely public or private investment models, significant growth will be needed in both forms in most developing countries. By leveraging private sector investment with their own direct investments, Development Finance Institutions (DFIs) attempt to contribute to this goal.

It is within this context that this systematic review was commissioned to address the following questions:

What is the evidence of the impact of DFI support (including PIDG support) for private participation in infrastructure (PPI) on economic growth and poverty reduction?

What conclusions can be drawn from this evidence to help DFIs better target their investment to maximise their impact on economic growth and poverty reduction?

In approaching these questions the review focused on the value-added, or ‘additionality’, that DFIs

¹ World Bank and PPIAF, PPI Project Database (<http://ppi.worldbank.org/>).

might create with respect to growth and poverty, where additionality is defined as impact beyond that which would have occurred without DFI participation. Defined in this way, there are a number of types of additionality that DFIs could feasibility create.

To be more precise, we set out to test the hypotheses that DFIs create additional impacts by performing the following functions:

- i. Leveraging additional finance;
- ii. Influencing project design and the policy context so that development impacts are greater than they would otherwise have been;
- iii. Creating a positive demonstration effect so that private investors undertake similar projects without the need for DFI participation.

The review proceeded in two phases. Phase 1 examined publicly available evidence in the academic and grey literatures, as well as DFIs' own material. Much of the relevant evidence, however, is to be found in DFIs' internal project evaluations, which are generally not publicly available due to issues of commercial confidentiality. Focusing purely on publicly available information is obviously problematic, as there is no reason to assume that the information that is released by DFIs represents an unbiased sample of all evidence. Indeed, it is more likely that publicly available information will be positively skewed, with examples of 'success stories' being more likely to see the light of day than evaluations of more problematic projects.

To address this, phase 2 examined internal project evaluations for a group of five² major DFIs, based on negotiated terms of access. Participating DFIs are: IFC, KFW, CDC, AsDB and FMO. In each case, the researchers were granted access to previously confidential documents. As we were reliant on DFIs themselves to provide this documentation, it was not possible to verify that all relevant material was supplied. In total, more than 400 documents were reviewed, coded and analysed, roughly half in each phase of the review. In phase 1 these were a mixture of ex post project evaluations, independent reviews and syntheses of evaluations, DFI/donor reviews of particular sectors or regions and academic studies. For phase 2, the materials reviewed were almost entirely project level evaluations.

Before detailing the methodology applied, we will first present the key findings and recommendations.

Key Findings

1. **Hard evidence is scarce.** We identify three reasons for this:

- i. It is difficult to measure causal relationships between infrastructure provision and development outcomes;
- ii. It is harder still to attribute a share of this total impact to the work of DFIs, either

² 12 DFIs were approached to participate in phase 2. Those not named here were not prepared to release their internal documents for the purposes of this research. Although PIDG is not included among participating DFIs, this is because of the relative youth of the organisation, meaning that there was insufficient material available to warrant inclusion.

individually or as a group;

- iii. DFIs have traditionally focused on leveraging private finance into the infrastructure sector and have only recently begun to develop robust measurement systems to track their broader impacts. It will therefore take time before a solid evidence base can be constructed.
2. **DFIs can potentially create four different forms of impact ‘additionality’:** financial (where they leverage additional private finance into infrastructure); design (where they influence project design so that growth and/or poverty impacts are enhanced); policy (where they influence the policy context in which the project occurs to enhance growth/poverty impacts); and demonstration (where the success of a DFI-supported project provides a stimulus for subsequent private sector projects that do not involve DFIs).
3. **DFIs create financial additionality**, particularly in low-income countries (LICs) and in less commercially attractive sectors. In particular, DFIs are able to: (a) supply long-term finance, which is often essential for infrastructure but frequently unavailable in LICs; (b) mitigate project risk, particularly in the early stages, thus leveraging additional finance by improving the attractiveness of deals (again, this is often crucial in LICs); and (c) provide and leverage finance counter-cyclically, either lending when private investors will not, or retaining positions when the private sector would pull out.
4. **Financial additionality is less apparent in middle-income countries (MICs)**, and in commercially attractive sectors. Interestingly, phase 2 findings suggest that financial additionality is more likely in low-income and lower middle-income than in least-developed countries.
5. **DFIs seem less likely to act counter-cyclically during ‘good times’** (i.e. by reducing or eliminating lending when it is not needed).
6. **DFIs do influence project design and the policy context to boost growth.** Both in terms of upfront project selection (e.g. selecting projects that will remove ‘bottlenecks’ to growth) and during the project design phase, DFIs seek to enhance growth effects, through activities such as a focus on knowledge or technology transfer, for example. Similarly – though to a lesser extent – DFIs seek to influence regulatory frameworks to enhance growth (e.g. through liberalisation or by building public sector capacity to pursue private sector development).
7. **DFIs do less to influence project design and the policy context to increase direct poverty impacts.** Many would argue that growth reduces poverty, though the extent will depend on the nature of this growth – i.e. how ‘pro-poor’ it is. However, in addition to the growth channel to poverty reduction, many forms of infrastructure development have a direct effect on poverty. The mechanisms through which this occurs include factors such as enabling access to services that were previously not available, or providing poor people with new or improved access to markets. Certain aspects of project design will greatly influence the extent of these direct effects, such as the ability of the poor to physically access services, or their ability to afford fees. Surprisingly, we found very little evidence that DFIs actively seek to influence these design features to increase direct poverty effects. There was a similar lack of evidence of efforts to influence policy, for example through pushing for pro-poor regulatory requirements.

8. **DFIs could do more to amplify the development impact of projects.** An important part of the development impact of infrastructure stems from factors such as the quantity and quality of local employment they generate, and supply chain linkages with local SMEs. While there were examples of DFIs trying to enhance impacts in these areas, and a general recognition of their importance, there was also a surprisingly passivity in some cases. That is, the lack of progress in these areas was criticised in some projects, but there was little evidence of attempts to influence this. Given the value-add DFIs generally bring to projects – which often would not happen without their participation – there appears scope to demand a higher ‘price’ in development terms.
9. **DFIs prioritise the creation of demonstration effects, but these are hard to prove.** As highlighted above, the infrastructure funding gap in developing countries is very large. DFIs have significant but limited resources, which fall well short of what is required. The aim is therefore to leverage these resources, both by attracting multiples of private finance to co-invest, but even more importantly by demonstrating the feasibility and attractiveness of such investments to commercial actors. In particular, DFIs aim to provide an example of success, and so facilitate a step-change in private investment in developing country infrastructure, where DFI participation is no longer required. Despite the priority given to the importance of creating demonstration effects, there is little evidence to support it in practice. In part this is because DFIs have only begun to focus on measurement relatively recently. More fundamentally, perhaps, it reflects the difficulty of proving causality in this area.
10. **There are hard limits to the demonstration effect.** Despite its importance, there are limits to the demonstration effect in practice. In large part, DFIs are able to do what they do (e.g. provide additional finance on the terms described above) because they are DFIs. The political backing they receive from developed country governments allows them to borrow on highly favourable terms (as there is very low perceived risk of default), and to lend on highly favourable terms (borrowers will be reluctant to default on a loan from a DFI due to the effect this may have on their relationship with the donor country, or the World Bank in the case of the IFC).

These factors enable DFIs to: (a) obtain and provide finance on better terms (e.g. longer term); (b) hold riskier overall portfolios than private institutions; (c) behave counter-cyclically; (d) enable private co-investors to access finance on the same terms, and have a similarly low default risk from borrowers; and e) provide ‘insurance’ with respect to political interference and risk. In many cases it is precisely these features that make a project possible, and they are the direct result of DFIs’ rather unique position. It is thus not always possible for private actors to follow DFIs’ example and make the same investments, as they do not enjoy the advantages that made these investments possible in the first place.
11. **Demonstration effects can be negative.** Where projects do not succeed, either because of factors such as a lack of political support, or the application of the wrong business model or funding mechanism, the example is likely to be negative. Instances were found where such negative demonstration effects created opposition (politically and/or amongst the public) to future attempts at PPI. This suggests the need for more up-front work on project appraisal and structuring.

12. **DFIs can create different forms of additionality in different projects.** In this report we developed a framework for categorising projects based on their commercial viability, which we believe could be useful. The five project categories are:

- i. Fully commercially viable – i.e. could go ahead without DFI involvement³;
- ii. Commercially viable but a political umbrella is essential to mitigate risks sufficiently to assure investors;
- iii. Project is commercially viable but only if finance is structured in ways that only DFIs will or can do;
- iv. Only commercially viable if a ‘blended’ model of concessional and commercial finance is used;
- v. Not commercially viable – i.e. should be publicly funded.

We suggest that there is a basic difference between category (i)-(iii) and category (iv) projects. Category (iv) projects, for example, will not be attractive to private investors unless their returns are boosted by the use of concessional finance. However, these projects may be likely to create large direct poverty reduction impacts (for example access to affordable infrastructure services for poor people), or have a potentially large environmental role to play, particularly with regard to renewable energy, which has high up-front financing costs that act as a deterrent to private financiers. Unless recognised, these kinds of projects are likely to be squeezed in favour of categories (i)-(iii).

For the different forms of additionality, category (i) projects have none and there is thus little case for DFIs participating in them. For category (ii), financial additionality is a result of the importance of the ‘political insurance’ that DFIs can provide – i.e. investors would not commit finance without this backing. In these circumstances, we suggest that the ‘premium’ paid for this insurance should be a greater commitment to social and environmental standards by the private investor, as well as commitments on local employment and supply chain linkages. The same holds for category (iii) projects, where the importance of DFI finance (e.g. longer tenor should allow greater leverage to influence outcomes). Category (iv) projects are associated with concessional finance (e.g. OBA or ‘viability gap’ funding, and/or the use of Technical Assistance funds), so that development results are funded directly, though there may be the need to also build employment and SME development criteria into these agreements.

13. **Examples of DFIs influencing project design to enhance direct poverty impacts occurred in category (iv) projects.** This suggests that it is very difficult for DFIs to achieve enhanced direct poverty effects using purely commercial finance. In many ways this is not surprising: extending physical access to the poor or reducing tariffs to make them affordable is likely to reduce the profitability of projects, and therefore reduce their attractiveness to private investors. One way of addressing this is to extract a greater ‘development price’ for the additionality that DFIs bring, as suggested above. But there will always remain projects that have low (or negative) commercial returns, but very high developmental (and/or environmental) returns. In such circumstances, a blended finance model, where concessional finance is used to boost the

³ Note that DFI advisory services can still play a valuable role in mobilising finance for projects that are commercially viable without DFI investment.

returns of private investors, is the only way to make the project viable for commercial investors.

14. **DFIs may be constrained from undertaking category (iv) projects.** This can be understood through the tensions between DFIs' commercial and developmental mandates. For example:
- i. DFIs are generally required to offer finance on commercial terms.
 - ii. Many DFIs are self-financing so maintaining profitability is a priority, and one which places a limit on the 'haircuts' DFIs could accept, even in principle.
 - iii. DFIs must maintain a high credit rating and are thus incentivised to engage in high-return, low-risk projects.
 - iv. Many activities required to enhance developmental outcomes are costly and time-consuming, eroding competitiveness vis-à-vis the private sector.
 - v. Most DFIs employ investment managers drawn from the private financial sector, creating a potential clash of cultures with the more developmental mandates of DFIs.

15. **Additionality cannot be separated from project selection.** As described in this report, DFIs do attempt to undertake projects where impacts will be high, particularly with respect to growth. However, this is not done systematically, in that total potential development impacts of projects are rarely estimated in a comparable way ex ante, or validated ex post. The word 'selection' should not be taken to mean that DFIs are examining a wide range of possible projects and then select one from this total set. In practice, there may be little choice, particularly in the infrastructure sector where projects are relatively large and infrequent. On the other hand, it is not the case that DFIs simply passively accept projects that happen to come their way.

Deciding whether or not to devote scarce resources to a project is a choice, and the argument made here is that a positive choice should only be made where the project has the potential to create greater development impacts than the alternatives. This does not mean that alternatives have to be 'on the table' at the same time, as choosing to undertake a project today will obviously affect the ability to undertake a different project tomorrow. Also, DFIs should be actively seeking out projects – including new projects in the early stages of development – with the greatest potential development benefits. Finally, it does not follow that selection only matters with such early stage projects. Of course, there is greater scope to actively shape a project at this stage, but agreeing to participate in a project regardless of the stage of its development involves an active choice on the part of DFIs, and one which constrains other choices that can be made in the future. By 'selection', therefore, we refer simply to the basis upon which DFIs make this choice, and whether this could be improved so that total development impacts are enhanced.

It is only possible to make assessments of this form if a project's potential impact (or development 'returns') can be compared with the returns that could be achieved with other projects, even if these alternatives are not currently investment ready, and regardless of the stage of the project's development.

A major problem, however, is that it is very difficult to accurately forecast total development impact, particularly in non-traded social and environmental areas. This is compounded by the fact that, even if these difficulties could be overcome, the time and financial resource

implications may be prohibitive. Ideally, all potential projects would be assessed comprehensively with techniques such as Social Cost Benefit Analysis (SCBA), but this is simply impractical in terms of time and cost. What is needed, therefore, is a more streamlined approach, which can capture the key elements of an SCBA, but do so rapidly while keeping costs low⁴. Achieving the right balance between comprehensiveness and precision on the one hand, and operational feasibility on the other, is difficult but not impossible, and the evidence found in the course of this research suggests considerable scope for progress in this area.

If the goal of DFIs and donors is to achieve the maximum possible impact with their resources, then more 'active selection' of this kind is important. Regardless of how projects are selected, however, their development potential still has to be realised.

16. **DFIs, and donors, need to acknowledge these tensions more explicitly.** At present, donors are asking more and more of DFIs, particularly with respect to their poverty impacts. But DFIs were established to focus on growth, with poverty effects assumed to follow as a result. If they are now to be expected to deliver additional direct poverty and/or environmental impacts they need to be mandated, financed and staffed in a way that facilitates this.

Recommendations

Our core recommendations are as follows:

1. **Develop robust, comparable but operationally feasible project selection tools to maximise development impacts.** Adapting established techniques such as SCBA to make them practical in terms of time and resources, the methods would estimate the *potential* economic, social and environmental impacts of projects *ex ante*. This would ensure that only net positive projects are selected, and enable DFIs to prioritise those projects with the greatest potential impacts. Important factors to consider are: (a) that environmental costs and benefits are measured meaningfully⁵; (b) that appropriate weight is given to distributional factors⁶; and (c) that genuine attempts are made to estimate and incorporate the full range of social and environmental impacts, regardless of measurement difficulties.
2. **Develop a systematic evidence base on impact *ex post*,** drawing on best practice from inside and outside DFIs, and developing a common framework across DFIs.
3. **After projects are selected on the basis of development potential, they should be allocated**

⁴ There are experiences that can be built on in this regard. FMO, for example, has developed methods of approximating a project's Economic Rate of Return (ERR).

⁵ For example, The Economics of Ecosystems and Biodiversity (TEEB) project has developed interesting techniques for estimating the full economic value of ecosystem services. Furthermore, potential financial inflows through mechanisms such as REDD+ would need to be factored into the calculations of the NPV of environmental assets. (See: <http://www.teebweb.org/>)

⁶ Economic Rate of Return approaches sum the returns to different stakeholders affected by a potential project. These may be weighted to favour the interests of particular groups. Some DFIs are mandated to maximise benefits to the poor and marginalised, for example, and impacts (positive or negative) on these groups could be given a greater weight in the total calculation to reflect this. (See Esty et al, 2003, for a discussion).

to one of the five categories described above. This would enable project financing to be structured appropriately, creating the 'architecture' that would allow development potential to be realised.

4. **Once projects are categorised, DFIs should proactively intervene to see development potential realised.**
 - i. For category (ii) and (iii) projects, DFIs should seek to leverage improved Environmental, Social and Governance (ESG) outcomes, and better local employment provision and SME linkages, as the 'price' to be paid for political 'insurance' and/or better financial terms.
 - ii. For category (iv) projects, concessional finance should be used directly to realise identified development potential.
5. **If DFIs are to engage in category (iv) projects at scale, some structural changes may be required.** There are three main options. First, the "parent" bilateral donor or International Financial Institution could make a pool of grant funding available to the DFI specifically for the purpose of engaging in projects with direct poverty reduction outcomes – this could be an extension of current practice, where some DFIs use Technical Assistance facilities as conduits for non-commercial support. A possible extension of this would be for donors to pool funds in a general grant fund. DFIs would be able to bid for projects where it can be demonstrated that, without such funding, the project would not be commercially viable. Second, DFIs themselves could be enabled to provide concessional finance (perhaps through a dual structure similar to the World Bank's hard and soft loan window). Third, DFIs could be mandated to work much more closely with development institutions specialising in this form of finance, with perhaps a greater specialisation and 'division of labour' between DFIs themselves.
6. **Align staff incentives with development rather than commercial outcomes** in order to prevent a bias towards the most commercially lucrative projects. There are a number of ways that this could be done. Waiting for development outcomes to materialise is likely to be too lengthy a process to be practical in this regard. One solution would be to use forecasted impacts, though the strength of this approach would depend on the accuracy of the forecasts. In reality, some kind of composite measure of performance would work best, where innovation in project selection and design, and the ability to successfully managed emerging risks, for example, could sit alongside development focused performance measures.
7. **DFIs should be strongly encouraged to collaborate more systematically with one another;** to complement each others' strengths and perhaps enable more specialisation and 'division of labour' between DFIs. While the factors that make this difficult are well understood, the importance of achieving the shared goals of sustainable development and the elimination of poverty should be sufficient to overcome these.

A key goal of this commissioned review was to produce recommendations for how DFIs could increase their development impact. While recommendations for change can sound negative, this is not the intention. The evidence found in the course of both phases of this review suggests that DFIs

working in the infrastructure sector generally have a positive development impact, and these positive impacts can be very large in some cases. The purpose of the review was to propose changes that would enhance this, so that, as far as possible, the development impact of scarce donor resources is maximised. Despite the impacts that have been achieved, there is scope for more. Our aim has been to describe specific steps that could be taken to fulfil this potential.

Methodology

Given the varied nature of the evidence on the questions under review, as well as its strong policy focus, it was decided to employ a ‘realist’ approach, which Pawson *et al* (2005: 1) describe as follows:

“Realist review is a relatively new strategy for synthesizing research which has an explanatory rather than judgemental focus. It seeks to unpack the mechanism of how complex programmes work (or why they fail) in particular contexts and settings.”

A realist review begins with a ‘programme theory’, which details the impacts that an intervention is supposed to have, and breaks this down into stages – or ‘links’ in the ‘causal chain’. Evidence is then assembled to support, contradict and ultimately modify these links, so as to inform future policy interventions and improve outcomes. In this case, the ‘links’ correspond to the aspects of ‘additionality’ that DFIs are trying to create: financial, design, policy and demonstration.

As described above, the review was conducted in two phases, where publicly available and confidential materials were analysed. Phase 1 focused on the following DFIs: PIDG, IFC, MIGA, DEG, EIB, FMO, CDC, SIFEM, FinnFund, NorFund, SwedFund, PROPARCO, BIO, IFU, SOFID, SIMEST, SBI-BMI, OeEB, COFIDES, OPIC, EBRD, AfDB, ADB, IADB. As well as searching for academic evidence on the questions under review, internal and independent evaluations were obtained. Given the specificity of the review questions, academic material was limited, with the result that the focus was more on DFIs own evaluations as the best sources of potential evidence. The titles and abstracts of 2,527 documents were obtained and uploaded to the EPPI 4 Reviewer systematic review software hosted by the Institute of Education, University of London.

Inclusion criteria were then applied, which was simply relevance to the questions under review. This resulted in the exclusion of 2,323 documents. Full texts of 204 included documents were then uploaded. Each was coded for baseline date and quality, and for evidence and additional information relevant to the review: i.e. for relevance to one or more of the aspects of additionality identified. For each aspect, the coded material was reviewed and key themes identified, before being synthesised as summarised here and described comprehensively in the full review.

It is important to note that project level information made public by DFIs is limited, primarily because of concerns over commercial confidentiality. Early on, it was recognised that this could undermine the purposes of the review: only project evaluations that DFIs choose to make public are available, creating an obvious selection bias, where both DFIs and private sector partners have a strong incentive to ‘showcase’ the most successful projects. To address this problem, the review team negotiated access to internal project evaluation documents from the IFC and subsequently

with four further DFIs: FMO, AsDB, KFW and CDC. While this is a relatively small sample, it is a reasonable cross-section of DFIs, including a multilateral institution (IFC), a regional development bank (AsDB), a DFI which follows a fund-of-fund approach (CDC), and two bilateral DFIs with rather different investment philosophies (FMO and KFW).

In total 218 documents from these institutions were analysed in this second phase of the review. The largest number came from IFC (53%), with the remainder being shared by the other institutions in broadly similar proportions. As with phase 1, each document was coded for base data according to income, region and sector, and relevant text was also coded according to the aspects of additionality described above.

These two phases of the review were undertaken at different times and used slightly different approaches. Perhaps most importantly, phase 2 was designed and implemented in the light of the results from phase 1, so that it was possible to incorporate insights from phase 1 into the design of phase 2. Most notably, the role of project selection as an important form of potential additionality has been incorporated into phase 2 from the start.