EVALUATING FINANCIAL AND DEVELOPMENT ADDITIONALITY IN BLENDED FINANCE OPERATIONS

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Abstract

Additionality is a key concept in discussions of how blended finance can contribute to the achievement of the Sustainable Development Goals. However, based on a review of documents from international organisations as well as academic research, it is clear that there is a lack of agreement on operational definitions of types and dimensions of financial and development additionality of blended finance. This paper aims to clarify these definitions and to ensure that the relationship between additionality and key evaluation terms, such as impact and causality, is better understood.

The paper further argues that the relevance of evaluation methods will depend not only on the applied financial and non-financial instruments but also on the types and dimensions of additionality to be evaluated. To this end, a number of examples of different approaches to assessing additionality are analysed.

Among the paper's key conclusions are that additionality should be assessed both ex ante and ex post, and that the presence of additionality will depend on institutional structures and on how different public and private interests are addressed.

Foreword

Achieving the ambitious goals of the 2030 Agenda and the Paris Climate Agreement will require significant additional investment – a financing gap estimated at USD 2.5 trillion a year (UNCTAD, 2014[1]). "Blended finance" has emerged as an option for increasing investment. The Addis Ababa Action Agenda highlighted the potential of blended finance (UN, 2015[2]) and blended finance instruments are being used by an increasing number of both multilateral and bilateral donors (UNCDF, 2018[3]). Some 17 OECD DAC members are now engaging in blended finance and the number of new facilities is growing every year.

However, along with the high level of interest in blended finance, there is some scepticism about the role of blended finance and specifically its development impacts – and there have been calls for improved transparency and accountability (including from the Group of Seven [G7])[1]. In 2017, the OECD's Development Assistance Committee adopted the "Blended Finance Principles". Principle 5 highlights the need to "Monitor blended finance for transparency and results". In its 2018 report, *Making Blending Finance Work for the Sustainable Development Goals* (OECD, 2018[4]) the OECD concluded that there is a need to establish an evidence base for blended finance operations.

Evaluation efforts already underway have met a number of challenges and despite various efforts to measure effectiveness, impact and "development additionality" evaluation practice lags in this field. A number of specific challenges for evaluation stand out in this field of development co-operation – including access to data and complexity. Common terms – such as "private sector", "impact", "additionality", "mobilisation" and "blended finance" itself – are being used in a variety of ways by a multitude of actors, leading to confusion.

These challenges are discussed in a first OECD Development Co-Operation Working Paper published in January 2019 (Winckler Andersen and al., 2019[5]). The paper suggested several areas for further analysis and consideration, including: 1) the absence of a common terminology for evaluation of blended finance; 2) the lack of a joint understanding of different dimensions of additionality – not least of development additionality - and how these should be evaluated; and 3) the need for more clarity on how specific instruments (equity, guarantees, loans, etc.) should be evaluated.

Recognising that it would be beneficial to address these issues across partners – rather than each evaluation having to find its own solution – the OECD's Development Assistance Committee's (DAC) Network on Development Evaluation (EvalNet) created a Working Group on Evaluating Blended Finance in February 2019. The main objective of the Working Group is to contribute to improved evaluation practice in this field by developing a common understanding within EvalNet (and the broader evaluation community) of how to evaluate blended finance operations. Ultimately, the aim is to support more effective blended finance operations in sustainable development.

EvalNet is well placed to take this work forward. It is made up of experts with diverse evaluation experiences and is independent in the field of blended finance. Its mandate is to strengthen evaluation systems and practice.

This study is one of three working papers commissioned by the EvalNet Working Group on Evaluating Blended Finance. The work is overseen by a Co-ordination Group comprising Denmark, Germany, Norway and the OECD Secretariat.

The work is organised into the following three work streams:

1. The development of a shared understanding of the various concepts and terms linked to blended finance and evaluation and their use, including the implications of these different definitions for evaluation and development co-operation.
2. Building on the definitions work, provide more clarity on how to evaluate development additionality or development impact (terms currently used to describe the contribution of blended finance activities to development) and financial additionality.
3. The development of a shared understanding on how to evaluate different blended finance instruments, combinations of such instruments and complementary support, including evaluating unintended effects such as market distortions.

The findings of each work stream will be published as an OECD Working Paper.

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This working paper was prepared by Ole Winckler Andersen (Danish Institute for International Studies), Henrik Hansen (Department of Economics, University of Copenhagen), and John Rand (Department of Economics, University of Copenhagen).

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Executive summary

A critical issue for the evaluation of blended finance operations is the lack of agreement on definitions and clarity over several key concepts, in particular the concept of additionality, and the distinctions between financial and development additionality, as well as other concepts of additionality. A common understanding of which dimensions should be considered for each individual type of additionality, or whether and how these additionality dimensions are related, is lacking. Further, there is no common application of these concepts within agreed evaluation criteria. This applies, for instance, to the concept of "impact", which is one of the OECD's Development Assistance Committee's (DAC) evaluation criteria.

It is generally agreed that "additionality" means that an intervention will lead, or has led, to effects which would not have occurred without the intervention. This implies that additionality requires establishing a causal relationship between the intervention and the additional effects (financial, developmental or otherwise). Financial additionality refers to situations where finance is mobilised and an investment is made that would not have materialised otherwise. Development additionality is described as "… the development impacts that arise as a result of investment that otherwise would not have occurred" (OECD, 2016[6]). This definition explicitly refers to "impact", which the OECD DAC defines as: "The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher level effects" (OECD, 2019[7]). Most analyses make a distinction not only between types of additionality, but also between dimensions of additionality. These types and dimensions of additionality have also been referred to as "categories" and "types" of additionality. The relevance and applicability of different evaluation methods will depend on the specific dimensions of the types of additionality to be evaluated.

There is a close relationship between development additionality and impact as defined by OECD DAC. The DAC definition requires that the impact should be caused by the intervention and be additional. This has obvious implications for the design of blended finance evaluations. Most blended finance operations will have several objectives linked to both "types" and "dimensions" of additionality, each having its own characteristics (as well as availability and type of data), beneficiaries and time horizons. These interventions will often combine several instruments within the same operation and may be delivered in volatile contexts and include other partners. Evaluating such interventions may therefore require using different methods and approaches to causal inference.

As financial and development additionality are not new concepts, it is useful to ask how Development Finance Institutes (DFIs) currently document and analyse additionality. A recent study concluded that there is little evidence of additionality in DFI operations and that an explicit theory of change addressing additionality is often lacking. This is despite the fact that demonstrating additionality is generally considered a fundamental requirement for any donor intervention in private sector development, in order to prevent market distortions and to ensure value for money.

Examples of how additionality has been analysed, both ex-ante and ex-poste, provide useful insights.

The overview of conceptual and measurement-related challenges, along with the review of some examples set out above, highlight several key messages:

- Financial and development additionality are not new concepts so existing knowledge bases should be exploited when designing evaluations. It can be concluded that attempts to assess externalities or indirect effects are well known within research and this knowledge base should be exploited wherever possible.
- Financial and development additionality comprise a number of potential dimensions; each dimension may require specific evaluation methods. How the different types and dimensions of additionality are related has not generally been systematically assessed.
- Use both ex-ante and ex-post methods to evaluate financial and development additionality. This is not an either/or consideration. Ex-ante and ex-post evaluations can be used in a complementary way rather than as substitutes.
- Choose an appropriate unit of analysis. This is related to getting the counterfactual right and involves clarity about the unit of analysis employed.
- Strengthen ex-ante contractual designs to encourage private sector cooperation.
- Ensure that public interests are explicitly internalised in contract negotiations If evaluators could have access to detailed information about the ex-ante contract bidding process, much could be learned about how to improve contract formulation. Such openness in the contractual arrangements could also allow for experimentation in contract formulation, which would lead to further improvements over time.
- Ensure that the institutional “checks and balances” are in order. Many projects are implemented in contexts where the application of competitive contracting processes may be difficult or impossible.

A final message relates to the following question: is it relevant to assess development additionality in a blended finance context in the absence of financial additionality? Based on the reviews of selected literature evaluating both financial and development additionality in this paper, the answer to this question is clearly “Yes”.

Abbreviations and acronyms

CIV	Collective Investment Vehicle
DAC	Development Assistance Committee
DCED	Donor Committee for Enterprise Development
DFI	Development Finance Institution
DFID	Department for International Development
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECG	Evaluation Cooperation Group
EFSI	European Fund for Strategic Investments
EIB	European Investment Bank
GDP	Gross Domestic Product
GVC	Government Venture Capital
IEG	Independent Evaluation Group
IFC	International Finance Corporation
IMF	International Monetary Fund
IPO	Initial Public Offering
M&A	Mergers and Acquisitions
MDB	Multilateral Development Bank
ODI	Overseas Development Institute

OECD	Organisation for Economic Co-operation and Development
PIDG	Private Infrastructure Development Group
PPP	Public-Private Partnership
PVC	Private Venture Capital
QCA	Qualitative Comparative Assessment
R&D	Research and Development
ROI	Return on Investment
SAM	Social Accounting Matrix
SDG	Sustainable Development Goal
SPV	Special Purpose Vehicle
SROI	Social Return on Investment

1. Introduction

The aim of this research is to identify and discuss potential approaches to evaluating financial and development additionality of blended finance. The target audiences are the monitoring and evaluation (M&E) departments of bilateral donors, multilateral development banks (MDBs), development finance institutions (DFIs), international financial institutions (IFIs), impact investors and private foundations interested in blended finance.

This paper has been informed by other international efforts taking place in various international fora, in particular among multilateral organisations.[2]

The paper begins by outlining the challenges around evaluating additionality in blended finance operations. Then core concepts and definitions of additionality are identified and discussed. Finally the paper presents a number of examples of evaluations of additionality and suggests possible ways forward.

This working paper highlights the conceptual and methodological issues linked to evaluating the financial and development additionality of blended finance operations. This focus reflects the fact that additionality as a principle is widely referred to by both multilateral and bilateral donors as a justification for the blending of finance (DFI Working Group, 2018[8]; MDB, 2018[9]).

Currently, there is no general agreement on how to define blended finance, with different stakeholders using a variety of definitions.[3] This paper will use the following OECD definition, that is, "the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries" (OECD, 2018[4])[4]. This definition emphasises that the purpose of blended finance is the mobilisation of additional development finance contributing to sustainable development. This definition of blended finance requires both financial and development additionality, where additionality is understood as "effects" which would not have been achieved without blending. The justification for the use of blended finance mechanisms is directly linked to these additional effects.

The OECD definition further implies that blended finance comprises a number of different leveraging mechanisms, including guarantees, syndicated loans, shares in collective investment vehicles (CIVs), direct investments in companies and project financial special purpose vehicles (SPVs), credit lines and simple co-financing arrangements. The mechanisms are designed to capture activities funded through a whole range of financial instruments, i.e. grants, debt instruments, equity, mezzanine finance and guarantees/insurance.

While discussions on the evaluation of blended finance are increasing, analyses show that the evaluation of blended finance, including additionality, is underdeveloped compared to evaluation in other areas of development cooperation. There are also significant variations in the practice of blended finance evaluation. This has led to recommendations for a strengthening of evaluation systems in this area (OECD, 2018[4]) (Winckler Andersen and al., 2019[5])[5].

A critical issue for the evaluation of blended finance operations is the lack of agreement on definitions and clarity over several key concepts. This applies not only to the concepts of blended finance and additionality, and the distinctions between the more common financial and development additionality, but also, as will be expanded on later, other concepts of additionality, including for example "value additionality" and "behavioural additionality". In addition, analyses often break down these types of additionality into various

dimensions. However, a common understanding of which dimensions should be considered for each individual type of additionality, or whether and how these additionality dimensions are related, is lacking.

Previous analyses (Winckler Andersen and al., 2019[5]) have also shown that there is no common application of these concepts within agreed evaluation criteria. This applies, for instance, to the concept of "impact", which is one of the OECD's Development Assistance Committee's (DAC) evaluation criteria. In evaluations and other studies of blended finance, impact is defined in various ways, but is often considered as being similar to "effect". However, as will be discussed more fully in this paper, "impact" as defined in OECD DAC's evaluation terminology could be considered as very similar to what is considered as "development additionality". Other agreed evaluation criteria are also used in different ways[6].

These issues related to definitions cannot be considered independently of the overall purpose of blended finance. The definitions and the distinctions between various aspects of additionality will have implications for the focus of and potential approaches to the evaluation of blended finance. If, for instance, an evaluation only considers financial and value additionality, the implication may be that development outcomes and impact will be given less emphasis in the evaluation.

This paper starts by outlining the methodology used to more fully understand the concepts and issues related to evaluating additionality. This is followed by a discussion of terminology and conceptual issues, including the various types and dimensions of additionality, as well as the relationship of these concepts to established evaluation terminology. The paper continues by presenting a number of illustrative examples of the assessment of additionality in blended finance interventions and concludes by presenting some key findings highlighting potential steps forward.

The paper does not cover systematically the current practice of evaluating additionality in blended finance operations. In addition, although OECD DAC evaluation criteria, other than impact, may be relevant for the evaluation of additionality of blended finance, these will not be considered here. As highlighted in (Winckler Andersen and al., 2019[5]) the governance structure of a blended finance setup may also have implications for analysing additionality requirements. The availability of monitoring data, which can be collected in various ways (indicators, scorecards, surveys, etc.) also influences which evaluation methods are feasible to use. These discussions will not be addressed in this paper. Finally, this paper does not discuss mandates of organisations or investors' motives[7].

1.1. Analysing additionality and the implications for evaluation

A review of two main sources of data was conducted for this study. This served as a background to the analysis of terminology and concepts as well as of methodological questions related to additionality. The two data sources were:

- Documents on additionality from various international organisations. Websites of several relevant organisations were also consulted. Members of the Working Group were invited to share documents and analyses that they found to be of potential relevance for the analyses contained in this paper[8].
- Academic literature, including evaluation literature, related to additionality. This part of the review included literature with an explicit focus on the instruments used in blended finance[9]. The review of evaluation literature focused on conceptual and methodological questions[10].

The review documented both a significant variation in the understanding of concepts as well as different interpretations of the meaning of "additionality". The interpretation of additionality comprised differences in definitions of the main types of additionality as well as of the dimensions of each type of additionality. The degree to which attempts were made to link types and dimensions of additionality differed.

The literature review also clearly indicated that the methodological challenges of blended finance evaluation are not new and that academic literature exists which can contribute to the understanding and evaluation of additionality, although this literature primarily focuses on developed economies.

2. Understanding additionality: terminology and concepts

The discussions around the terminology and key concepts linked to additionality focus primarily on:

1. the distinction between the various types of additionality
2. the various dimensions of each type of additionality
3. the relationship of these various types of additionality to established evaluation terminology.

The following section considers these three issues.

2.1. Identifying and defining types of additionality

This section identifies the various types and dimensions of additionality as used in the literature and looks more closely at the definitions for two of the more widely used types of additionality: "financial" and "development".

2.1.1. Main types of additionality

It is generally agreed that "additionality" means that an intervention will lead, or has led, to effects which would not have occurred without the intervention[11]. It is further suggested that additionality requires establishing a causal relationship between the intervention and the additional effects, i.e. financial and development additionality (OECD, 2018, p. 22[4]).

Although additionality is widely referred to in research[12] and several analyses mention a variety of other types of additionality – e.g. "input additionality"[13]; "value additionality"[14]; "behavioural additionality"[15]; "output additionality"[16]; "outcome additionality"[17]; "institutional additionality"; "strategic additionality"[18] and "economic additionality" – this paper follows the approach of Attridge and Engen (2019[10]) making an overall distinction between two main types of additionality: "financial" and "development". The reason for this is twofold. First, these two types of additionality, as indicated above, reflect the OECD's definition of blended finance, where the development additionality of blended finance interventions is the contribution made to achieving the sustainable development goals (SDGs). Second, it will be demonstrated that other types of additionality often referred to in blended finance evaluations should be analysed within the broader concept of development additionality in order to maintain the overall objective of contributing to sustainable development in developing countries as the justification for the blending of finance. For example, value additionality or behavioural additionality can be important preconditions, but not sufficient standalone conditions leading to development additionality. In many cases, these would be considered as intermediary outcomes. This is also indicated in the definition of value additionality, which includes leading "to better development outcomes"[19].

The challenge of such a perspective, which emphasises the potential links between various types and dimensions of additionality, is to analytically relate the different types and dimensions of additionality. This requires not only a common understanding of, as well as agreement on, the definitions of the different

aspects of additionality, but also their linkages and recognising that these linkages may depend on contextual factors[20]. Theories of change could be a way to organise and clarify these linkages (Jackson, 2013[11]) (Dhillon and Vaca, 2018[12]).[21]

Evaluations of blended finance operations may not cover all the potential effects of the interventions, but in view of the key role additionality plays in the justification for the blending of finance, the types and dimensions of additionality that each evaluation addresses should be made explicit. As mentioned earlier, if the focus of an evaluation is on value additionality (for example the introduction of various environmental and social standards) the evaluation would probably not also try to systematically cover the wider impact of the intervention, e.g. indirect effects and market effects.

2.1.2. Defining financial additionality

Financial additionality refers to situations where finance is mobilised and an investment is made that would not have materialised otherwise (Winckler Andersen and al., 2019[5]). The OECD (2016[6]) explain that "… an official transaction ... is financially additional if it is extended to an entity that cannot obtain finance from local or international private capital markets with similar terms or quantities without official support, or if it mobilises investment from the private sector that would not have been invested otherwise".

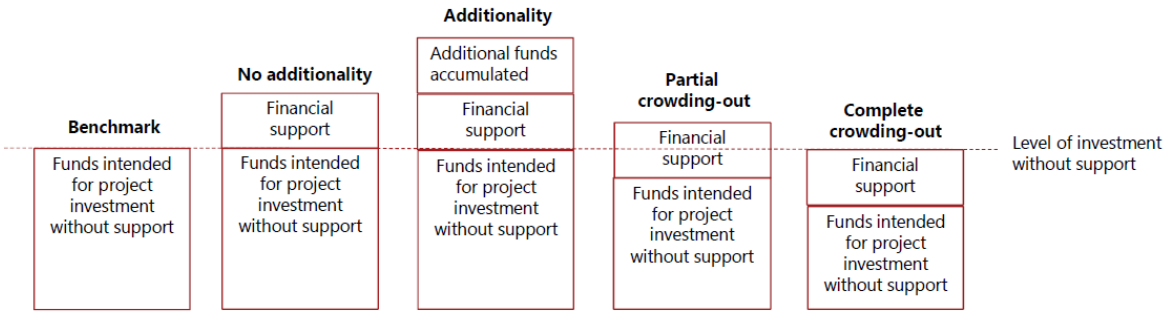
Development Finance Institutes (DFIs) and Multilateral Development Banks (MDBs) define additionality as "... a contribution that is beyond what is available, or that is otherwise absent from the market, and should not crowd out the private sector" (DFI Working Group, 2018[8]; MDB, 2018[9])[22].

These definitions emphasise the mobilising element (which presupposes the absence of crowding out of the private sector), but also other potential dimensions of financial additionality, including improved conditions and terms of finance. The next section will consider further the potential dimensions of financial additionality.

Figure 3.1 illustrates with a broad typology the relationship between various degrees of financial additionality and the crowding-out of other investments. It demonstrates that other alternatives exist to complete crowding out or no crowding out[23].

The question that should be addressed is whether the relevant counterfactual is a comparison of a chosen development outcome in the case of financial additionality (case three) to that of no financial additionality (case two), which is basically a development impact conditional on receiving public support. Currently most ex-post evaluations of development additionality group together cases two to five and compare development outcomes to the no support outcome (case one).

Figure 2.1. Financial additionality or crowding out?



Source: Adapted from Dimos and Pugh (2016[13]).

If it is further assumed that there is asymmetric information leading to potential rent seeking and hold-up problems and that finance will be made available at various stages of a project, it is evident that the evaluation of financial additionality will be a challenge[24].

2.1.3. Defining development additionality

Development additionality is described as "… the development impacts that arise as a result of investment that otherwise would not have occurred" (OECD, 2016[6]). This definition explicitly refers to "impact", which the OECD DAC defines as: "The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher level effects" (OECD, 2019[7]). This definition gives "impact" a more specific definition than the broader concept of "effect"[25].

Further important implications stemming from definitions of development additionality and impact are that both direct and indirect effects need to be considered, including potential systemic and institutional changes. As is the case with financial additionality, the recognition that different effects could materialise at different points in time will be critical for assessments of development additionality.

Development additionality can be achieved not only through financial contributions, but also through non-financial elements (e.g. technical assistance, transfer of technology, management). Thus, while financial additionality on its own is not a prerequisite for development additionality, financial contributions will often be a main element in blended finance operations.

However, understanding the distinction between financial and development additionality will not in itself be sufficient for designing an evaluation. Each type of additionality will need to be further broken down into its various dimensions. The following section provides some examples of these different dimensions.

2.1.4. Understanding dimensions of additionality

Most analyses make a distinction not only between types of additionality, but also between dimensions of additionality. These types and dimensions of additionality have also been referred to as "categories" and "types" of additionality (MDB, 2018[9])[26]. Multilateral development banks make a distinction between the following aspects of additionality:

- financing that is not provided by the market
- risk mitigation and/or risk sharing
- improved project design
- better development outcomes
- environmental, social and governance standards (MDB, 2018[9]).

These are further broken down into eight "types" of additionality of which four are related to financial additionality (financing structure; innovative financing structures and/or instruments; MDBs' own account equity; and resource mobilisation) and four are linked to non-financial additionality (risk mitigation; policy, sector, institutional, or regulatory change; standard setting: helping projects and clients achieve higher standards; and knowledge, innovation, and capacity building).

While the MDB approach is a constructive attempt to try to define the various perspectives of additionality, the way in which these are related is not examined and sources of evidence, which could be used to demonstrate development outcomes and impact, are not identified. However, this does not mean that MDBs do not take into account such things as market effects or the impact on beneficiaries in their evaluations or that they do not base such evaluations on developed theories of change (EIB, 2018b[14]; IEG, 2020[15]).

Evaluations have focused on a number of additionality dimensions, which are directly or indirectly related to those mentioned above, but this has often not been done in a systematic way. These dimensions

comprise direct and indirect effects such as increased investments, increased production, increased productivity, job creation and increased tax revenue. However, there has been very little effort to relate these dimensions to the main types of additionality. Often evaluations seem to consider them as mutually independent, which is obviously not the case. There may be trade-offs between the different dimensions of additionality, but "... in practice the balance of the different additionality components is difficult to identify with the information normally provided" (EBRD, 2018, p. 12[16]). As indicated above, a way to organise the various types and dimensions of additionality could be to relate them to theories of change. Obviously, these theories of change will not be the same for all interventions.

2.2. Establishing causality when evaluating additionality

As mentioned, there is a close relationship between development additionality and impact as defined by OECD DAC (OECD, 2019[7])[27]. The DAC definition requires that the impact should be caused by the intervention and be additional. This has obvious implications for the design of blended finance evaluations.

Discussions on causal inference have a long history and have led to various interpretations of how to establish causality (Stern et al., 2012[17]) (Goertz, 2017[18]) (Rohlfing and Zuber, 2019[19]) (Johnson, Russo and Schoonenboom, 2019[20]). The following will briefly highlight some key areas relevant for defining methodological approaches to evaluations of blended finance and establishing causality.

Counterfactual and process-based[28] approaches are often considered as the two main and fundamentally different methodological perspectives on causation[29]. In practice, the distinction between the two can be blurred. Counterfactual thinking is widespread and does not imply a specific method (Stern et al., 2012[17]), but a process-based approach does not necessarily rule out a simultaneous counterfactual approach (Rohlfing and Zuber, 2019[19]).

The strengths and weaknesses of these two main perspectives to causal inference have been discussed in numerous analyses, where experimental study designs often have been referred to as the "gold standard". The methodologies for evaluating the development results (outputs, outcomes, impacts) of various financial interventions, based on counterfactual approaches, are relatively well established[30], but the challenge continues to be to establish the relevant counterfactual (EBRD, 2018[16]). The process-based perspective on causal inference has also led to an increase in methodological development in recent decades, with various methods for assessing causal inference now available[31].

There seems, however, to be increasing agreement that a counterfactual approach has its strength in evaluations of large samples and in its ability to establish whether a specific intervention makes a difference by answering very specific evaluation questions. A process-based perspective, however, is more relevant in smaller samples and case studies, and where the counterfactual cannot be identified. The first approach is strong on accountability and on quantifying impact, while the second approach is strong on explanation and learning, as the focus is on analysing the causal mechanisms that transform inputs into outputs and outcomes[32]. The difference between the two perspectives will also be in their ability to establish general causation or singular causation, although results from case studies may be generalised (Johnson, Russo and Schoonenboom, 2019, p. 145[20]). Another related issue is the distinction between quantitative and qualitative methods. Quantitative analyses tend to be applied in large samples and may be based on both counterfactual and non-counterfactual perspectives, while qualitative analyses are more common in analyses of single cases and of small samples. Analyses of cases will also, however, often imply the use of quantitative methods.

In recent years, most intervention evaluations have included a combination of different methods – often referred to as a mixed-method approach. This is particularly the case for complex interventions comprising several simultaneous objectives, various instruments, extended causal chains and which are influenced by other contributing factors. When evaluating such interventions, one method alone may not be sufficient.

Different aspects of the intervention may require different methods or even combinations of methods when evaluating. For example, the evaluation of one aspect of the intervention may focus on attribution, whereas other aspects may be evaluated based on the intervention's contribution to the effects. Establishing causation by using mixed-method evaluations will require applying different approaches to causal inference (Johnson, Russo and Schoonenboom, 2019[20]).

Most blended finance operations will have several objectives linked to both "types" and "dimensions" of additionality, each having its own characteristics (as well as availability and type of data), beneficiaries and time horizons. These interventions will often combine several instruments within the same operation and may be delivered in volatile contexts and include other partners. Evaluating such interventions may therefore require using different methods and approaches to causal inference.

The next section will present some examples of how additionality has been addressed in different studies.

3. Evaluating additionality: examples and ways forward

As financial and development additionality are not new concepts, it could be relevant, before considering how best to evaluate financial and development additionality, to ask how Development Finance Institutes (DFIs) currently document and analyse additionality. A recent study on evaluation (Koenig and Jackson, 2016[21]) concluded, from a series of interviews and document reviews of DFI practices, that there is little evidence of additionality in their operations and that an explicit theory of change addressing additionality is often lacking. The study goes on to state that, "this is despite the fact that demonstrating additionality is – or at least should be – a fundamental requirement for any donor intervention in private sector development, in order to prevent market distortions and to ensure value for money". The study also found that systematic ex-ante additionality assessments are not a prerequisite for project approval within DFIs and that ex-post evaluations of additionality are not common practice in many DFIs. Moreover, when additionality is evaluated (either ex ante or ex post), the methods applied are of a standard below common evaluation practice[33].

Approaches to assessments of additionality should be based on the relevant definition and type of additionality, as well as any related dimensions of additionality. While not providing a systematic overview, the remainder of this paper presents some illustrative examples of where additionality has been assessed, indicating some ways forward to ensure better evaluations of additionality, both ex ante and ex post.

Careful reflection is needed when defining the methodological approach to evaluations of additionality. This includes taking into account the types of financial instrument involved, the nature of the investment (for example greenfield or brownfield) and whether the assessment takes place ex ante or ex post.

An example is the excellent review by Hall and Lerner (2010[22]), which summarises research focusing on innovative activities and start-ups that are difficult to finance in standard competitive market setups. The review argues that the type of investment and the choice of financial instrument will be crucial both for the success of the investment and creating additionality[34]. An important conclusion from this work is that evaluations of additionality need to distinguish between the nature of the investment as well as the types of financial instrument used. The following section, therefore, distinguishes between evaluations of financial and development additionality as well as between ex ante and ex post evaluation and between three of the primary financial instruments used in blended finance operations.

3.1. Evaluating financial additionality

As defined above, financial additionality indicates whether the financial instrument implemented increases private lenders' provision of finances and/or improves financial conditions for targeted credible clients. Improvements in financial conditions may include, for example, an increase in loan size, increased loan maturity, decreased interest rates or lower collateral requirements. Pischke and Adams (1980[23]) highlighted at a very early stage that measuring and evaluating financial additionality would be difficult as it is impossible to know what stakeholders (governments, lenders, borrowers, etc.) would have done in the absence of the intervention. They summarise the problem as follows:

> *To what extent would the government have allocated more funds to agricultural credit without project assistance? Would credit institutions have channelled funds away from other activities to serve project objectives in the absence of a project? Would borrowers have used cash from their own reserves or informal credit sources, or reduced their consumption, to fund an activity without a project? In other words, to what degree do project funds simply substitute for other resources, which would have been used, in any event, for project purposes? (Pischke and Adams, 1980[23])*

This well illustrates the problem faced when trying to measure and evaluate financial additionality. Below are some examples of possible solutions to the problem, divided into ex-ante and ex-post methods and by type of financial instrument when appropriate.

3.1.1. Ex-ante evaluations

Carter, Decarolis and Young (2017[24]) discuss the micro-level procedures that can be adopted ex ante to ensure financial additionality. It looks at whether effective mechanisms can be designed to tackle the governance and asymmetric information problems facing DFIs.[35] Running a subsidy minimisation auction may reveal whether the project could be financed at market rates. If the auction reveals that some form of concessional finance is required, the DFI would want to minimise the amount provided to ensure that private sector profits are not being subsidised. However, there are often problems with such auctions. First, the market for potential private investors is not characterised by perfect competition. Getting potential investors to reveal their preferences (considered as private information) using ex-ante mechanism design approaches would therefore be limited, as the effectiveness of auctions depends on the level of competition among potential private investors. Second, private investors are not likely to be overly interested in participating in an auction for project finance that aims to give them the *least favourable* terms possible. But DFIs may be able to screen the market (projects and investors) and offer slightly less attractive financial terms than commercial banks and other private investors but offer better non-financial terms than those of private competitors, arriving overall at terms acceptable for private investors. This, however, requires that DFIs have sufficient knowledge of local financial markets, which is less likely in settings where capital markets are undeveloped.

However, Lach, Neeman and Schankerman (2017[25]) describe an optimal design of a government loan provision scheme for risky projects where the assumption is that some sort of positive externality for the implemented project exists. Assuming that the project is based on a traditional principle-agent structure and that the DFI is only faced with adverse selection, the optimal contract can be shown theoretically to involve a high interest rate but nearly zero co-financing by the firm. In more complex scenarios (both adverse selection and moral hazard), optimal contract designs consist of two contract types: one with high interest and zero self-financing and one with relatively low interest plus co-financing. Using model simulations, they show that the optimal blended finance policy varies with the size of externalities (knowledge spill overs), cost of public funds and the size of the private venture capital industry.

Carter and Plant (2020[26]) discuss in detail how the work by Lach, Neeman and Schankerman (2017[25]) can be implemented in practice. The ex-ante approach suggested by Lach, Neeman and Schankerman has a duel objective, stating that “we do not want to offer redundant subsidies to firms that could have obtained private finance”, but “we also want to attract as many applicants as possible so that we do not miss out on opportunities to create benefits for society”. This is exactly what makes this approach interesting as it feeds directly into the discussion of optimal contract design in the situation where we need to design projects with social returns that exceed private returns.[36] Traditionally, government-funded subsidy schemes are designed to overcome traditional problems linked to asymmetric information. In these cases, as a pre-condition for the subsidy, entrepreneurs are asked to co-finance investments and governments would usually charge zero interest to encourage as many innovative investments as possible. As highlighted above, Lach, Neeman and Schankerman show that the optimal contract may look very different from this: (almost) no co-payment by the entrepreneur but high interest rates and a suggestion to follow the ancient “Code of Hammurabi” where repayment is only required if the project is successful.

Carter and Plant (2020[26]) also discuss how this theoretical "ideal" contract compares to what DFIs currently do or could potentially do. They identify several problems but highlight that the basic mechanism design idea outlined in Lach, Neeman and Schankerman (2017[25]) – capture all returns above the minimum needed to secure the entrepreneurs participation and effort – should be kept in mind. Moreover, Carter and Plant conclude that "we want a contract that lowers barriers to participation and insures the entrepreneur against failure in a way that a standard equity co-investment would not, but which also takes away (much of the) returns from the entrepreneur when things go well, in a way that standard equity co-investment would not". So significant changes in the way governments structure contracts may be needed to "meaningfully increase the probability that any subsidy is genuinely warranted, not wasted".

Hall (2005[27]) alluded early on to an ex-ante approach, labelling it as a hybrid subsidy approach. If governments lack the ability and knowledge needed to choose projects and there is a gap between the social and private returns, projects should be chosen by the private sector and partially financed by it, but with some grant element incorporated. This hybrid form of government intervention relies on firms to suggest projects and to help pay for them. The governmental agency engages in cost-sharing depending on the estimated social returns of the project (the externality). This approach requires the assessment of not only direct effects, but also indirect effects. The challenge lies in estimating the gap between social and private returns. However, the advantage of this mechanism is that it combines the ability of firms to identify useful projects in their area of expertise with the ability of governments to identify those with higher social returns.

The above examples suggest that ex-ante assessments of financial additionality should rely both on market information and on analyses of the envisaged externalities of the projects; i.e. that both potential direct and indirect effects should be considered.[37] These examples focus in particular on mobilisation and financing structures. Other dimensions of financial additionality may be easier to address, for example, evaluating whether financing instruments are innovative merely requires having sufficient information on available instruments in the specific financial market.

In recent years, a number of different operational and practical approaches have been suggested for the ex-ante assessment of financial additionality (DCED, 2017[28]; MDB, 2018[9]; PIDG, 2018[29]). These suggestions, most of which imply a need for various forms of market analysis, have not been methodologically developed in any detail and have not been systematically applied to ex-ante assessments of blended finance operations.

3.1.2. Ex-post evaluations

Several papers have highlighted a traditional counterfactual approach to the ex-post evaluation of the financial additionality of different donor interventions. However, Carter, Van de Sijpe and Calel (forthcoming[30]) question the availability of a metric for measuring and comparing schemes having different degrees of additionality. This indicates that an ex-post evaluation needs to be very detailed, in particular concerning: 1) the type of instrument used; 2) the governance structure of the financial setup; and 3) the unit of analysis.

The following section presents examples of a counterfactual approach to evaluation, based on three instrument types: subsidies, guarantees, equity finance and venture capital. It then concludes by reviewing some other approaches.

Subsidies

Studies on the relationship between government subsidies and financial additionality are more often found in literature on innovation and research and development (R&D). As described by Potì and Cerulli (2011[31]), financial additionality is often referred to as "input additionality"[38], where input additionality is regarded as the level of private funding an R&D firm is able to add to the amount of public support. Zúñiga-

Vicente et al. (2012[32]) summarise the empirical literature on the relationship between public R&D subsidies and private R&D investments over the past five decades. They concluded that longitudinal microdata are important for an evaluation of additionality because such data allow accounting for dynamic considerations as well as heterogeneity among the firms receiving public support. More aggregated data are less useful as they hide firm heterogeneity, which is needed to be able to distinguish individual firm's investment strategies. They also found that many studies do find financial additionality, although more recent counterfactual contributions (quantitative matching and/or difference-in-differences evaluations) find evidence of a clear substitution effect. Overall, it concluded that "in addition to methodological differences, the theoretical framework of analysis, the population under study (e.g. the country and sample period, the type of firms) and the sources and characteristics of the subsidy programs determine whether the additionality or the substitution effect is observed".

A recent study using a counterfactual approach when analysing the relationship between government R&D subsidies and financial additionality is that of Dimos and Pugh (2016[13]). Their analysis rejects the complete crowding out of private investment by public subsidies but reveals no evidence of substantial additionality. Using a traditional matching approach (matching on observables only), they conclude that the use of subsidies contributes to addressing market failures by increasing extra finance and capabilities in subsidised firms when compared to the no subsidy counterfactual. Moreover, they highlight that a subsidy approach (as compared to a loan or an equity finance approach) to innovation finance may be especially important when implemented in recession periods. Although, on average, the evidence for substantial financial additionality is relatively weak, Dimos and Pugh conclude that institutional learning (behavioural additionality) is seen more in subsidised firms when measured against other comparable firms not involved in the subsidy programme. However, in order to fully capture behavioural additionality effects, Dimos and Pugh argue that longitudinal data may be needed as institutional impact takes time to manifest itself.

Another example of a counterfactual approach is that of Marino et al. (2016[33]) who analyse the effect of public innovation-related subsidies on private investor expenditures in similar investment projects. Focusing on financial additionality via an indirect subsidy scheme (tax credits) they take a matched difference-in-differences approach, comparing recipient and non-recipient firms over time. They find evidence of either no financial additionality or even a crowding-out effect between public and private investment expenditure. The crowding-out effects were more pronounced for public financial engagement.

Söderblom et al (2015[34]) look specifically at government start-up subsidies. They argue that subsidised new ventures should expect to attract additional private financial capital than their non-subsidised counterparts as the association with a prestigious government organisation signals legitimacy. This potentially has long-term effects on performance, although the subsidy itself may be short-lived. The analysis focused only on those start-ups applying for government support and involved comparing approved applicants with a control group of rejected applicants. They overcame selection bias by evaluating only those start-ups requesting government support. Results confirmed the legitimacy hypothesis by showing that approved applicants attracted more additional private finance than otherwise similar (along observed dimensions) rejected applicants.

Guarantees

Green (2003[35]) documents that public credit guarantee schemes exist in around 100 countries, which is supported by findings reported by the World Bank and FIRST Initiative (2015[36]). Abraham and Schmukler (2017[37]) summarise the empirical literature evaluating the additionality of such schemes. They conclude that financial additionality is partly fulfilled as the majority of the guaranteed loans have been granted to firms that otherwise would not have obtained finance. However, public credit guarantee schemes are also shown to often benefit financially unconstrained firms, which signals that only partial financial additionality is obtained. The creditworthiness of beneficiary firms appears to decline while default rates increase and

the traditional problems of asymmetric information remain, as public credit guarantee schemes tend to be associated with higher risk-taking behaviour by financial institutions.

Zecchini and Ventura (2009[38]) take a counterfactual (matched difference-in-differences) approach to analysing a publicly funded guarantee scheme in Italy. The empirical evidence shows that borrowing costs declined, that financing constraints were alleviated for beneficiary firms and generally, they find significant evidence in favour of the presence of financial additionality. Zecchini and Ventura highlighted that context, programme design and implementation mattered for this conclusion. A programme putting significant effort into the selection of beneficiaries and choice of guarantee coverage ratios resulted in lower default rates and limited the public subsidy element of the credit guarantee scheme.

Examining research from non-OECD countries, Saadani, Arvai and Rocha (2011[39]) review the evidence from ten credit guarantee schemes in the Middle East and North Africa. They concluded that the design of the guarantee schemes could be improved significantly to address asymmetric information concerns and that programmes are often badly designed and only target financially constrained firms. Eligibility criteria are not always transparent and links between coverage ratios, fees and risk assessments are often not documented. Saadani, Arvai and Rocha use a series of design-related arguments asserting that financial additionality in the ten credit guarantee schemes is not likely to be fulfilled, although this conclusion was not reached on the basis of systematic impact evaluations for each of the schemes.

A more rigorous approach is taken by Huidobro and Reyes (2014[40]), who use a qualitative and quantitative industry-level approach to show the limited support for the financial additionality of credit guarantee schemes implemented in Mexico from 2003-2009. Guaranteed loans are shown to benefit mainly medium-sized firms, with most concessionary resources supporting loan/risk profiles that the private sector would have approved anyway. The Mexican loan guarantee schemes therefore mainly supported and strengthened existing financial intermediaries, without significant improvements in the credit terms of the customer base.

Equity finance and venture capital schemes

Lerner (2002[41]) describes two underlying assumptions for government engagement in equity financing: 1) the private sector provides insufficient capital to start-ups; and 2) the government is better equipped to identify and engage in investments which ultimately have higher social returns (externality) or encourage financial intermediaries to engage in projects having higher social returns. To address the problems that prevent the private sector from investing in start-ups,[39] venture capital organisations often employ a variety of mechanisms including:

- Screening, where business plans are intensively scrutinised.
- Use of dynamic incentives and smart money, where funds are disbursed in stages and venture-backed firms are required to deliver feedback (or actual returns) relatively quickly after receiving initial funding. This in turn will determine the need for additional advice as well as the size of the additional capital injections.
- Monitoring, where the venture capitalists closely monitor the managers of the recipient firms, contacting them on a frequent basis during which extensive reviews of every aspect of the business are conducted.

Lerner goes on to outline two reasons why government venture capital (GVC) is needed: 1) certification; and 2) spillovers and positive externalities; both of which are directly related to financial additionality. Regarding the spillover/externality mechanism, the effectiveness of government venture capital relies on its ability to pick winners, in the sense of identifying projects demonstrating the greatest positive externalities (i.e. the largest gap between private and social returns to investment). “Certification” refers to when GVC could be used to provide a signal to the market and “certify” that a firm or project is deemed of high quality. It is, however, unclear how such initial screening could be undertaken in an optimal way (and

whether governments have a comparative advantage in doing this). It is also unclear whether screening (and the associated cost thereof) is superior to simple random selection especially in thin markets. The literature suggests that these government signals are particularly valuable in technology-intensive industries (Hall and Lerner, 2010[22]) and in thin market settings (Nightingale et al., 2009[42]). As such, GVC solves a coordination failure problem in private equity markets, which eventually may lead to additional private venture capital (PVC).

However, Brown and Lee (2017[43]) outline a mechanism that may question such financial additionality of GVC initiatives, related to the underlying differences between GVC and PVC schemes. PVC initiatives often have a short time horizon and very clear objectives, whereas GVC initiatives are considered more patient and have broader objectives. This could lead to differences in the average risk profile of the firms being considered as interesting investment opportunities for PVC and GVC respectively. As a result, many of the projects identified as possible recipients of GVC may never attract PVC given their different objectives and time horizons. Moreover, given that GVC is often considered as a more passive investment, firms receiving GVC financing may indirectly signal that they have less smart capital than alternative projects receiving PVC only. This would make the presence of GVC a negative signal to private investors rather than a positive one.

Colombo, Cumming and Vismara (2016[44]) summarise the empirical evidence regarding GVC financing, looking particularly at whether GVC may crowd out rather than stimulate private investments. According to the strategy of most DFIs, the aim of GVC is that it should typically crowd in or attract PVC (thus financial additionality). However, existing studies on the financial additionality of GVC are at best inconclusive. Using a matching approach (with a well-specified linearity assumption) Brander, Du and Hellmann (2015[45]) find that GVC finance can complement, rather than substitute for, PVC financing. They also conclude that joint venture capital schemes attract more additional private financing than start-up projects exclusively relying on GVC as the initial funding source. In contrast, using a comparable estimation approach, Armour and Cumming (2006[46]), looking at a panel of 15 countries over 14 years, found no support for the crowding in effect in. All in all, although methodologies for evaluating the financial additionality of GVC initiatives are relatively similar, the evidence seems mixed and context specific.

Other approaches to evaluating financial additionality

Carter, Van de Sijpe and Calel (forthcoming[30]) discuss the problems linked to adopting traditional counterfactual approaches to evaluation. They conclude that the methodological challenges in establishing a trustworthy counterfactual enabling clear identification of financial additionality should lead stakeholders to question the importance of additionality as part of the outcome criteria. They suggest that it would be more relevant to consider the circumstances under which financial additionality is more likely to be present.

David, Hall and Toole (2000[47]) is an example of an analysis not relying on traditional counterfactual approaches. Instead it uses an industry-level approach to evaluating whether public investment spending is complementary (and thus financially additional to private investment spending) or a substitute for and thus a crowd out of private sector investment.

Using industry-level time-series data on sector specific inputs related to the investment, the level of feedback effects arising from price movement in the markets for these investment inputs can be evaluated. In relatively thin input markets, government investment initiatives targeted at a particular firm or sector are likely to generate an upward pressure on the prices of inputs, as the project is expected to absorb labour, along with specialised materials and facilities. As a result, through a general equilibrium effect, this may, other things being unchanged, lead to a reduced level of investment by non-supported firms within that sector. The mechanism is fairly simple as highlighted in David, Hall and Toole (2000[47]): “whenever the market supply of investment inputs is less than infinitely elastic, increased public sector demand for those resources must displace private investment spending, unless it gives rise to spillovers that also raise the aggregate private derived demand for investment inputs”.

The relationship between additionality and private and public investments in a macro-economic model can be shown to depend on four parameters. Financial additionality generally dominates the crowding-out effect when:

- the size of the public sector engagement is relatively small
- the elasticity of the supply of qualified workers is high
- the subsidy element of the public sector is higher
- the marginal rate of private return to investment decreases more gradually with increased investments.

David, Hall and Toole (2000[47]) provide an overview of research papers following this approach in the case of government supported R&D subsidies.

A recent study by the International Monetary Fund (IMF) using loan-level data at the sector level across a large sample of developing countries over 25 years estimates the financial mobilisation effects of MDB investments (Broccolini, 2019[48]). Methodologically, the study argues that controlling for country-sector, country-year and sector-year fixed effects reduces possible biases resulting from the fact that investment decisions by MDBs in a specific country/sector are not exogenous. However, the study acknowledges that data of the type used do not allow us to fully understand if private lending would have happened without MDB involvement. Keeping these limitations in mind, the authors conclude that overall, multilateral lending can help fill the investment gap needed to achieve the SDGs. This is also achieved through the indirect mechanism of attracting additional resources from the private sector. However, the results are not homogeneous across countries, as most of the financial additionality is generated in countries which have better credit ratings and are relatively more financially developed.

The inception report for the ongoing study of the CDC Group's mobilisation of private investment is also worth considering (Spratt et al., 2019[49]). It is a longitudinal evaluation running over 10 years using a combination of methods. The long time span provides opportunities for repeated data collection, which is usually not possible in evaluations. The proposed methods to be applied include the development of logic models, case studies, contribution analysis and process tracing aimed to "… build a cumulative weight of evidence." An assessment of the proposed approach will have to await more information about its implementation.

As demonstrated, there are various examples of different approaches to rigorously evaluating financial additionality in a blended finance context (both ex ante and ex post). However, it is clear that individual dimensions of financial additionality may require different methods of evaluation. A comprehensive assessment of financial additionality will therefore require not only that assessments be made both ex ante and ex post, but also by using a combination of methods. Although a systematic review of existing evaluation practice has not been included here, the examples provided above clearly indicate that studies done within academia may contribute to a further strengthening of the evaluation of financial additionality.

3.2. Evaluating development additionality

Ex-post counterfactual approaches clearly also dominate the quantitative focused literature evaluating development additionality. Methodologies used for evaluating development additionality are closely related to the approaches used for evaluating the development impact of various financial interventions; a literature that is relatively well established and thoroughly reviewed. The following section summarises the methodological approaches of some of the most prominent contributions within this literature. As with ex-ante approaches, these will be analysed by the same three financial instruments: subsidies, guarantees and venture capital, followed by a brief review of other approaches to evaluation of development additionality.

3.2.1. Subsidies

Hall and Lerner (2010[22]) summarise the literature on subsidies and argue that only a limited amount of evidence exists regarding the development additionality of these programmes. In most cases, evaluating the success of subsidies is difficult due to the lack of a control group of similar firms that have not received funding via subsidies. They generally find that such subsidies do not completely displace private investment in R&D projects (partial financial additionality cannot be rejected) and in OECD member countries subsidies are often found to be productive in the sense that they have resulted in patent applications by the firms that received support.

However, Hall and Maffioli (2008[50]) highlight that this result may be very context specific and in a survey of subsidy interventions in Latin American economies they reached fewer positive conclusions regarding the development additionality of subsidies.

McKenzie, Assaf and Cusolito (2017[51]) look at government subsidies and grants used to spur private sector innovation and growth in Yemen, using a slightly different evaluation approach. They argue that it has proven difficult to assess the impact of such programmes due to methodological limitations. Using a randomised control trial, they ask whether a subsidised matching grant results in benefits beyond those which the private sector would otherwise produce in the absence of the programme. McKenzie, Assaf and Cusolito find strong evidence in a developing country context that the matching grant has generated additional innovative activities. In a fragile state environment, they also show that a well-designed programme can stimulate firm innovation, at least in the short run. Although the study found evidence of development additionality, it was not possible to analyse whether this positive impact on innovation over time carries externalities (positive or negative) to other firms in the economy.

3.2.2. Guarantees

Focusing on counterfactual approaches Abraham and Schmukler (2017[37]) summarise the evidence regarding the impact of guarantees on development additionality. Guaranteed loans are found to be associated with increased employment, but impact on firm performance is mixed and highly context specific. Another counterfactual evaluation of public guarantee schemes is provided by Brown and Lee (2017[43]) and they also conclude that such schemes have had a positive impact on employment in beneficiary firms. However, the study also confirmed an increasing risk of default among those enterprises. According to Brown and Lee, guarantee schemes did not improve other performance indicators such as investment probabilities or firm-level productivity, which are the principal goals of most public guarantee schemes.

IMF (2019[52]) supports this conclusion stating that guarantees (alone) are unlikely to yield large benefits in terms of development additionality as they have a tendency to weaken the general credit discipline of stakeholders. However, the IMF also states that more evidence is needed especially regarding the long-term impact of credit guarantee schemes. This again illustrates that the time dimension mentioned earlier should be an important part of the evaluation strategy of blended finance operations.

Oh et al. (2009[53]) analyse credit guarantee policies in South Korea using a rigorous counterfactual (matched difference-in-differences) approach. They concluded that a firm's chance of survival increased due to the scheme, but that this did not improve its propensity to invest and no impact on firm-level productivity could be found as a result. Again, the scheme is criticised for not being able to fully address adverse selection problems. Future policies need to revisit the selection mechanism (programme design) underlying credit guarantee schemes.

An example of a counterfactual approach to evaluating a credit guarantee scheme in a developing country context is provided by Arráiz, Meléndez and Stucchi (2014[54]). Their focus was on the Colombian National Guarantee Fund over a 10-year period (1997-2007). They found evidence that firms backed by guarantees had a greater probability of obtaining finance. There is even an indication of 100% financial additionality in

the sense that the elasticity referred to above is, on average, greater than one. This in turn is shown to have improved employment growth indirectly, but again not investments and productivity. Overall, this questions the long-run development additionality of credit guarantee schemes. Arráiz, Meléndez and Stucchi even suggest a mechanism explaining this general tendency. Beneficiary firms have a higher probability of using the obtained credit as a supplement to their working capital so as to reach immediate performance gains rather than to invest it for future growth.

Cowan, Drexler and Yañez (2015[55]), using a comparable methodological approach, study the Chilean Small Enterprise Guarantee Fund (FOGAPE), focusing on how it affected incentives for beneficiary firms. They found that credit guarantees increased access to credit in general, but that for each additional dollar of guarantee total credit only increased by two-thirds of a dollar. Firms selected for the programme were at the same time found to be less likely to repay loans and no development additionality could be documented, signalling that severe adverse selection problems remained.

Several rigorous mixed-method approaches evaluating credit guarantee schemes have also been done in developing country contexts. One example is Boocock and Shariff (2005[56]) who use a mixed-method approach. They evaluated the effectiveness of a credit guarantee scheme in Malaysia by combining survey evidence, case study interviews with borrowers and their lenders, and other direct discussions with key informants. They also concluded that guarantee schemes have significantly increased default rates and that lenders have borne a substantial portion of the risk incurred. Moreover, development additionality is shown to be difficult to identify because the credit guarantee schemes were implemented alongside many other forms of government assistance aiming at improving financial access. This emphasises the importance of taking into account potential contamination when conducting rigorous evaluations of public guarantee schemes.

3.2.3. Equity finance and venture capital schemes

Existing evidence from quantitative counterfactual approaches used to analyse firms in Europe does not indicate any development additionality arising from government venture capital (GVC) initiatives. Colombo, Cumming and Vismara (2016[44]) review the literature taking into account different performance measures such as: successful takeover/exit; investment/innovation and growth/efficiency. With regard to additionality, the following conclusions were reached:

- GVC funds only have a small impact on the likelihood of new ventures completing a successful initial public offering (IPO) or merger and acquisition (M&A).
- GVC funds tend to delay exit from poorly performing ventures, in turn generating negative social returns on the investment as funds are directed away from otherwise more productive use.
- The effect of GVC on the efficiency and sales growth of targeted firms is found to be zero (at best) unless the investment is combined with majority funding from PVC initiatives.
- Co-financing between public and private investors is only effective, for efficiency and sales growth, when investments are targeted towards start-ups. This should be linked to the finding that firms backed by GVC funding are less likely to raise additional financing compared to firms backed by PVC.
- The treatment effect of GVC on employment growth has also been negligible, even when co-financing between GVC and PVC takes place.
- GVC has been somewhat effective in stimulating corporate research and development initiatives and has been better at ensuring that externalities (additional returns from R&D investments) are fully appropriated.

Overall, results from developed economies suggest that GVC impact on firm performance is disappointing, with the possible exception of public-private joint ventures with a majority PVC component. Colombo,

Cumming and Vismara (2016[44]) conclude that part of the underperformance of GVC-backed firms is related to the "lower engagement in behavioural and value additionality activities for their portfolio firms".

Very few rigorous studies (comparable to those cited above) exist for the evaluation of GVC investments in developing countries. However, a logical question to ask is whether GVC-backed firms in economies with greater information asymmetries and thin capital markets are likely to perform any better than supported firms in developed economies.

Other studies on impact investments exist for developing countries although very few of them relate to a public-private partnership context and often use different qualitative approaches. Daggers and Nicholls (2016[57]) provide an overview of the academic literature, distinguishing studies of impact investment from those of socially responsible investment. Among the 73 papers analysed, there was no empirical ex-post evaluation study that explicitly looked at, 1) the exact role the government can play in such a public-private impact investment partnership; and 2) the arguments for and against government support and intervention in impact investment markets. Agrawal and Hockerts (2019[58]) and Viviani and Maurel (2019[59]) emphasise that a first step in quantifying the potential development additionality of various impact investment operations is to have transparent and distinct definitions of what is considered to be a return on investment (ROI) and a social return on investment (SROI). This could help operationalise and subsequently evaluate public-private impact investment schemes. According to Viviani and Maurel, although the literature is clear on how to measure ROI, measurement of social impact (SROI) has not been rigorously standardised and is therefore difficult to authenticate. This is clearly an important message for future ex-post evaluations of the development additionality of public-private impact investment initiatives.

3.2.4. Other approaches to evaluating development additionality

The primary focus above is based on counterfactual approaches and analyses published in academic journals, but other approaches to evaluating development additionality have been applied, including mixed-method approaches.

The CDC Group for example has taken a somewhat different approach, relying on Social Accounting Matrices (SAMs) to measure total employment effects from a portfolio of investments (MacGillvray and Lelijveld, 2019[60]). The SAM uses an input-output structure and is therefore able to consider the whole economy and the impact of external factors, including investment shocks[40]. Although the SAM approach is coherent, it embodies a Keynesian demand-driven model mechanism, which is not ideal for analysing the impact of supply constraints affecting credit. Moreover, the shocks needed must be substantial in order to generate measurable employment impacts working through changes in production technology and prices. As such, it is questionable if the use of multiplier analysis through SAMs for understanding the employment impacts of a specific DFI investment initiative can be used. Finally, several of the assumptions underlying the SAM models may be invalid in a developing country context. Alex Bowen highlights this in his review of the CDC approach finding that: "As a result, the CDC 'employment effect' estimates are likely to exaggerate the likely net employment impact of relaxing firm-level borrowing constraints". Moreover, he also makes an important statement highlighting the limitations of the SAM approach for measuring development additionality:

> *Regardless of what changes are made to the methodological approach, careful use of language in describing the job creation estimates is warranted (e.g. it may be better to refer to increases in labour demand rather than employment, to distinguish carefully between gross and net employment effects and not to lump direct, indirect and induced job creation together). Spurious precision in reporting job creation numbers should be avoided. The metrics computed may be more useful for ranking different projects than for generating a robust number for absolute net job creation. (Bowen, 2018[61])*

Indirect meso-level ex-ante approaches can also be used to guide DFIs in directions of where development additionality may be more probable, by focusing on identifying industries more likely to generate knowledge spillovers (externalities). One such approach relies on the economic complexity theory (Hidalgo and

Hausmann, 2009[62]), where sectors having the greatest opportunity for export success are researched and identified. Governments can thereby guide investment choices towards sectors more likely to have the largest expected opportunity gains. Economic complexity theory relies to a large extent on so-called product space analysis that enables the identification of strategic industries (by country) most likely to become successful in export markets given the current domestic structures and global trade fundamentals. One important limitation of the product space methodology is the explicit use of trade data, where non-exported products and services are not accounted for. This results in a bias when it comes to measuring real export capabilities, as services have been traditionally considered as non-tradeable. In Tanzania, for example, 42% of exports come from services (predominantly tourism), with the export of goods accounting for just 9% of Tanzania's gross domestic product (GDP). Hence, product space analysis far from captures the full potential for knowledge externalities in a country. However, an ex-ante product space evaluation approach can be an informative part of the toolbox for DFIs when making investment decisions that are targeted within an export promotion strategy.

EIB (2018b[14]) provides an evaluation of both the financial and development additionality of the European Fund for Strategic Investments (EFSI). The study starts by stating that there is no benchmark for assessing the performance of EFSI in terms of mobilising private sector financing (i.e. it is not possible to rigorously evaluate the additionality of EFSI), but using their internal criteria they concluded that 98.8% of EFSI operations were financially additional. Concentrating on approaches taken to analyse development additionality, EIB looked closely into whether the intervention provided non-financial inputs that went beyond what the market could have provided. Using perception-based surveys with beneficiaries, the evaluation asked respondents what non-financial inputs were provided by the EIB with EFSI support and whether they could have received comparable support from market sources. Moreover, perception-based surveys with various stakeholders were also used to assess what would have happened in the absence of EFSI-backed financing. Most EFSI beneficiaries responded that market-based transactions could not have provided comparable support, suggesting the presence of additionality for the EFSI-backed intervention. However, as stated by the OECD (2012[63]) attention should be paid to the limitations of using perception-based information for evaluation if the information is not triangulated properly.

Ruben and Tholen (2017[64]) evaluate the activities undertaken by the Sustainable Trade Initiative (IDH) for improving the economic, social and environmental sustainability of production systems in developing countries through sector systemic change. One of the strategies of the IDH was to co-fund the implementation of projects with match funding by the private sector. Methodologically, the evaluation applies a systematic contribution analysis exploiting a variety of information sources to assess impact. Information comes from document and literature reviews, analysis of programme monitoring indicators, sector surveys, case studies, and stakeholder interviews. Although the study is a good example of a rigorous mixed-method approach to the evaluation of development additionality, it is also clear that most of the information obtained in relation to financial additionality is analysed using stakeholder perceptions only.

Other methods have been widely used in evaluations, but as stated in Winckler Andersen et al. (2019[5]), there is a need to get a better understanding of "... the relevance of individual methods for specific blended finance instruments and interventions."

4. Key findings and recommendations

The main objective of this paper is to present and discuss the conceptual and methodological challenges of evaluating the financial and development additionality of blended finance operations. This requires both clear definitions of the various types of additionality as well as an operationalisation and a clarification of the potential dimensions of each type of additionality. The relevance and applicability of different evaluation methods will depend on the specific dimensions of the types of additionality to be evaluated.

The overview of conceptual and measurement-related challenges, along with the review of some examples set out above, highlight several key messages.

Financial and development additionality are not new concepts so existing knowledge bases should be exploited when designing evaluations. Scholars have debated and elaborated upon these two concepts for quite some time. Practitioners should take into account insights and conclusions from earlier studies when designing evaluations of financial and development additionality for blended finance operations. An example, not directly mentioned above, is the literature on public-private partnerships (PPPs). In their excellent review, Poulton and Macartney (2012[65]) study PPPs where the state's aim is to align the incentives facing private sector actors with public policy goals. An explicit focus in this literature is on how the state best can help the private sector internalise positive and negative externalities of the sector's investment portfolio decisions. It can be concluded that attempts to assess externalities or indirect effects are well known within research and this knowledge base should be exploited wherever possible.

Financial and development additionality comprise a number of potential dimensions; each dimension may require specific evaluation methods. How the different types and dimensions of additionality are related has not generally been systematically assessed. A way forward would be to apply a theory of change, which is not only descriptive but also analytical using explicit assumptions, to all evaluations.

Use both ex-ante and ex-post methods to evaluate financial and development additionality. This is not an either/or consideration. Ex-ante and ex-post evaluations can be used in a complementary way rather than as substitutes. Still, an important conceptual question permeates most methods: What is the relevant counterfactual? Future evaluations should contain more detailed information about counterfactuals. An alternative approach would be to use a process-based approach, but more experience in employing various approaches to the evaluation of blended finance is clearly needed.

Choose an appropriate unit of analysis. This is related to getting the counterfactual right and involves clarity about the unit of analysis employed. Most evaluation methods using counterfactual analysis implicitly or explicitly rule out general equilibrium, interference, or interaction effects related to individual treatment assignment. However, blended finance is relevant only in the presence of significant externalities, general equilibrium effects or interaction effects through learning. One way to deal with such effects is by changing the unit of analysis from an individual level to a wider level such as villages or

regions. A recent suggestion for the separation of individual-level effects and spillover effects is given in Huber and Steinmayr (2019[66]).

Strengthen ex-ante contractual designs to encourage private sector cooperation. Poulton and Macartney (2012[65]) document how donor agencies and DFIs can benefit from thinking in terms of principle-agent frameworks when designing contracts. Donors and DFIs must take into consideration that private sector actors have their own objectives (e.g. optimising shareholder value) and from the outset acknowledge that they may only be willing to enter into a contractual commitment if it is aligned with these objectives. Blended finance contracts must therefore be designed to encourage the private actor to behave in line with public interests. In order to achieve this at a reasonable cost, auctions as described in Carter, Van de Sijpe and Calel (forthcoming[30]) and Lach, Neeman and Schankerman (2017[25]) seem to be a potential area worth considering. However, this would require a restructuring of the way governments currently implement contracts.

Ensure that public interests are explicitly internalised in contract negotiations. This is a challenge for stakeholders involved in blended finance operations. Donors want a contract design where they are able to distinguish between whether an undesirable outcome results from opportunistic actions and decisions by the firm or from other exogenous circumstances and shocks. In theory, this is a problem in riskier contexts with asymmetrical information. In practice, this has often led to discussions on what indicators to include in specific contracts rather than focusing on the evaluation of financial and development additionality as an integral and explicit aspect of the bidding process. If evaluators could have access to detailed information about the ex-ante contract bidding process, much could be learned about how to improve contract formulation. Such openness in the contractual arrangements could also allow for experimentation in contract formulation, which would lead to further improvements over time.

Ensure that the institutional "checks and balances" are in order. Many projects are implemented in contexts where the application of competitive contracting processes may be difficult or impossible. The market may simply be too thin to facilitate a competitive bidding process. This could result in the private sector having more bargaining power, especially if the implementing government agency is facing pressure "to get things done". Even if a clear set of public policy objectives (e.g. linked to progressing specific SDGs) have been agreed upon, implementing agencies may find it difficult to maximise the social objective function and instead pursue different objectives (e.g. due to career concerns). The institutional set-up for devising and implementing projects should include provision for holding the "principals" accountable for their actions (Poulton and Macartney, 2012[65]; Kenny and Moss, 2020[67]).

A final message relates to the following question: **is it relevant to assess development additionality in a blended finance context in the absence of financial additionality?** Based on the reviews of selected literature evaluating both financial and development additionality in this paper, the answer to this question is clearly "Yes". Using arguments along the lines of those provided regarding smart capital for equity financing, public capital might bring something that is different from private capital. In locations where patient capital is needed, public funding (even if it fully crowds out private financing) may be successful in building long-term sustainability in local financial intermediaries.

As public and private financing differ in their preferences, knowledge and the patience of the capital, the investment composition (public relative to private capital) will matter for the development outcomes of the investment. Kenny and Moss (2020[67]) find that DFIs may help in avoiding the potential negative externalities of a project. Using infrastructure investments as an example, they highlight that a DFI may choose to co-invest in a project that could be fully financed by the private sector (i.e. no financial additionality) in order to improve the project's reach and standards. For example, DFI involvement in a highway project may ensure that feeder roads are added, reducing the potential negative spillover effects on isolated communities and ensuring that best practices for relocating and compensating affected people are guaranteed. This argument is especially relevant in contexts with weak institutions where established regulations are not well enforced.

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Notes

[1] For more information, please see https://g7.gc.ca/en/g7-presidency/themes/investing-growth-works-everyone/g7-ministerial-meeting/co-chairs-summary-g7-joint-development-finance-ministers-meeting/

[2] Findings from the ongoing multilateral development banks' (MDB) evaluation co-operation group (ECG) additionality stock taking exercise were not available at the time of the drafting of this paper.

[3] Attridge and Engen (2019[10]) and IEG (2020[15]) discuss various definitions, including the definition suggested by Development Finance Institutes (DFIs) and development banks, where the emphasis is on combining concessional and non-concessional development finance.

[4] For a discussion of the implications of this definition, see OECD (2018, pp. 13,14,22,23[4]).

[5] This also applies to the parallel field of impact investment. Some recent analyses indicate, however, that a more systematic approach to monitoring and evaluation of impact investing is underway (Agrawal and Hockerts, 2019[58]).

[6] The revision of the DAC evaluation criteria in 2019 includes both updated descriptions of the criteria and a new criterion (coherence). The criteria now comprise relevance, coherence, effectiveness, efficiency, impact, and sustainability.

[7] Reference can be made to Riedl and Smeets (2017, pp. 2506-2509[84]).

[8] Examples of documents are: PIDG (2018[29]), EBRD (2018[16]), MDB (2018[9]) and EIB (2018a[70]).

[9] Examples of relevant literature are: Pischke and Adams (1980[23]), Myers (1984[81]), Lerner (1999[79]), Feldman and Kelley (2006[71]), Hall and Lerner (2010[22]), Dimos and Pugh (2016[13]), Ruff and Olsen (2016[86]), O'Flynn and Barnett (2017[82]), Rosenberg (2017[85]), Carter, Van de Sijpe and Calel (forthcoming[30]), Winckler Andersen et al. (2019[5]), Attridge and Engen (2019[10]). See references section for additional sources.

[10] Examples of reviewed literature are: Stern et al. (2012[17]), Johnson, Russo and Schoonenboom (2019[20]), Rohlfing and Zuber (2019[19]).

[11] The OECD DAC Network on Development Evaluation (OECD, forthcoming[97]) defines additionality as "The characteristic of an intervention, its (financial or non-financial) inputs, activities and/or results being additional as compared to what would have happened otherwise. Additional means larger in scale, at a higher quality, taking place more quickly, at a different location, or not taking place at all."

[12] A search identified more than 700 papers which mention the term “additionality” in the title or in the abstract.

[13] See, for example, Garza et al. (2015[72]) and Czarnitzki and Delanorte (2017[91]).

[14] A transaction is “additional in value if the public sector offers to recipient entities or mobilizes, alongside its investment, non-financial value that the private sector is not offering and which will lead to better development outcomes, e.g. by providing or catalysing knowledge and expertise, promoting social or environmental standards or fostering good corporate governance” (OECD, 2016[6]).

[15] Behavioural additionality is considered to be behavioural changes, which lead to increased effectiveness and efficiency. See, for example, Aschhoff, Fier and Löhlein (2006[88]), Clarysse, Wright and Mustar (2009[93]), Chávez (2011), Gök and Edler (2012[74]), Casalino (2014[94]) and Dai et al. (2020[69]).

[16] See, for example, Czarnitzki and Hussinger (2018[92]).

[17] See, for example, Söderblom et al. (2015[34]); Goerke and Albers (2016[73]).

[18] See EBRD (2018[16]).

[19] MDBs (MDB, 2018[9]; EBRD, 2018[16]) make a distinction between financial and non-financial additionality, but although “Policy, Sector, Institutional, or Regulatory Change” is mentioned as a type of non-financial additionality, the focus is primarily on the input side and therefore more narrow than that of development additionality. Thus, “additionality is different from development impact” (MDB, 2018, p. 7[9]). A related distinction is between understanding additionality as the additionality of the institution supporting the project vs. the additionality of the project.

[20] EBRD states that (2018[16]): “Broader interpretations of additionality (beyond financial dimensions) exist but have never been universally accepted” and proposes complementing project-level assessments with contextual “additionality gap analysis”.

[21] Theories of change have been developed in a number of evaluations of blended finance, but their quality varies and they are not systematically used.

[22] MDBs distinguish between financial and non-financial additionality. This definition of additionality applies to both types of additionality. An alternative definition of additionality is used by the Donor Committee for Enterprise Development (DCED, 2017[28]) which mentions that the aim of public support “is to trigger investments that business would not make otherwise, or to make them happen more quickly, at a bigger scale or simply better in terms of development outcomes”. Although development outcomes are mentioned, the main focus in this definition is on financial additionality.

[23] Compare with EBRD (2018[16]), which finds that “The additionality judgment is now binary – Yes or no”.

[24] For an overview of various analyses on rent seeking, see Congleton, Hillman and Konrad (2008[68]).

[25] For a discussion of various definitions and interpretations of impact, see Stern et al. (2012[17]) and Belcher and Palenberg (2018[90]).

[26] MDBs refer to “types of additionality” both for general forms and dimensions of additionality (MDB, 2018, p. 8[9]).

[27] Other definitions and concepts of impact exist which relate the definitions directly to operational and methodological aspects (Stern et al., 2012, pp. 5,6[17]). In some contexts "impact" is used flexibly and is often interchangeable with "effect".

[28] A process-based approach has also been called a mechanism-based approach (White and Phillips, 2012, p. 18[87]).

[29] "The different causal theories are divided into two broad groups: accounts of difference making versus accounts of production" (Johnson, Russo and Schoonenboom, 2019, p. 147[20]). See (Stern et al., 2012[17]; Rohlfing and Zuber, 2019[19]) for other potential perspectives.

[30] See Banerjee (2013[89]) and Jayachandran (2020[77]) for reviews.

[31] For overviews, see (White and Phillips, 2012[87]; Stern et al., 2012[17]; Goertz, 2017[18]).

[32] See Befani and Mayne (2014[96]) for an introduction to the use of process tracing and contribution analysis in evaluation.

[33] Compare also with the quite critical findings in EBRD (2018[16]).

[34] More specifically Hall and Lerner (2010[22]) show that private investment decisions may vary with the type of investment and funding source (whether governments use public support via a grant system, debt instruments or engage as venture capitalists). Evaluators need to distinguish between factors that arise from market failures and the financial considerations that affect the cost of different sources of funds. Hall and Lerner conclude that the presence of either asymmetric information or principal-agent conflicts, for example, will imply that equity finance is relatively more expensive for start-ups. This may explain why many governments focus on having high grant elements for start-ups to complement the private sector "venture capital" industry, which is more focused on solving the problem of financing innovation for new and young firms.

[35] For further details on problems facing DFIs in the context of blended finance schemes, see Hansen, Rand and Andersen (2020[76]).

[36] Investment depends on its expected return. In addition, given the particular characteristics of knowledge, non-excludability and non-exhaustibility, private and social returns to investments generally do not coincide. A substantial number of empirical studies exist assessing the private and social returns on investments. See Hall and Lerner (2010[22]) in the case of R&D investments.

[37] A "simple" approach to comparing private and social returns dates back to the seminal work of Griliches (1958[75]) and Mansfield et al. (1977[80]). Private returns are measured by the profits to the investor, net of the costs of producing, marketing and carrying out new innovations. The amount that the investor would have earned if they had pursued a different product or strategy is also deducted from the profit. Social returns are obtained by adding the difference in consumer surplus arising from a possible price reduction and profits made by the competitors and by subtracting the investment costs for the same innovation incurred by other firms as well as other negative externalities. Estimates following such approaches indicate that the social rate of return generally exceeds the private rate by a substantial margin both in agriculture and industry (Hall and Lerner, 2010[22]).

[38] See also Section 3.1.

[39] Jensen and Meckling (1976[78]) demonstrate that agency conflicts between managers and investors can affect the willingness of both debt and equity holders to provide capital. Even if the manager is motivated

to maximise shareholder value, informational asymmetries may make raising external capital more expensive or even preclude it entirely.

[40] For an introduction to the use of SAMs see, for example, Pyatt and Round (eds.) (1985[83]).


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