CLIMATE POLICY INITIATIVE

Approaches to assess the additionality of climate investments

Findings from the evaluation of the Climate Public Private Partnership Programme (CP3)

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March 2018

A CPI Report

Acknowledgements

The authors of this publication would like to acknowledge the valuable input and support from Rebecca Adler, John Mayhew and Kirsty Wilson (LTS International), Julia Reybould (BEIS), Serina Ng and Dharshan Wignarajah (DFID), Johanna Klein (IFC) and Caroline Dreyer, Elysha Davila, Amira Hankin, Barbara Bucher (CPI). The authors are solely responsible for any errors and omissions in this publication.

Descriptors

Sector	Climate Finance
Region	Global
Keywords	Additionality, Climate finance, Monitoring and Evaluation
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This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies

About CPI

With deep expertise in policy and finance, CPI works to improve the most important energy and land use practices around the world. Our mission is to help governments, businesses, and financial institutions drive growth while addressing climate risk. CPI works in places that provide the most potential for policy impact including Brazil, Europe, India, Indonesia, and the United States.

Executive Summary

As governments and development finance institutions scale up delivery of climate finance commitments, the question of how to measure and ensure additionality becomes increasingly important.

This paper presents new methodological approaches for assessing the additionality of climate investments, developed by Climate Policy initiative (CPI) through ongoing work monitoring and evaluating the Climate Public Private Partnership (CP3). CP3 is a GBP £130m program, funded by the UK's International Climate Finance, which invests in low-carbon climate-focused private equity (PE) funds in developing countries. It has dual commercial and development objectives, and aims to catalyse private capital and demonstrate that low carbon/carbon-related investment is both viable and commercially attractive.

Although a clear definition is yet to emerge, the term "additionality" has become a key part of the climate finance lexicon in various contexts. One is in the context of commitments in climate agreements by developed countries to deliver "new and additional" resources to developing countries for measures taken to address climate change (UN, 1992). See Brown, 2010 for a discussion on this.

The other context is in terms of effectiveness. Public actors have a common desire and mandate to ensure that limited funds can bring about a transformation in the global development path to one compatible with less than 2□C of warming. Directing financial resources towards technologies and business models where the private sector is already investing at the scale needed is not effective. Limited public investments should be invested in transformative initiatives that have the potential to deploy new technologies, reach new markets, and leverage additional private investment.

The concept of additionality is easy to understand, but difficult to apply and measure. Assessing the additionality of CP3's investments required us to create a tailored framework to examine the roles that the program played, and the contexts in which it invested in order to make a determination on the likelihood of additionality.

Key findings at a glance

- The methodological framework in this paper provides a way to assess the additionality of climate investments through private equity. With some adjustment, it can also be applied to other types of finance.
- Conceptually, the framework is based on the assumption that an investment is additional if it represents a deviation from a BAU scenario.
- The degree of deviation is assessed by exploring the barriers to overcome, and the roles played in overcoming them.
- An investor can demonstrate additionality by crowding in private finance, increasing a venture's access to finance, showcasing new technologies or business models to a market, and raising the environmental and social standards of a venture.
- Higher return expectations and risk appetite mean private equity funds tend to target markets and sectors where investments are more likely to be additional. Development finance providers can continue to explore private equity as one of a mix of instruments to deliver on their goals.

One particular focus was the commercial nature of CP3. The business case centers on the theory that by undertaking investments in commercial terms and proving that climate investments can be profitable, it could encourage the private sector to develop and invest. However, economic theory tells us that, in an efficient market where market returns are available, private investors would already be available to undertake these investments begging the question, "Can a program that achieves commercial returns be additional?"

This paper will show two approaches used to examine the question of additionality for CP3. One approach is *qualitative,* and uses a multi-criteria assessment (MCA) framework applied through case studies. The other is *quantitative*, and explores additionality through a composite index that assesses the investment environment in countries where investments took place. These approaches have different aims and are complementary, allowing evaluators the ability to assess the additionality of specific investments and also undertake portfolio-level assessments.

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1. Qualitative additionality assessment based on a multi-criteria assessment framework

This approach is grounded on the theory that an investment is additional when it demonstrates a strong deviation from a counterfactual or business-as-usual (BAU) scenario. To determine this, we developed eight criteria to examine how various contextual elements enabled or hindered an individual investment, to show if the investment would have been likely to happen had the CP3 funds not been available.

For example, the policy landscape is an important factor driving private investment. An unfavorable policy environment for renewable energy is seen as a significant investment barrier, an investment *that happens despite this* is more likely to be additional. The more barriers an investment overcomes, the greater the likelihood of additionality.

Certain challenges inherent in the assessment needed to be addressed, including:

- **Lack of knowledge of counterfactual outcomes:** an alternative scenario can never be truly known.
- **Imperfect information:** information on every conceivable variable and condition that may have influenced the outcome of a project is not obtainable.
- **Lack of data and data comparability:** by virtue of being associated with different regions, sectors, and many other variables, investments cannot be perfectly comparable.
- **Informant bias:** research participants have their own perspectives and biases that may influence the information they provide, or how they interpret it.

Given these challenges, we opted to use a multi-criteria assessment (MCA) framework to help understand additionality in a wide range of contexts and piece together a likely counterfactual outcome[1]. An MCA draws on multiple pieces of evidence to provide broad context, triangulate data sources, and overcome informant bias and imperfect data.

1.1 Assessment criteria

The criteria developed were influenced by work from the Donor Committee for Enterprise Development (DCED, 2014), Institute of Development Studies (IDS), Private Infrastructure Development Group (PIDG), International Finance Corporation (IFC), and CPI analysis. Eight criteria were developed and split into two categories:

- **Context-specific criteria,** which examine the context in which an investment took place (e.g., policy environment, institutional environment, market environment, and domestic value chains and human capital) and employ a barriers-assessment approach, wherein greater barriers to private investment increase the likelihood that a given investment was *additional*.
- **Venture-specific criteria,** which examine the specific circumstances of an investment in an individual company or project and the role that CP3-related funds played in enabling these investments (e.g., increasing the investment's access to finance, crowding-in additional private finance into the venture, providing a "demonstration

[1] What would have happened without the CP3 intervention.

effect" to other private actors, or improving investment environmental, social, and governance (ESG) standards and practices).

1.1.1 CONTEXT-SPECIFIC CRITERIA

A barriers-assessment approach is used to answer context-specific criteria. For each, the presence, or lack of, significant barriers to private investment informs the understanding of what would likely happened in a BAU scenario in which the public or philanthropic investor would not have intervened. The four context-specific criteria are:

1. **Policy Environment** - A robust policy environment with sound, credible, and predictable policies (e.g., targets, subsidies, mandates, standards, etc.) related to target sectors means that investors are more likely to invest in them. If a project is located in a country where there are no, weak, or limited policies supporting the target sector, private investment will be more challenging. Investments are more likely to be additional in country contexts where policy environments are weak or non-existent, and less likely to be additional in country contexts where policy environments are stronger and more supportive.
2. **Institutional Environment** - A country with a robust legal, regulatory, and institutional environment is more likely to attract investors. If a project is located in a country where institutions are weak, investment will be more challenging. Investments are more likely to be additional in country contexts where the legal, regulatory, and institutional environments are weak or non-existent, and less likely to be additional in country contexts where they are strong.
3. **Market Environment** - A market environment with a strong economy, robust financial institutions, sophisticated capital markets, access to debt with suitable interest rates and tenors, strong historical track record of investment in the particular sectors targeted by the public or philanthropic investor (e.g., renewable energy, water, resource efficiency, etc.), and other variables, makes private investors more likely to invest. Investments are more likely additional in countries with weak markets, and less likely to be additional in countries with well-established markets.
4. **Value Chains and Human Capital** - A country with developed value chains and plenty of qualified human capital is more likely to attract investors. If a project is located in a country where these are weak, investment will be more challenging. Investments are more likely to be additional in countries where sectoral value chains do not exist domestically, and where needed human capital or sector-specific expertise is lacking. Vice versa, in countries with well-developed value chains and an abundance of sector specialists, the investment is less likely to be additional.

1.1.2 VENTURE-SPECIFIC CRITERIA

Venture-specific criteria focus on the specific circumstances of an investment and *the role* the public or philanthropic investor played in the investment outcome, as well as whether the investment contributed to the objectives of the program. The four venture-specific criteria are:

1. **Crowding-in private investment** – "Crowding-in" (attracting) private investment is a core objective of many climate finance programs. This criterion examines whether or not the public investment led to the mobilization of additional private investment in the company or project. To determine whether it did, we looked at two factors: 1) the existence of private finance in the venture that occurred alongside, or after, the public investment; and 2) the role the public investor played in crowding-in this finance. To

assess this, we categorized the common roles a private equity fund can play that can lead to the mobilization of additional finance. The typology below was designed to assess the role of private equity investors, but it can be modified to fit other funding instruments or asset classes.

a. Broker function - wherein the fund actively pursues other equity investors to invest in a given venture.
b. Certification effect - wherein the role or reputation of the fund manager lends credibility to a venture and persuades subsequent investors to invest.
c. Management support - wherein the fund works directly with the management of a particular venture to provide support that enabled them to crowd-in additional financing.

2. **Access to finance -** This criterion asks whether a venture would have been able to obtain finance from other sources, comparable to what was provided through the public or philanthropic instrument. Comparable finance has similar terms (e.g., type, rates, tenors, currency, etc.) and is available to the same company or project under the same circumstances. An investment is considered additional if comparable finance was unavailable prior to the investment or if the public or philanthropic investment increased a venture's access to finance (e.g., by providing equity that allowed a company to raise debt).
3. **Demonstration effect -** Projects with demonstration effects can be defined as those that "led other market participants to change their behavior without [further] involvement" (IFC 2013). Ventures that demonstrate new business models or technologies and thus promote changes in investor behavior are powerful levers that can help deliver impacts beyond direct financial benefits. If a venture demonstrates new technologies or business models in a given market, it is deemed to be additional.
4. **Improved ESG standards and project quality** - If the public or philanthropic investor requests the implementation of ESG standards and other non-financial conditions tied to the fund's investment, that would not have occurred otherwise and increase the development impact of the project, they are considered to contribute to the additionality of an investment.

1.2 Data sources used

1.2.1 CONTEXT-SPECIFIC CRITERIA

For the assessment of the additionality of renewable energy investments we have used the following four primary data sources:

- **Climatescope** is an annual index and country-level assessment from Bloomberg New Energy Finance (BNEF) that examines the investment climate for a variety of renewable energy technologies in 55 countries around the world (BNEF 2015). Climatescope is used to assess the 'Policy Environment' and 'Value Chains and Human Capital' criteria for renewable energy sector investments.
- **Venture Capital and Private Equity (VCPE) Country Attractiveness Index** is an annual index produced by IESE Business School that benchmarks the attractiveness of 120 countries for institutional venture capital and private equity investment based on a variety of economic, political, institutional, and social criteria (IESE 2015). VCPE data is used to score the 'Institutional Environment' and 'Market Environment' context criteria for all CP3 investments. For assessing the 'Institutional Environment' based on the VCPE

Index we focused on their indicators for "Investor Protection and Corporate Governance," "Labor Regulations," and "Bribing and Corruption." 'Market Environment' scores were based on VCPE Index indicators "Economic Activity" and "Depth of Capital Market."

- **Literature** provides additional information to assess criteria and complements Climatescope and VCPE results. The literature review aims to identify elements of the 'policy environment' and 'value chains and human capital' that are essential to enabling private investment. If a particular key element of the policy environment is missing, it is treated as a "barrier" to private investment. The greater the number of barriers to private investment observed, the greater the likelihood that CP3's investment was additional.
- **Investor interviews** offer additional perspectives on the aforementioned indexes and literature. They offer more up-to-date insights and a glimpse into the thinking of investors who are undertaking the specific investment being evaluated.

These sources are modified for other sectors and can be tailored to other funding instruments. For example, Climatescope focuses on renewable energy and thus needs to be replaced by a literature review, or another sector specific index when evaluating other sectors. The same rationale can be applied.

1.2.2 VENTURE-SPECIFIC CRITERIA

Venture criteria are assessed based on stakeholder interview data and company documents. A determination is made on either 1) the presence of a given condition (e.g., crowding-in private finance) and 2) a specific role that the CP3-related fund played in enabling this condition (e.g., playing a broker function that brought additional equity investment from other investors). The flow-charts in figures 1-4 are a visual depiction of the decision process to determine additionality for a criterion. The evidence for individual sub-criteria is based on a qualitative analysis of interview answers.

Figure 1: Crowding-in private finance

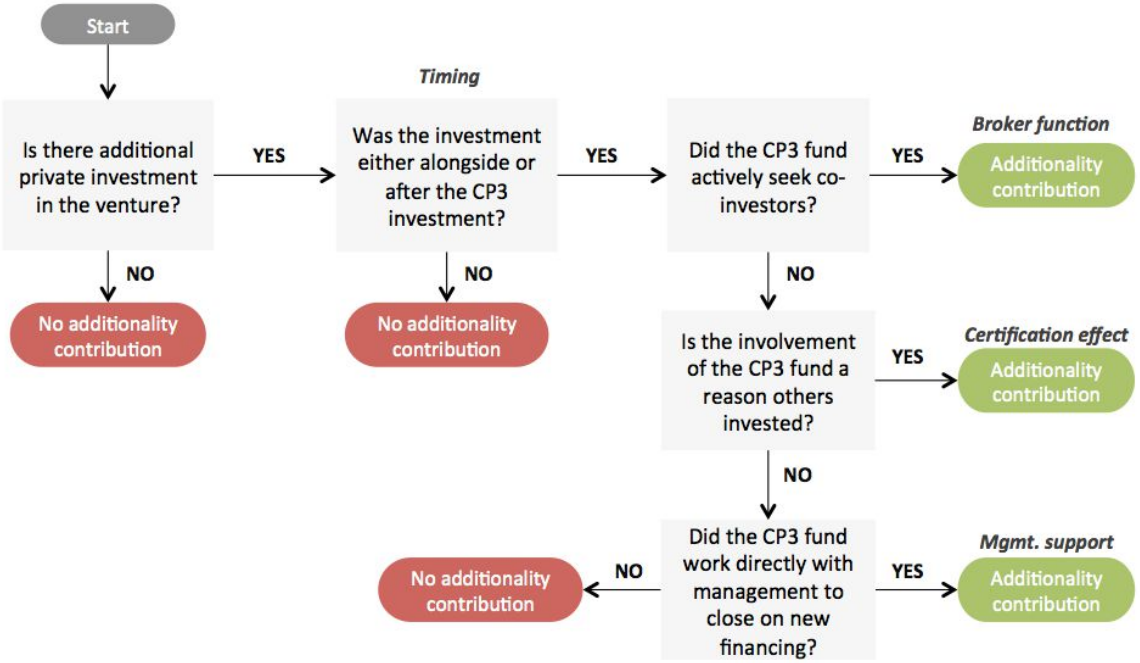


Figure 2: Access to finance

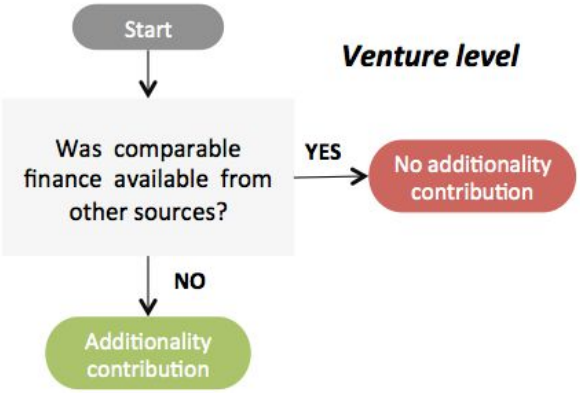


Figure 3: Demonstration project

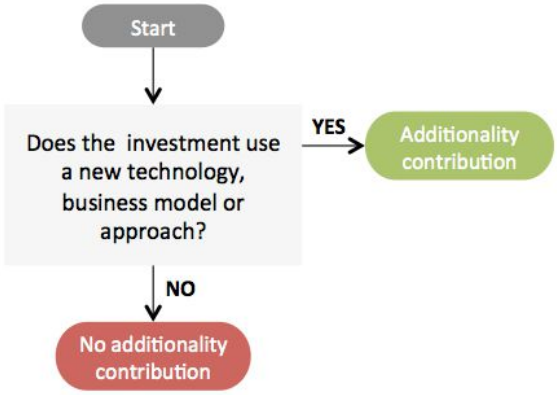
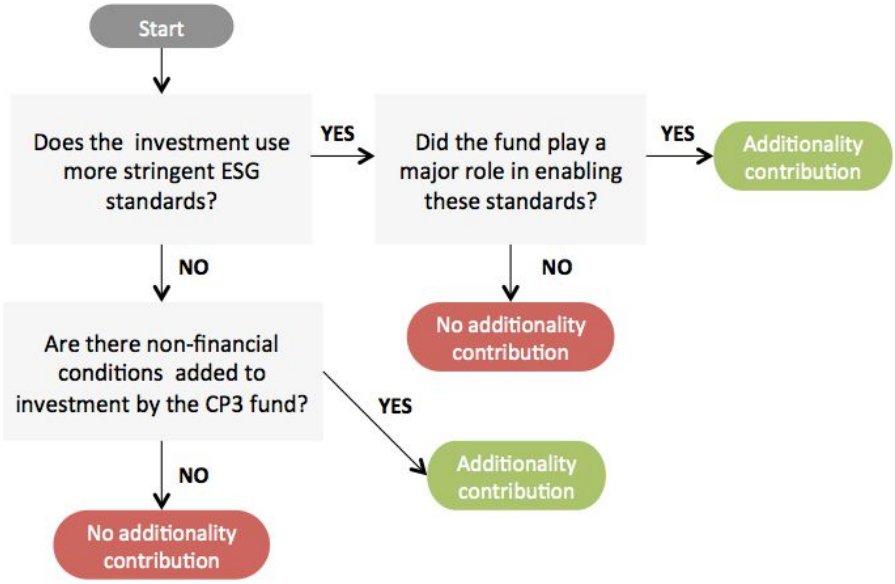


Figure 4: ESG Standards



2. Portfolio-level additionality assessment

The previous section provided a qualitative approach to assess additionality, which is best suited for individual cases to inform on the context and mechanisms by which investments can be considered additional to the market.

However, CP3 and other programs make dozens or hundreds of individual investments. Thus, there is a need to determine additionality on a portfolio basis in a way that is less resource

intensive than individual case studies. In response to these needs, a simplified approach was developed. The approach is underpinned by academic evidence that links the amount of private equity investment in a given country to a country's score in the IESE Business School Venture Capital & Private Equity Country Attractiveness (VCPE) Index (Groh, Liechtenstein, Lieser, & Biesinger, 2015). This approach informs on the additionality of investment in a given country. However, it does not inform on other factors; most importantly, the additionality of investment in a sector. Certain types of technologies (e.g., nuclear fusion) do not receive much private investment even in countries, with well-developed capital markets that would score highly in the VCPE Index.

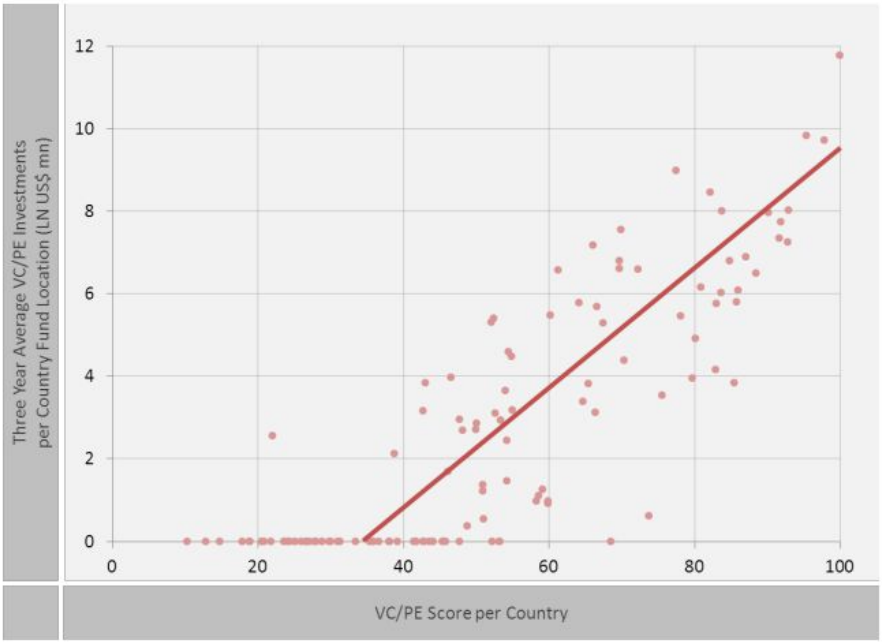
2.1 Data source & method

There is a strong evidence base that links expected private equity investment levels to the score a country receives in the VCPE Index - a composite measure that benchmarks the attractiveness of 120 countries to venture capital and private equity allocations (Groh, Liechtenstein, Lieser, & Biesinger, 2015). The index considers key drivers of investment and scores countries accordingly. Figure 5 shows the relationship between the VCPE score (x-axis) and a logarithmic scale of average investment flows over three years (y-axis).

In order to provide a quantitative estimate on the amount of financial flows in the portfolio that were additional, we converted the VCPE score to an additionality modifier. The modifier represents an estimated percentage change between a BAU scenario and a scenario with the program in place.

Figure 5 shows a clear link between the VCPE score and subsequent investment. The VCPE Index ranges from 0 to 100 with the higher scores signalling better investment environments. There is a clear threshold at 45 – this is the score below which private equity investment is highly unattractive. If we convert to an additionality modifier using percentages, it's safe to assume that an investment in a country with a score below 45 is 100% additional, as it is highly unlikely other private equity investors will invest in countries that score below this threshold. Countries below this threshold include: Angola, Burundi, Chad, Mauritania, Lesotho, etc.

Figure 5: Tracking power of the VCPE Index. A country that scores below a 45 in the VCPE Index is a highly unlikely destination for private equity and venture capital investment. There is a clear relationship between the VCPE score in a country and the level of investment. Source: IESE 2015



The next step was to come up with the upper threshold in which countries would be considered 0% additional. Figure 6 shows the relationship between Internal Rate of Return (IRR) (y-axis) and VCPE Index score (x-axis). There is strong evidence that the higher the score, the higher the expected returns and (it can be assumed) the more desirable a country is for investment. To set the upper boundary for additionality, we determined an IRR threshold that is attractive for commercial PE investors, and where CP3 investment would no longer be considered additional. Median private equity fund returns were drawn and analysed from a very large dataset of global private equity funds[2]. It was found that twenty one percent is the median IRR of PE investments. Based on the data in Figure 6, we can conclude that, if a country has a score greater than 75, it is expected IRR is higher than the median and, therefore, attractive to a commercial PE investor. Thus, an upper boundary for the VCPE index was set at 75, above which an investment is considered to be 0% additional. We used private equity IRRs. However, the IRR threshold could be modified depending on the type of finance being provided and the expected returns for a given investor class.

The final piece is to derive a scale that relates additionality to VCPE country scores for countries that fall between the two thresholds. The easiest and most transparent approach is to derive a linear relationship between the two thresholds and set the additionality modifier accordingly. The range between the two thresholds is 30 (upper threshold 75 and lower 45). The midpoint of that range would be 15, which implies an additionality "score" of 50% for countries that score 60 in the VCPE index. This approach is proposed for its simplicity, but

[2] http://gsm.ucdavis.edu/sites/main/files/file-attachments/giants_text.pdf

alternative approaches could include scoring according to relative levels of investment flows which would provide greater weight to countries on the bottom of the scale.

Figure 6: Investment performance in relation to VCPE score Source: IESE 2015

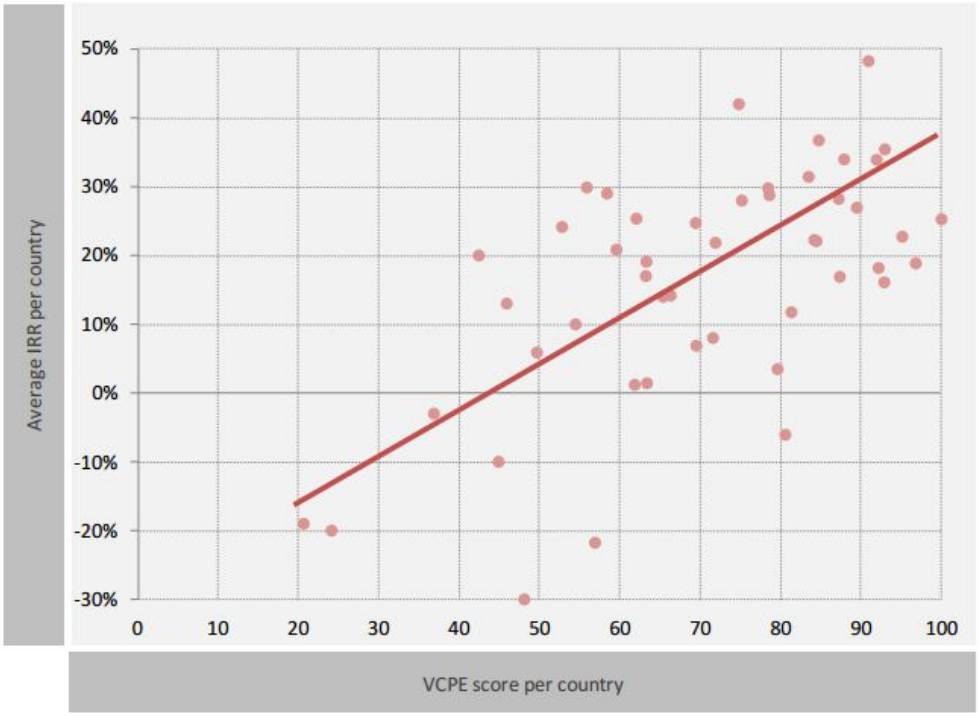


Figure 7 shows the relationship between VCPE scores, additionality modifiers, and additionality adjusted flows of a USD 100m indicative portfolio. Using this approach, we would consider USD 55.7m of the investment flows additional.

Figure 7: Indicative portfolio and additionality adjusted finance flows

Country of investment	VCPE Score	Additionality modifier	Total investments ($m)	Additionality-adjusted totals ($m)
India	68	23%	$12	$2.80
Brazil	61.3	46%	$26	$11.87
Vietnam	52	77%	$25	$19.17
Egypt	45.2	99%	$5	$4.97
Philippines	59.1	53%	$32	$16.96
		Total	**$100**	**$55.77**

2.2 Risks and challenges

Lack of sector and venture-specific context - the additionality modifier provides a high-level view and is less precise than the approach introduced in Section 1. It does not incorporate sector or venture specific data which provide very important context.

When applying both methods to the CP3 program we found that the results of both methods can diverge. In some cases, when applying the MCA framework to an investment, we were able to determine a higher degree of additionality than with the quantitative approach. This is especially important to consider in large and highly diverse countries, such as China, in which additionality of investments are highly dependent on location and sectors.

Therefore, the suggested "additionality modifier" is meant to assess country-context at a very high level. Inherently, it will lose most nuance in doing so. Nonetheless, it can provide valuable quantitative input to program managers about where money is going – and whether it is broadly going into countries where it is more or less likely to be additional.

We recommend the index be complemented by other approaches, and results interpreted accordingly.

Reliance on single data source - this method uses a single data source – the VCPE index. If the Index is delayed in a given year, or stops being published, it could render this metric unviable. Similarly, this could also be the case if it declines in quality, changes its measurement criteria, does not cover some countries where CP3 investments have occurred, or other potential changes that could impact M&E efforts relying on it.

3. Conclusions

Our experience with the development of these methodologies shows that evidence-based approaches are possible when evaluating the additionality of climate investments. The methods shown can be used by funders, researchers, and evaluation practitioners, both on an ex-ante and ex-post basis, to increase the effectiveness of investments and target areas where commercial investment is lacking.

Nonetheless, much more work is needed. Specifically, in terms of creating methods that can be applied to other types of investment modalities, and to a wider range of projects and sectors. Common definitions and evaluation approaches also need to be pursued by funding organizations and stakeholder groups to allow for better coordination, and more effective interventions.

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