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Research

# Insight

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## The economics of development finance

**Practical thinking on investing for development**

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## Executive summary

**What should development finance institutions (DFIs) do? That depends on the answers to two further questions: what is the role of private investment in development and why is public intervention needed in private investment markets? This paper surveys what economics has to say about these questions and where the evidence suggests DFIs can invest for the greatest impact.**

### Investment, productivity, and development

Development is about more than peoples' material standard of living, but that is the aspect of development for which investment matters most. From a development point of view, the purpose of private investment is to raise the productivity of the economy to support a higher sustainable quality of life for people. Most people derive their income from work, so their standard of living is determined by the level of their wages, or earnings from self-employment, relative to prices. When businesses become more productive and markets more competitive, wages and earnings rise relative to prices, and poverty falls. The United Nations Sustainable Development Goals (SDGs) will not be met without a significant increase in the quantity and quality of public and private investment in lower income countries.

Although the direct effects of investments on workers, customers and the environment can be considerable, the greatest impact on peoples' lives from investments that raise productivity will often come from those that indirectly affect many firms. That can happen in two ways: when reducing the price (or increasing the quality) of important inputs creates new production possibilities, so that many firms respond by investing and growing; and when a pioneering investment creates knowledge that is used by others or changes the competitive dynamics of markets.

Modern economic growth was possible because knowledge can be rapidly shared, and new methods replicated. Development happens as countries learn what they can produce profitably. Innovative investments affect the behaviour of many firms by creating new markets and by provoking a response from competitors.

Firms are embedded in 'production networks' of suppliers and customers. When there are complementarities across these production networks, so that the productivity of some firms depends on the productivity of others, low productivity in one area of the economy can depress overall productivity. Countries are poor partially because expensive and low-quality intermediate goods and services create 'weak links in the chain' of production. Investments that fix those weak links can have large positive spillovers on economy-wide productivity.

Investments must be financed. The financial sector is instrumental to economic growth and poverty reduction when it enables entrepreneurs and firms to undertake investments with positive returns. The ability to finance riskier, higher-growth business plans is especially important. An efficient financial sector is an essential ingredient in a more productive economy.

### Inclusive growth

We want economic growth to improve people's lives, so the benefits of growth must reach people if that purpose is to be fulfilled. One of the 'universal values' behind the SDGs is *leaving no one behind*, which is about eradicating poverty but also ending discrimination and other forms of exclusion.

The total productivity return on investment consists of the resulting net increase in real incomes for workers and consumers, summed across the economy. But a dollar makes more of a difference to the life of a poor person than to a rich person. The impact return on investment is therefore larger, all else equal, when it benefits poorer people. Inclusion is about more than reaching lower-income members of society. Discrimination also unjustly excludes women and minorities from economic opportunities, which is harmful in its own right, and is also a source of inefficiency.

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There is evidence that private investment indirectly benefits poorer sections of society, on average, but the economic mechanisms that share the benefits of growth across society do not always operate. Many of the forces that drive inequality are outside of the control of investors in private enterprises, but investments that increase the degree of competition between firms for workers and customers can reduce inequalities.

### **Sustainable growth**

The development purpose of investment is to raise productivity and enable a higher standard of living for all. Climate change and environmental degradation are the opposite of investment: destruction. An economic definition of sustainable development is that people's welfare does not decline over time. That will require an economy that protects and restores natural capital. Investments that accelerate the transformation to a zero-carbon economy, and help society adapt to global heating, may be more important for long-run development than almost anything else that humanity could invest in over the coming century. Green growth is an opportunity for investors because many of the investments required to move the economy onto a sustainable footing will be profitable, but the world cannot rely on the profit motive alone and government intervention is needed.

## **Productive, sustainable, and inclusive**

Meeting the SDGs and commitments under the Paris Agreement requires three things: economies must grow to provide decent jobs and raise living standards for all; economic activity must be transformed to become environmentally sustainable; and the benefits of growth must be shared across all sections of society. The role of investment in development is to help build economies that are productive, sustainable, and inclusive. These are the three strategic development impact objectives that CDC has set for the 2022-26 period, against which all our investments will be judged.

### **The role of development finance institutions**

DFIs are publicly-owned entities that invest in private enterprises. Why should the state intervene so directly in private markets? The short answers are efficiency and equity. Private markets are inefficient when the social returns to investment differ from the private financial returns, which means that private investors motivated by profits will invest too much in the wrong things and too little in the right things, from society's point of view. Private markets can also result in unacceptable inequality. DFIs exist because even after governments set regulations and apply taxes and subsidies to try to correct for misalignment between private and social returns to investment, some socially-beneficial investments will still require direct support.

A fundamental problem is that the current supply of capital in Africa and South Asia from domestic and international financial markets is insufficient to reach global development goals. DFIs can make a meaningful contribution to financing gaps in some areas, but they are small relative to need. Mobilising private co-investment can increase DFIs' financial firepower, but rhetoric has run ahead of reality. An additional trillions of dollars of investment in Africa and South Asia would represent a sustained investment boom that DFIs are unlikely to bring about singlehanded. DFIs can mobilise private investment directly as co-investors, and indirectly through making transformational investments that result in further investments by others. Concessional finance can be used to induce private investment, although is not necessarily good value for money.

Economists advocate public interventions in private markets to compensate for what they call 'market failures', a term that refers to numerous reasons why market outcomes leave room for improvement. Some market failures affect the supply of investment, others the demand for it. Information and contract enforcement problems impede supply; externalities that mean social costs and benefits are not reflected in prices result in the demand for investment being



*Climate change and environmental degradation are the opposite of investment: destruction.*



*Private markets are inefficient when the social returns to investment differ from the private financial returns.*

misaligned with what society needs. Environmental damage, especially carbon emissions, are a negative externality and their solutions generate positive externalities that justify public support. The social benefits from creating of decent jobs, from pioneering investments that generate knowledge others can use, and production externalities through production networks, are all reasons for DFIs to support investments that private markets would not.

Private markets can also produce unacceptable inequalities. A second reason for DFIs to intervene in private markets is to push them towards more equitable outcomes. The relationship between individual investments and inequality is context dependent. All successful private investments tend to enrich their owners and managers, but they do not all increase inequality. Investments that increase competition for workers and customers, which create better jobs for low-income people, or reduce the prices of goods and services they consume, should reduce inequality.

DFIs have limited abilities to directly reach people living in extreme poverty, and their shareholders have more effective instruments at their disposal for that purpose. The primary role of DFIs is to reduce poverty over the long run, changing the economic environment by growing the more productive formal sector.

The traditional demand-led model of development finance limits DFI investments to the set of investment opportunities that are unappealing to private investors and yet still offer a reasonable probability of producing a commercially successful business. DFIs can increase the supply of investment opportunities by funding project development, pursuing more entrepreneurial strategies, and by moving into upstream 'advisory'.

Although all DFI investments can be seen as a subsidy of sorts, DFIs try to distinguish between their main investments which are made on commercial terms, and explicitly concessional finance. By pricing on commercial terms, DFIs ensure that firms who have no need of their support see no advantage to getting it, which helps increase the probability that their investments are additional. DFIs can use concessional finance to make investments viable when justified by development impact. Some of the world's most pressing development challenges will require larger subsidies for investment than DFIs can provide within existing their financial parameters.

### **Where DFIs can have the most impact**

The best investments will be productive, sustainable, and inclusive, but often investments will be stronger along one or two of these dimensions.

DFIs can have the greatest impact from investments that raise productivity in three main ways: by increasing the supply of inputs whose high price or lack of availability is a meaningful constraint on the activities of many firms; by generating knowledge or catalysing markets that will affect the behaviour of many firms; by raising productivity in sectors that are important for specific global development goals, such as housing and healthcare.

Investments can have the greatest impact on sustainability by increasing the supply of affordable and reliable green electricity; pioneering technologies and business models in hard-to-decarbonise sectors; in the restoration and protection of natural capital; and pioneering approaches towards adapting the economy to the consequences of climate change.

DFIs can have the greatest impact from investments that are inclusive by investing in agriculture, labour-absorbing manufacturing and business services, and some digital and 'gig' economy businesses, by making investments likely to stimulate growth in the poorest countries, and by supporting new entrants or incumbents that want to grow through innovation and price cutting that increases the competitiveness of markets.

Investments in the financial sector that have the greatest impact include: backing pioneering and impact-oriented private equity and venture capital investors; supporting the geographical expansion of formal banking and supplying liquidity to support long-term bank lending; helping microfinance institutions to offer more flexible terms, savings and insurance; and supporting the responsible expansion of digital banking and mobile money.



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## Introduction

**Development is about improving people's lives and protecting the planet that sustains us. CDC Group exists to accelerate development in Africa and South Asia, in accordance with the 2030 Agenda for Sustainable Development and the Paris Agreement treaty on climate change.**

This paper surveys development economics and its implications for the role of DFIs. The objective is to identify how DFIs' investments can make the greatest contribution towards these global development goals.

The first section starts by exploring the relationship between productivity and people's standard of living, the need for investment, and where investment can have the largest impact on productivity. It then turns to the importance of distribution, or who benefits from economic growth, and the need to transform the nature of economic activity to protect the environment so that future generations can maintain a high standard of living.

The next section examines the role of publicly-owned DFIs to intervene in private markets, thereby increasing the quantity and quality of investment, compensating for market failures and reducing inequalities. It also discusses aspects of how the instruments of development finance are deployed.

The final section draws these arguments together to identify where DFIs can invest to have most the impact.



*The objective is to identify how DFIs' investments can make the greatest contribution towards global development goals.*

## CDC's strategic impact objectives

CDC's mission is to help solve the biggest global development challenges, by investing patient, flexible capital to support private sector growth and innovation. Our view is that three things are needed to achieve the UN's 2030 SDGs, and meet commitments under the Paris Agreement:

1. Economies must grow to provide decent jobs and raise living standards for all.
2. Economic activity must be transformed to become environmentally sustainable.
3. The benefits of growth must be shared across all sections of society.

We have therefore set ourselves three strategic development impact objectives over the 2022-26 period, against which all our investments will be judged. We shall prioritise investments that are productive, sustainable, and inclusive:

- **Productive:** Making investments that help to raise the productivity of economies, including by catalysing markets and generating widespread spillover effects, so that they can support higher incomes and a decent standard of living for all.
- **Sustainable:** Making investments that help to transform the economy to reduce greenhouse gas (GHG) emissions, protect the environment and increase climate resilience, and contribute to a cleaner, greener planet.
- **Inclusive:** Making investments that share the benefits of higher productivity and greater sustainability with the poorer and more marginalised sections of society.

More detail on these strategic development impact objectives will be shared in our forthcoming strategy.



## 02

### The economics of development

- Development is about more than the material standard of living, but higher consumption is the aspect of development that is most relevant to investors.
- The developmental purpose of investment is to increase productivity and the sustainable level of consumption.
- Most people derive income from work, and their real wage determines their level of consumption.
- When economies become more productive and competitive, wages rise relative to prices.

The philosopher and economist Amartya Sen famously argued that development should be understood in terms of human wellbeing, which requires a set of political, social and economic freedoms that together confer “our capability to lead the kind of lives we have reason to value” (Sen, 2001). Many of these capabilities are associated with higher incomes and are more often found in wealthier societies (Pritchett, 2021). Measuring human happiness is difficult, but surveys show richer individuals are usually more satisfied with their lives than poorer individuals, and average life satisfaction is higher in richer countries.<sup>1</sup> If we did not believe that life is – in many important ways – worse when you are poor and better when you are richer, the legislated purpose of UK Aid to reduce poverty, and widespread concern with inequality, would be harder to explain.

<sup>1</sup> See Stevenson & Wolfers (2013). The relationship between self-reported wellbeing and income depends on whether people are being asked about what Deaton & Stone (2013) call “hedonic” measures (questions such as: “how happy are you today?”) or “evaluative” measures (questions such as: rate your life on a scale of 1-10”). Hedonic measures are uncorrelated with education, vary over the days of the week, improve with age, and respond to income only up to a threshold. Evaluative measures remain correlated with income even at high levels of income, are strongly correlated with education, are often U-shaped in age, and do not vary over the days of the week. There is some evidence that hedonic happiness adjusts to changes in income.

The 2015 SDGs describe a minimum standard of living that should be available to all (along with some requirements to bring that about). The first target under SDG1 is the eradication of extreme poverty, defined as level of consumption below \$1.90 per day, in purchasing power parity terms. That represents an incredibly low standard of living. The Dollar Street website, maintained by the Swedish foundation Gapminder, describes the lives of households living at different levels of monthly income, and should quickly dispel any misconceptions that people living beneath a higher poverty line, such as \$5.50 per day, have an acceptable standard of living.<sup>2</sup> The world's development aspirations must extend far beyond that.

Basic needs such as food and healthcare, and high-quality infrastructure, are development priorities, but they are not all that matters to people. For example, even the poorest households choose to spend some of their money on weddings and other social events. (Banerjee & Duflo, 2007). The word 'consumption' can have negative connotations of materialism, but economists use it to refer to expenditure on things that contribute to a person's immediate standard of living, and would include those that are not purchased privately but also goods and services provided by the government (or by nature). When we think about the purpose of investment and economic growth, we should have a broader conception of what contributes to a high standard of living than the expenditures that are typically captured in the consumption data used to measure poverty. The pleasure a person derives from living in a safe and attractive neighbourhood, or from spending time in a park with friends, or even from the knowledge that wildernesses exist, can all be seen as a form of consumption.<sup>3</sup> A person's experience at work is an important element of their quality of life, and better working conditions could be thought of as form of consumption that requires a higher level of productivity to sustain.<sup>4</sup> The purpose of investment is to expand production – economists define an investment in the real economy as something that raises future output.<sup>5</sup> The reason we want more investment in poorer countries is to increase the sustainable level of consumption, broadly conceived, that people can enjoy.<sup>6</sup>

The level of consumption that people can enjoy is largely determined by the quantity of consumption goods and services the economy they live in can produce.<sup>7</sup> Economic growth is not an end in itself, but for the world's poorer countries, growth is necessary to achieve the SDGs and support a higher standard of living. The key to economic growth is increasing productivity. Productivity is usually measured in two ways: output per worker; and 'total factor productivity' (TFP), which adjusts for other inputs than labour, especially capital.<sup>8</sup> TFP captures the idea that two countries or firms with the same quantities of inputs may produce different quantities of output. Output per worker might increase because a country (or firm) has added more inputs, especially capital, or because it has increased the efficiency with which its inputs are used (TFP).



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2 Dollar Street.

3 Arrow et al., (2014) discuss natural capital as a consumption good.

4 Economics usually treats work as something unpleasant that must be financially compensated, but there is plenty of evidence people sometimes derive satisfaction from work. The unhappiness caused by unemployment is generally agreed to be larger than the mere loss of income would explain. See Kaplan & Schulhofer-Wohl (2018); Nikolova & Cnossen (2020) and Rätzel (2012).

5 This contrasts with investment in the financial sense, such as buying bonds. Financial investment may or may not finance investments in the real economy. Investments in the 'real economy' includes tangible and intangible capital. Education and training can be seen as investments in human capital.

6 Some investments reduce carbon emissions or other environmental harms without increasing output. But by reducing environmental degradation such investments are indirectly increasing the level of production and consumption that is sustainable over the long run.

7 International trade expands consumption possibilities and running a trade deficit may allow a country to consume more than it produces, for some time.

8 In simplified theory productivity defines the maximum possible level of output, given inputs. An economy may produce less than it is capable of if those inputs are not fully utilised (Fernald, 2014). Estimates of TFP will vary depending on the model being used. Once you are doing more than measuring output per worker, you must impose some structure on how different inputs are combined to produce outputs, and there is no 'right' way of doing that.

Investments can increase output per worker by increasing the quantity of capital (tangible and intangible) that is employed alongside workers in production, but they can also raise TFP by introducing new technologies and by being accompanied by new ways of organising production.

Economists tend to agree that the wealth of nations is only partially explained by some countries having invested more than others (Caselli, 2005). There is some disagreement because of various conceptual and pragmatic difficulties with accounting for growth, but the most common conclusion is that the efficiency with which inputs are used is responsible for much of the difference between rich and poor countries, as opposed to differing quantities of inputs. The observation that some countries seem to produce more than others, relative to their inputs, does not explain why. TFP is often called “a measure of our ignorance” (Abramovitz, 1956). Economists have various explanations for what lies beneath estimated differences in TFP, such as the adoption of different technologies or organisational forms, and the more (or less) efficient allocation of capital and workers across and within firms. These ‘proximate’ explanations also call for deeper explanations: why do some countries shift to adopting more advanced technologies, or to allocating labour and capital more efficiently?<sup>9</sup>

## Governments and the public sector

This paper focuses on DFIs that invest in private enterprises. Its presentation of development economics concentrates on the private sector and sets aside the role of government and public investment. The public sector is tremendously important for development. It creates the institutional environment in which the private sector operates. It is an important source of productive investments that are used by private firms, such as infrastructure. Government provision is the key to universal access to basic services such as health and education, and social protection. Besley et al., (2021) show how good government is the foundation of prosperity. Eden & Kraay (2014) show that higher public investment in low-income countries results in higher private investment.

The role of government in influencing the direction of private investment through industrial policy is discussed below in “Industrial Policy and Historical Examples of Rapid Growth”.

Seen from the perspective of an individual worker (or household), consumption is constrained by real income – or purchasing power. Economists define the real wage as  $W/P$  – the nominal wage divided by the price level. An individual can consume more if their individual income rises, or because the prices that they face fall. Of course, real wages vary greatly across individuals, depending on occupation, but at the economy-wide level the real wage is set by two things: the share of output paid out as wages and the economy’s level of productivity. Workers will not be able to afford lots of goods and services unless the economy can produce lots of goods and services per worker.<sup>10</sup> The labour share of income has been falling in many countries, which has given rise to greater inequality as capital income is concentrated among fewer people.<sup>11</sup>

» *An individual can consume more if their individual income rises, or because the prices that they face fall.*

9 Economists are still debating the relative importance of ‘institutions’, including the legacy of colonialism and slavery, and geography, including temperature. See Burke et al., (2015); Galor, O. (2005); Rodrik et al., (2004); Nunn, N. (2004), and Acemoglu & Robinson (2019).

10 Suppose an economy produces output  $Y$  using only labour  $L$ , and the level of productivity  $A$  determines how much output is produced per worker:  $Y=AL$ . That implies 1 unit of output requires  $1/A$  units of labour. Firms set prices as a mark-up over wage costs:  $P=(1+m)W/A$ . Although we are excluding capital here for simplicity’s sake, we can imagine the mark-up represents returns on capital. The real wage (expressed in units of output) is thus:  $W/P = A/(1+m)$ . The mark-up cannot fall below zero, but productivity ( $A$ ) can grow without bound, so in the long-run wages are mostly about productivity.

11 See Grossman & Oberfeld (2021) for a discussion of why this has happened.

The wages that a firm pays do not always mirror a worker's contribution to its productivity – because some firms have the market power to hold down wages – but a firm's productivity sets the ceiling for its wages. A firm cannot sustainably pay its average worker more than its average value-add per worker. It is important to recognise that a worker's real wage is not just constrained by the productivity of their employer (or self-employment), but also by the productivity of the wider economy, which together with the competitiveness of markets determine prevailing real wages. British hairdressers are paid far more than a century ago, not because they cut more hair per hour, but because the rest of the British economy is much more productive.

When an investment raises productivity, that creates a stream of benefits that can be shared between workers (as higher wages), consumers (as lower prices), and investors (as higher returns). In the context of development, we may place less importance on benefits enjoyed by investors and senior management, and most weight on gains for worker and consumers.<sup>12</sup> Firms share the benefits of higher productivity with consumers because in a competitive market commercial success comes from offering customers something at a quality and price that they prefer to the alternatives. Market power – which is called monopoly power in product markets and monopsony power in labour markets – gives firms the ability to hold prices up and wages down, and channel more income to investors and senior executives. There is also evidence that market power discourages innovation and results in the misallocation of resources in the economy, so in addition to affecting how equitably the fruits of economic growth are shared, excessive market power also depresses productivity and hence growth (Baqaee & Farhi, 2020; De Loecker et al., 2020; De Ridder, 2019). Inequality is high in Africa and South Asia, and the evidence is that many markets are uncompetitive (World Bank, 2016b).



*When an investment raises productivity, that creates a stream of benefits that can be shared between workers (as higher wages), consumers (as lower prices), and investors (as higher returns).*

## 2.1 From individual investments to overall productivity

- Development is about more than the material standard of living, but higher consumption is the aspect of development that is most relevant to investors.
- The developmental purpose of investment is to increase productivity and the sustainable level of consumption.
- Most people derive income from work, and their real wage determines their level of consumption.
- When economies become more productive and competitive, wages rise relative to prices.

An investment should contribute to economic growth simply by increasing the productivity of the firm that undertakes it, or by increasing its scale. Over time, more productive firms should replace less productive firms, through process known as 'creative destruction', so that the average level of productivity across firms increases and the overall economy grows.<sup>13</sup> The word 'destruction' reminds us investments can also have negative effects through livelihoods that are lost elsewhere in the economy. But investments can have a much larger impact on overall productivity than raising productivity one firm at a time.

<sup>12</sup> Returns on investment are the source of returns on savings, but if we presume that wealth in Africa and South Asia is concentrated, then labour income (including self-employment) is much more important to most people. Returns on investment are thus the means to an end because returns are necessary to induce investment and to be recycled into further investments, which ultimately results in higher real wages.

<sup>13</sup> Overall productivity growth comes from a combination of existing firms raising their productivity, new more productive firms entering and growing, and less productive firms shrinking and exiting. The relative contributions of the growth of incumbents, and entry and exit, can be hard to untangle. Foster, Haltiwanger & Krizan (2001). In the US, it appears most growth derives from incumbents improving existing product varieties (Garcie-marcie et al., 2019).

Economists use a concept called ‘consumer surplus’ to capture how the benefits experienced by the consumers of goods and services exceed the prices paid for them. Investments create consumer and income for workers and investors. Investments can affect the productivity of many firms, both positively and negatively. We might think of the total ‘productivity return’ on investment as consisting of the resulting net increase in income for workers, plus changes in consumer surplus, summed across the economy (before digging into the details of precisely who benefits in what ways). DFIs sometimes refer to investments as transformational, when they change something that will result in further investments by others.<sup>14</sup> The investments that have the greatest impact on economic growth and overall consumption are those that result in productivity-improving investments by many other firms. There are two main mechanisms through which investments in one firm can spill over to the productivity of other firms: by the generation of knowledge and via linkages and complementarities in production networks.

## 2.2 Knowledge generation

- Modern economic growth was possible because knowledge can be easily shared, and new methods replicated.
- Development happens as countries learn what can be produced profitably.
- Investments can have a large economy-wide impact by creating knowledge that can be used by others, so that other firms invest and raise productivity.
- Investments can also affect the behaviour of other firms by creating competitive markets.

The economist Paul Romer won the Nobel Prize in Economics for formalising how modern economic growth was made possible from the creation and diffusion of knowledge.<sup>15</sup> Unlike other economic inputs, once knowledge is created it can be used many times without being depleted, and can spread rapidly across people, firms and countries. Romer modelled how private firms have incentives to create knowledge when they have enough market power to profit from it. But to a large degree, knowledge is a public good, and a core idea in economics is that private actors will not invest enough in public goods because they are only interested in investing to the extent they can capture private financial returns.

Some knowledge is local. Economic development can be seen as a process of self-discovery (Hausmann & Rodrik, 2003). The firms that operate in a country must discover what can be produced profitably there, and how. Once that knowledge has been created, other firms can use it. Innovation means more than inventing new technologies, it also means learning how to turn a new technology into a commercially successful business model at scale, and how to adapt old technologies to succeed in new contexts. Innovative business models and processes can be as important as new innovative technologies (in the sense of computers and machinery).



*Economic development can be seen as a process of self-discovery.*

<sup>14</sup> In the context of climate finance, World Bank (2018) says a programme or project is transformational if “its implementation would make it easier to implement future programmes or projects that will reduce emissions or boost resilience in a meaningful way”, but the idea of an investment that will lead to further investments is more general. The word transformational is also sometimes used in a more ambitious way, as something that will “support deep, systemic, and sustainable change with the potential for large-scale impact in an area of a major development challenge” (World Bank, 2016a). That is not how the word is being used here.

<sup>15</sup> Chad Jones provides a non-technical summary on the Vox EU website “New Ideas about New Ideas”.

Investments can therefore have a large economy-wide impact by raising the productivity of many other firms when they create knowledge that can be adopted by others, resulting in further investments. DFIs often refer to this as having a ‘demonstration effect’. Development finance’s role in standards-setting, through high business integrity and environmental, social and governance (ESG) standards, is important here.

Investments can also influence the behaviour of others through the effects of competition. A new entrant might prompt an incumbent firm to lower its prices or increase investment in innovation. Market creation is an area in which DFIs’ investments can be complemented by policy advisory, which in combination can address constraints to market development.<sup>16</sup> By supporting the creation of well-functioning markets, DFIs can achieve development impact well beyond the confines of the individual investment project.

### 2.3 Spillovers in production networks

- Firms are embedded in ‘production networks’ of suppliers and customers.
- When there are complementarities in production networks, low productivity in one area can have a large effect on overall productivity.
- Low productivity in important intermediate goods forms ‘weak links in the chain’ of the economies of poor countries.
- Investments that raise productivity in ‘central’ areas of production networks can have large positive spillovers on economy-wide productivity.

A production network describes how firms trade with each other, from the production of raw materials, through intermediate goods and services, to final goods and services. When the network becomes more productive, the economy grows. Some investments with ‘multiplier’ effects through spillovers to other firms in the production network can have an outsized impact on growth.

Even before considering linkages and complementarities, investment can have a multiplier effect. If a certain share of output is invested, more investment leads to more output, which leads to more investment (and so on). This process peters out quite quickly – its power is determined by how responsive output is to investment, and it might mean the initial impact is multiplied by, say, 1.5 times. If one expands the notion of investment to include investments in human capital – people investing in themselves to raise their productivity – that adds to the multiplier and might take it to, say three times. That is still not enough to explain the large difference between rich and poor countries, without appealing to large (and unexplained) differences in TFP. Jones (2013), shows how introducing intermediate goods to this model amplifies the multiplier effect, with the result that a combination of small differences in investment rates and the share of intermediate goods in production could explain the large differences in GDP between rich and poor countries, with only relatively small differences in TFP.<sup>17</sup>

Things get more interesting again when we consider complementarities in production. Intermediate goods do not always generate complementarities across production networks. Firms that use office stationery will benefit if it becomes cheaper, but they are unlikely to become more productive themselves as a result. Two firms that trade in a production network are complements when the productivity of one increases the productivity of the other. The more important those complementarities are, the more it matters to have the right combination of inputs in the production network. In the most extreme form, output is zero otherwise.

<sup>16</sup> See the March 2021 edition of the IFC’s EMCompass: *Promoting Impact by Creating Markets: Management and Measurement* for further discussion.

<sup>17</sup> If industries are vertically integrated, rather than buying intermediate inputs from firms upstream in the supply chain, intermediate goods are less visible. This does not really alter the conclusion that if production involves many steps, then changes in the productivity of those steps can have a large overall impact.



*By supporting the creation of well-functioning markets, DFIs can achieve development impact well beyond the confines of the individual investment project.*

When there are complementarities in production networks, low productivity in important intermediate goods producers (including the financial sector) has a magnified impact on overall productivity. Misallocation also becomes even more important. Two countries might be suffering from equally low productivity in an important intermediate good, such as transportation, but if one efficiently allocates more resources to transportation to compensate, and the other does not, its overall output will be much higher. Complementarities also amplify the harm done by market power. Seen in this way, countries are poor because they have too many ‘weak links in the chain’ of production.

Growth diagnostics can help identify the sectors (or sub-sectors) that are holding an economy back. The idea is that while many things are important for growth, they are not all equally important at the same time.<sup>18</sup> Problems in some areas act as ‘binding constraints’, and if those problems can be mitigated then economic growth will follow – at least until the next constraint starts to bind.

The possibility of complementarities in production lies behind old ideas about development (now coming back into fashion) about the need for a ‘big push’ in which many things need to happen at once.<sup>19</sup> Linkages and complementarities provide a justification for active government industrial policy to direct investment and knowledge generation at ‘central’ points in the production network, where productivity improvements will have a large spillover effect on overall productivity (Liu, 2019). Firms that have a central position in a production network are those that supply many other firms. Because exporting generates foreign currency to pay for imports, which are inputs to production, the tradeable sector is indirectly central to production networks. The evidence shows that sustained episodes of poverty reduction are almost always accompanied by rapid export growth.<sup>20</sup>

But while intermediate goods and complementarities have the potential to explain large differences in overall productivity across countries, they also suggest a reason why attempts to diagnose and alleviate constraints to economic growth can have disappointing results. Jones writes: “if a chain has a number of weak links, fixing one or two of them will not change the overall strength of the chain”. If so, addressing one or two “binding constraints” on growth may not have the desired impact. If we change the focus of growth diagnostics to identifying the constraints on the development of individual sectors or markets, it may be more realistic that only a few things are holding progress back.

Complementarities in production networks raise the intriguing possibility of a ‘sweet spot’ for DFIs. In markets or sectors with no real problems, the scope for impact via spillovers is small. Where there are too many problems, fixing a few of them will not have much overall impact either. Somewhere in the middle is the possibility of making a big difference by fixing weak links and strengthening the production chain.



*Problems in some areas act as ‘binding constraints’, and if those problems can be mitigated then economic growth will follow.*

18 Rodrik (2010) is a good introduction to growth diagnostics, with the added attraction of an excellent potted history of development economics.

19 Rosenstein-Rodan, P. N. (1961) is an early articulation of ‘big push’ development; Murphy et al., (1989) is a more recent incarnation. Kremer, M. (1993) shows how complementarities matter when workers must combine without making mistakes to produce high value output, which may explain why rich countries produce more complicated products, have larger firms and much higher productivity.

20 See *The case for tradable growth* by Nick Lea on the VoxDev website.

## 2.4 The role of finance

- In rich countries the benefits of the financial sector are questionable, but in poorer countries the financial sector is too small, and households and firms lack access to it.
- The most important role of the financial sector for development is to supply capital to entrepreneurs and firms to undertake positive return investments.
- The ability to finance riskier, higher-growth business plans is especially important.



*The financial sector is instrumental to growth when it enables entrepreneurs and firms to undertake investments with positive returns.*

Investments must be financed. The financial sector is instrumental to growth when it enables entrepreneurs and firms to undertake investments with positive returns. The financial sector affects both the quantity of capital and the efficiency with which it is allocated.

Economists draw a distinction between the social return on investment – the overall benefit to society – and the private return as captured in a firm's revenues. We might think of the social return on investment as the resulting economy-wide long-run change in consumption. Private firms and investors motivated by private returns won't necessarily put enough money into investments with large social returns, hence there is a role for public development finance institutions, which is covered in Section 3. But investments motivated by private financial returns can also have large social returns, so it is important these receive the finance they need. In poorly-functioning financial sectors, not all investment opportunities that offer positive private financial returns will be financed.<sup>21</sup> Jones & Summers (2020) look at what they call "innovation investments" in the US, and conclude that a "conservative estimate of the average social gains is about \$5 in benefit per \$1 invested". If something similar is true in other countries, a financial sector capable for putting growth capital into the hands of innovative firms and entrepreneurs, rather than sticking with lower risk borrowers with long credit histories and ample collateral, has enormous social impact.

Finance is not an unalloyed good. Credit deepening, which is about allocating savings towards productive investment, is very different to a private debt boom to finance consumption, which often ends in a recession or full-blown financial crisis (Verner, 2019; Mian et al., 2020). Opening to international capital is a double-edged sword for developing countries. However, foreign direct investment (FDI) is much more benign than volatile flows into bonds and other more liquid assets, and brings with it benefits such as knowledge transfers. In advanced economies there are suspicions too much financial sector activity involves zero-sum speculation of little social value (Zingales, 2015). But economic development is strongly associated with higher ratios of private debt to gross domestic product (GDP), and the countries in which DFIs invest are overwhelmingly likely to be in the 'too little' rather than 'too much' stage of financial development.

There is ample evidence that firms in developing countries find it hard to access the finance they need, and that interventions to expand the supply of credit have a positive impact on firm growth.<sup>22</sup> Poor countries are particularly unproductive in tradable and investment goods sectors, where production takes place on a larger scale with greater need for external finance, and are therefore disproportionately affected by inefficient financial sectors (Buera et al., 2011). A strong and competitive financial sector matters for the overall level of investment and economic growth (Arcand et al., 2015), the efficiency of investment allocation (Bau & Matray, 2020) and the rate of innovation and the adoption of new technologies by firms (Gorodnichenko & Schnitzer, 2013; Buera et al., 2015; Mare et al., 2021). A stronger financial sector also enhances the effects of other parts of the economy, such as trade or FDI (Azman-Saini & Law, 2010; Kohn et al., 2020).

<sup>21</sup> Kaboski (2021) surveys the evidence that 'frictions' which impede the functioning of the financial system are responsible for poverty.

<sup>22</sup> See Bigsten et al., (2003) and Banerjee & Duflo (2014) for examples and Ogden (2019) for a survey. Household finance is also important for welfare, largely for allowing people to cope with emergencies. Initial hopes that microfinance would result in many small businesses have been replaced by the realisation that only a few borrowers are growth-oriented entrepreneurs (Banerjee et al., 2019).

## Industrial policy and historic examples of rapid growth

A complete account of how today's wealthy countries achieved economic growth would require, among other things, a reckoning with the legacies of colonialism and slavery, the history of global trade and the origins of the industrial revolution. It would also involve a discussion of 'deep' determinants of economic activity, such as geography, and an account of the origins and consequences of political and social institutions.

More directly relevant to contemporary development finance is the experience of countries that recently moved from low to middle income status. In 2008, the economist Michael Spence chaired a Growth Commission that examined the 13 economies to have grown at an average rate of 7 per cent a year or more for 25 years or longer, since 1950.<sup>23</sup> Although these countries exhibited many important differences, and not all managed to sustain growth all the way to high income status, the Commission identified five shared characteristics: they fully exploited the world economy; they maintained macroeconomic stability; they mustered high rates of saving and investment; they let markets allocate resources; and they featured committed, credible, and capable governments. These countries exploited the world economy by importing ideas, technology and know-how from the rest of the world. They also exploited global demand, which provided a deep, elastic market for their goods. Based on these country experiences, and contributions from economists, the Growth Commission recommended that growth policy focuses on five themes: accumulation (including infrastructure and skills); innovation; allocation (of capital and labour into certain industries); stabilisation; and inclusion.

A long-standing concern in development policy has been that when poor countries focus investment on their comparative advantages (often basic commodities) this traps their economies in sectors where it is hard to exploit increasing returns to scale and benefit from technologically-driven productivity growth (Redding, 1999). Government intervention to direct investments towards more dynamic sectors of the economy played an important role in the century's economic success stories. Industrial policy, once discouraged under the Washington Consensus, is back in vogue (Cherif & Hasanov, 2019).<sup>24</sup> There is some evidence that in successful examples of industrial policy, investment was directed towards sectors with large positive spillovers in production networks (Lane, 2019; Liu, 2019).

Most accounts of successful industrial policy emphasise the importance of a strong state that can work closely with commercial actors, without being captured by them (Bardhan, 2016). Some of the debate around industrial policy concerns whether today's low income countries have the capacity to successfully implement it (Altenburg & Lütkenhorst, 2015). Ang (2016) recounts how Chinese bureaucrats were given incentives to attract private investment and were allowed to improvise, which perhaps tell us that sophisticated centralised planning and implementation is not the only way to succeed.

There are also debates about where investment should be directed today. The traditional path of development was one of structural change, where workers moved first out of agriculture into manufacturing, and then into services. But the rise of automation means there are fewer opportunities in labour-intensive high value-add manufacturing, and there are signs that the manufacturing share of employment is peaking in countries at lower levels of income than it did for the fast-growing Asian economies (Rodrik, 2016). Possibly, the services sector, transformed by new digital technologies, will offer today's lower income countries an alternative path out of poverty (Ghani & O'Connell, 2014; Aiginger & Rodrik, 2020).

23 Botswana; Brazil; China; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; Malta; Oman; Singapore; Taiwan, China; and Thailand.

24 *Where are we in the economics of industrial policies?* by Dani Rodrik, published on the VoxDev website in 2019 is a good survey. Lane (2020) is an excellent discussion of the challenges in identifying the effects of industrial policy (positive and negative) through empirical research.

## 2.5 Sharing the benefits of higher productivity

- Investment serves little development purpose if its benefits are concentrated in small sections of society.
- A dollar makes more of a difference to the life of a poor person than to a rich person. The ‘impact return’ of an investment is therefore larger, all else equal, when it benefits poorer people.
- Discrimination unjustly excludes women and minorities from economic opportunities, which is harmful in its own right and is also a source of inefficiency.
- There is evidence that investment indirectly benefits poorer sections of society, on average, but the mechanisms that share the benefits of growth across society do not always operate.
- Many of the forces that drive inequality are outside of the control of investors in private enterprises, but investments that increase the degree of competition for workers and customers can reduce inequalities.

We want economic growth to improve people’s lives, so the benefits of growth must reach people if that purpose is to be fulfilled. One of the ‘universal values’ behind the SDGs is *leaving no one behind*, which is about eradicating poverty but also ending discrimination and other forms of exclusion.<sup>25</sup>

Economists routinely assume something called the ‘diminishing marginal utility of consumption’, which means that as people get richer each dollar of increased consumption does less to improve the quality of life.<sup>26</sup> There is no definitive answer to how rapidly the additional welfare derived from higher consumption declines as people get richer, but a typical assumption would be to treat the same percentage changes in consumption, from different initial levels of consumption, as having the same impact on the quality of life.<sup>27</sup> Under that assumption, increasing an individual’s real wage from \$2 to \$3 per day would do the same for the sum of human happiness as increasing someone else’s real wage from \$4 to \$6.<sup>28</sup> Seen in this way, the question of who benefits from the productivity resulting from an investment is hugely important. The ‘impact return’ of an additional dollar of consumption is twice as high in the hands of someone with half as much to begin with. This implies that when the benefits of growth are concentrated among the already well-off, the overall impact of investment on human welfare shrinks rapidly. If we look beyond the welfare lost through the simple inequality of consumption, to the social, cultural, and political consequences, then inequality may become positively harmful.

Across countries and over time, economic growth is usually associated with poverty reduction. Dollar et al., (2016) found the incomes of the poorest tend to rise at the same rate as the overall average, because changes in inequality have been uncorrelated with changes in average income. More recently, Pande & Enevoldsen (2021) found growth has become more associated with higher within-country inequality, and has therefore brought fewer benefits to the poorest people. They attribute this to the process of economic structural change becoming less favourable, because of fewer high productivity, labour-absorbing employers.



*We want economic growth to improve people’s lives, so the benefits of growth must reach people if that purpose is to be fulfilled.*



*Across countries and over time, economic growth is usually associated with poverty reduction.*

<sup>25</sup> UN Sustainable Development Group: Leave No One Behind.

<sup>26</sup> That implies redistribution from rich to poor increases total welfare. Under a simple utilitarian approach, the sum of human happiness is maximised under perfect equality. Of course, life is much more complicated than a model in which welfare is a simple function of consumption, and redistribution might be unjust and violate people’s rights (Fleurbaey, 2019). Redistribution also affects incentives and may reduce productivity.

<sup>27</sup> Which amounts to assuming that utility (welfare) is a logarithmic function of consumption.

<sup>28</sup> The UK Government Green Book, which sets out how cost benefit analysis should be conducted, discusses distributional weights, noting: “Broadly, the empirical evidence suggests that as income is doubled, the marginal value of consumption to individuals is halved: the utility of a marginal pound is inversely proportional to the income of the recipient.”

Higher rates of private investment are associated with faster reductions in the rate of extreme poverty, across countries and over time (CDC, 2021). If we presume the average private sector investment does not directly touch the lives of the very poorest members of society, then there are evidently some mechanisms that result in investments benefiting the poorest indirectly. But there are many examples of countries in which decades of economic growth did very little for the bottom half of the population. So, these indirect mechanisms – sometimes referred to as trickledown economics – through which the fruits of economic growth are shared with the poorest members of society, do not always operate.<sup>29</sup> Other forces, which include tax policy, relative price increases of basic needs (such as food, housing, health and education) or less equitable public provision, ‘skill-biased’ technological change and job polarisation, and weakening bargaining power of labour versus capital, can result in the gains from growth being captured by the already well-off.

Inclusivity matters in its own right, but it also has an effect on economic efficiency. Hsieh et al., (2019) estimate 20-40 per cent of the growth in output per person in the US between 1960 and 2010 is explained by a reduction of discrimination, with more jobs allocated according to ability rather than being limited to white males. Racism is not limited to white-majority wealthy economies – ethnic and religious prejudices are found across the world. Discrimination takes many forms, with many consequences, but particularly salient in this context is access to capital. Anecdotal evidence that the venture capital industry in Africa is biased towards white expatriates abounds.<sup>30</sup> Ramachandran et al., (2009) surveyed 14 African countries and found that in all but three, foreigners or non-indigenous Africans controlled firms responsible for over 50 per cent of economic value added in industry.

Chiplunkar & Goldberg (2021) found that barriers to female entrepreneurship in India are not only holding down female wages relative to male, for example, but were also depressing overall aggregate productivity by roughly 7 per cent. Across the world, to varying degrees, women have less access to personal financial services, they are excluded from managerial and leadership positions, and they find it harder to obtain finance for their businesses. Helping women fully participate in the economy is not only growth promoting, but it also diversifies the economies, reduces income inequality, mitigates demographic shifts, and even contributes to financial sector stability (Bertay et al., 2020).

Economists no longer believe inequality is a price that must be paid for economic growth. There is a good deal of variation across countries (Ravallion, 2001) and some countries, such as China, have seen rapid growth accompanied by rising inequality, but a typical finding is that lower inequality is usually associated with faster and more durable growth, and that redistribution does not appear to harm growth, except when taken to extremes (Berg et al., 2018). There is some evidence inequality impedes human capital accumulation (Erman & te Kaat, 2019).<sup>31</sup>



*Inclusivity matters in its own right, but it also has an effect on economic efficiency.*



*Economists no longer believe inequality is a price that must be paid for economic growth.*

<sup>29</sup> ‘Trickledown’ economics is not well defined. It would be best applied to mechanisms that work through rich people being made richer, such as cutting taxes on the rich in the hope they will invest more and work harder. Not all indirect mechanisms work in that way. For example, successful investments can indirectly benefit others when they cause other firms to raise wages to recruit and retain workers.

<sup>30</sup> Evidence that Black-owned start-ups struggle to raise external capital is found in Fairlie & Robinson (2020), for example.

<sup>31</sup> Cerra et al., (2021) survey various other mechanisms via which inequality may affect growth, and vice versa.

## 2.6 Investing for an environmentally sustainable economy

- The purpose of investment is to enable a higher level of consumption, but environmental damage destroys productivity and risks consumption becoming unsustainable.
- Investments that reduce GHG emissions, help the economy adapt to global heating, and restore natural capital, may be more important for development than almost anything else humanity could invest in over the coming century.
- Green growth is an opportunity for investors because many of the investments required to move the economy onto a sustainable footing will be profitable. But the world cannot rely on the profit motive alone and government intervention is needed.

The development purpose of investment is to raise productivity and enable a higher standard of living for all. Climate change and environmental degradation are the opposite of investment: destruction. Global heating will leave land barren and unproductive, floods and droughts will wreak havoc on agriculture, and careless resource management means that irreplaceable natural capital is exhausted.

An economic definition of sustainable development is that people's welfare does not decline over time (Barbier, 2016). In principle, that might be achieved if the depletion of productive natural capital can be compensated by reproducible physical and human capital. But there is no reason to consider that as an acceptable outcome if we could do better by preserving natural capital (it is also not acceptable if the natural capital lost is irreplaceable and of intrinsic value). Some forms of natural capital (a term that covers minerals, metals, soils, water, and all living things) are depleted through reasonable use (for example, metal deposits) but others are wantonly wasted for short-term gain at long-term cost to humanity (such as slash and burn agriculture, soil erosion and degradation).

Arrow et al., (2014) found that in some poorer countries, especially in sub-Saharan Africa, genuine investment is negative because degradation is outweighing accumulation. The UK government's Dasgupta Review estimated that between 1992 and 2014, the produced capital per person doubled and human capital per person increased by about 13 per cent globally; but the stock of natural capital per person declined by nearly 40 per cent and concluded we are not on a sustainable path.<sup>32</sup> The Dasgupta Review also found that vital degraded ecosystems, such as coral reefs and tropical forests, are close to tipping into irreversible collapse.

Pessimists have been wrong about resource depletion in the past. In 1980, biologist Paul Ehrlich famously lost a bet that scarcity would result in a set of commodity prices that would rise over the next decade. But the pessimists won't necessarily be wrong forever, and the fact scarcity is not yet showing in commodity prices does not tell us no damage has been done. Biodiversity is worth conserving regardless of its implications for commodity prices. One of the reasons pessimists have been wrong is that as prices rise, substitutes are found. For example, desalinated water is expensive but if scarcity causes food prices to rise at some point it becomes profitable to use it to irrigate arid land. There is plenty of arid land. But food production is the largest cause of environmental destruction today, so the question is not just whether we can find technological solutions to sustain higher levels of consumption should we need to, but also whether that happens before we have irreparably damaged the planet using existing methods.



*An economic definition of sustainable development is that people's welfare does not decline over time.*

<sup>32</sup> The Economics of Biodiversity: The Dasgupta Review (2021).

But while natural capital and resources are tremendously important, it is, of course, climate change that is at the front of everyone's mind. The impact of climate change is uncertain, but even in scenarios that do not assume tipping points into negative feedback loops are reached, if the world does not manage to limit the global mean temperature rise to 1.5 or 2 degrees, the effects will be devastating, and it will be poorer countries closer to the equator that will bear the brunt (Hallegatte, 2016). Higher temperatures are expected to leave large areas of the world almost uninhabitable, especially in tropical zones where the combination of heat and humidity can be fatal (Xu et al., 2020; Zhang et al., 2021).

The evidence is that higher temperatures substantially reduce economic growth in poorer countries, through wide-ranging effects including political instability (Dell et al., 2012). The best estimates suggest unmitigated climate change will reduce output per person in sub-Saharan Africa and South Asia by about 75 per cent by 2100 relative to trend, which – depending on what one assumes about underlying growth – may leave those regions worse-off, in an absolute sense, than they are today (Burke et al., 2015). The impact on agriculture and food security is the most obvious concern.<sup>33</sup> The impact on agriculture is not universally negative, but benefits are concentrated in northern latitudes. Agriculture in poorer countries is both more vulnerable because of the underlying climate and agronomy, and because poverty renders adaptation investments unaffordable (Vermeulen et al., 2012). Higher temperatures also reduce productivity in the manufacturing and services sectors.<sup>34</sup> Higher temperatures impede cognitive performance, affect labour supply (effort and attendance) and cause more workplace accidents (Jisung Park et al., 2021; Somanathan et al., 2021).

The natural world has value beyond its productive capacity. Habitats are worth preserving and restoring for the sake of the flora and fauna they sustain. But as the Dasgupta Review emphasised, our livelihoods depend on nature. From a development point of view, with the objective of enabling a sustainable decent standard living for all, an investment that preserves or restores the productivity of natural capital can be just as important as an investment in software development or a factory. Based on the best projections of the economic impact of global warming, investments that either reduce GHG emissions, or help the economy adapt to their consequences, may be more important than almost anything else humanity may invest in over the coming century.

This is not always about incurring additional costs to avert environmental harms. Many green investments already offer positive private returns, and many green technologies are already cost-competitive. A cost-minimising grid electricity generation mix, for example, would already feature high shares of wind, solar and batteries. That share will rise over time as costs fall and is expected to reach close to 100 per cent by 2050. Some green technologies, such as green hydrogen production, have a path to cost-competitiveness credible enough to induce private investment. So, the big picture is that there is no trade-off between investing for sustainability's sake and investing to build new productive capacity.<sup>35</sup>



*The evidence is that higher temperatures substantially reduce economic growth in poorer countries, through wide-ranging effects including political instability.*



*Many green investments already offer positive private returns, and many green technologies are already cost-competitive.*

<sup>33</sup> See *IPCC Special Report on Climate Change and Land*, Chapter 5: Food Security.

<sup>34</sup> The sensitivity of manufacturing productivity to temperature is so great that even fitting LED lights in factories, which emit less heat, has a sizeable impact on productivity (Adhvaryu et al., 2020). Lee Kuan Yew, prime minister of Singapore, credited air conditioning with a major role in Singapore's development.

<sup>35</sup> A 2018 report published by The New Climate Economy: *Unlocking the inclusive growth story of the 21st century: accelerating climate action in urgent times* describes how investing for sustainability can be a growth opportunity in its own right, rather than a price that must be paid to avert disaster.

This, however, does not suggest we can sit back and assume private profit motives will save the environment. State intervention (regulations, taxes and subsidies) will be needed to coordinate private actions to (eventually) produce cost-competitive green goods and services, perhaps coordinating investments that will generate returns from scale and 'learning by doing'. Private firms typically target the most profitable markets first, not necessarily where they are most needed from a global perspective, and public interventions may be required to transfer new green technologies to poorer countries. In other cases, the costs of green methods of production will remain higher than the brown alternatives, and public intervention to internalise the costs of environmental harms (or prohibit some things) will need to direct private investment in the right directions.

## 2.7 Productive, sustainable, and inclusive

Pulling things together, the basic economics of development tell us that meeting the SDGs and commitments under the Paris Agreement will require three things to happen: economies must become more productive to provide decent jobs and raise living standards for all; economic activity must be transformed to become environmentally sustainable; and the benefits of growth must be shared across all sections of society. Development requires private investment to build economies that are productive, sustainable, and inclusive. These are the three strategic development impact objectives CDC has set for the 2022-26 period.



# 03

## The role of development finance

Section 2 presented an overview of how investment can best contribute to global development goals, as articulated in the SDGs and Paris Agreement. Section 3 is about what problems DFIs can solve, to increase the quantity and quality of investment in pursuit of development goals.

- Markets are inefficient when the social returns to investment differ from private financial returns.
- DFIs exist because even after governments set regulations and apply taxes and subsidies, some socially-beneficial investments still require direct support.

DFIs are publicly-owned entities that invest in private enterprises. Why should the state intervene so directly in private markets? The short answers are efficiency and equity. Private markets are inefficient when the social returns to investment differ from the private financial returns. This means that private investors motivated by profits will invest too much in the wrong things and too little in the right things, from society's point of view. Private markets can also result in unacceptable inequality.

A common view is that the role of the government is to set the rules and leave private enterprises to play by them. The primary tools that governments use to influence private sector activity are laws and regulations, taxes, and subsidies. Many wealthy economies have state-owned development banks that are active in their domestic markets, however, because even after having employed these tools to encourage and discourage private activity in the desired directions, there will remain some socially desirable investments that will not be undertaken without more directed public support.<sup>36</sup>

» *Private markets are inefficient when the social returns to investment differ from the private financial returns.*

<sup>36</sup> Xu et al., (2019) survey the global DFI landscape. The UK has the British Business Bank to serve small businesses and is reported to be considering a new bank to finance large infrastructure projects. De Luna-Martinez et al., (2018) provides a survey of national development banks worldwide.

In the context of international development cooperation, if we may presume that governments in poorer countries face a more difficult task in setting regulations, taxes and subsidies to encourage socially optimal investments, then the set of socially desirable investments that require direct public support will be larger. Governments in poorer countries typically have less fiscal space and less well-resourced enforcement capabilities than those in wealthy economies, and the gaps between the social and private returns on investments are also likely to be larger. Moreover, firms (and their customers) may be less able to bear additional costs, all of which makes it even harder to use regulations, taxes and subsidies alone to direct private investment activity in the right places.<sup>37</sup>

### 3.1 Financing gaps

- A fundamental failing is that the supply of capital in domestic and international financial markets is insufficient to finance the positive returns investments needed to reach global development goals.
- DFIs can make a meaningful contribution to financing gaps in some areas, but they are small relative to need. Mobilising private co-investment can increase DFIs financial firepower, although rhetoric has run ahead of reality.
- A larger potential multiplier than via co-investment could come through transformational investments that result in many other firms making investments, without DFI participation.

Working backwards from the investments required to achieve the SDGs, the capital shortfall is tremendous – a \$2.5 trillion a year financing gap is often quoted.<sup>38</sup> These estimates are a wish list, and do not tell us that there are \$2.5 trillion of investments offering investors positive returns looking for finance every year. Under alternative approaches that try to estimate the sum of investment with positive social returns – which may not be sufficient to achieve the SDGs – the financing gap is smaller (Gardner & Henry, 2021). If the financing gap was measured in terms of the investment opportunities that firms are unable to execute because of a lack of suitable external finance, it would be smaller still.

Nonetheless, in addition to directing capital towards investments with especially high social returns relative to private returns, DFIs can also compensate for capital shortages for investments with positive financial returns. The root of capital shortages lies in the weakness of domestic financial sectors in poorer countries, a low supply of domestic savings to finance investment, and blockages in international capital markets. When firms are unable to obtain debt and equity on reasonable terms, even some investments with positive private financial returns will not occur.

On the public side, the average Organisation for Economic Co-operation and Development (OECD) government has annual revenues of \$17,500 per person.



*Governments in poorer countries typically have less fiscal space and less well-resourced enforcement capabilities than those in wealthy economies, and the gaps between the social and private returns on investments are also likely to be larger.*

<sup>37</sup> Buiters & Lankes (2003) argue sovereign guarantees would often be the instrument to induce private investment, but governments in poorer countries should avoid accumulating too many such liabilities, which is why DFIs should instead participate in private investment directly to reduce the need for them.

<sup>38</sup> See Developing countries face \$2.5 trillion annual investment gap in key sustainable development sectors, UNCTAD report estimates and IFC EMCompass: Closing the SDG Financing Gap—Trends and Data for more detailed analysis.

In South Asia and in Africa, the average government has under \$1,000 per person.<sup>39</sup> Governments face urgent demands for social sector spending and will have extremely limited capacity to finance investment in the productive sectors even if they succeed in raising more tax revenue. On average, African countries invest around the same share of gross domestic product (GDP) as OECD countries (about 22 per cent) but because their economies are so much smaller, annual investment (public and private) in sub-Saharan Africa amounts to just 3 per cent of the level of annual investment in OECD member countries, in absolute terms (despite the two groups of countries having similar populations).<sup>40</sup> Domestic private saving, which is instrumental to financing investment, is around \$350 per person year in sub-Saharan Africa, and \$500 in South Asia.

DFIs were founded as a response to the problem that there are enterprises actively seeking to raise money for investments with positive financial returns, but which cannot find it on reasonable terms. The gap between the interest rate on savings and the rate on borrowing (the spread) is often very large in poorer countries. Cavalcanti et al., (2021) report that the average interest rate spread is approximately 0.7 per cent in Japan, 3 per cent in the United States, 10 per cent in Uruguay and 40 per cent in Brazil. Younger and smaller firms face higher interest rates. Enterprise surveys show that 24 per cent of firms in sub-Saharan Africa and 12 per cent in South Asia say access to finance is the biggest obstacle they face, and research often uncovers the existence of 'credit constrained' firms that have positive return projects at prevailing interest rates but which cannot obtain loans.<sup>41</sup>

Collectively, DFIs invest somewhere in the region of \$50 billion annually, depending on what definition is used.<sup>42</sup> In some areas, where the need for external financing is large relative to commercial appetite (for example, private equity funds or renewables in frontier markets), DFIs can make a meaningful contribution to closing financing gaps, but more generally they are small relative to the scale of the problem. Which has led to calls for DFIs to mobilise private capital.

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# \$350

Domestic private saving, which is instrumental to financing investment, is around \$350 per person year in sub-Saharan Africa, and \$500 in South Asia.

39 World Bank Development Indicators, 2018 PPP current international dollars, revenue excluding grants.

40 Based on gross capital formation data from the World Development Indicators. The population of sub-Saharan Africa, excluding high income countries, is roughly 80 per cent of the total population of OECD member countries. South Asian economies invest more – around 30 per cent of GDP.

41 Enterprise surveys are not conducted in many OECD countries, but in the few that are 5 per cent is a more typical share of firms citing finance as their main obstacle. There is a lot of variation – it is as high as 50 per cent in Ghana, for example. Banerjee & Dulfo (2014) found evidence that many relatively large Indian firms are credit-constrained, and firms increased sales, employment and profits after a policy intervention that increased credit supply. Among credit-constrained firms, the marginal return on additional working capital is above 100 per cent, substantially above any plausible estimate of the cost of capital. There is evidence (from Brazil) that development banks reach credit-constrained firms and improve their performance (de Sousa & Ottaviano, 2018).

42 Author's estimates based on DFIs' annual reports.

## 3.2 Mobilisation

- Public development finance can mobilise private investment directly as co-investors, and indirectly through making transformational investments that result in further investments by others.
- Trillions of dollars of investment will be needed over coming decades to meet global development ambitions, which would represent a sustained investment boom across Africa and South Asia. DFIs are unlikely to bring that about singlehanded.
- DFIs can make investments attractive to private investors in various ways. Using concessional finance to induce private investment is not necessarily good value for money.

Enormous estimated SDG financing gaps were the motivation for the “billions to trillions” vision, first articulated by a group of development banks, for the 2015 Third International Conference on Financing for Development.<sup>43</sup> This called for development finance that “goes well beyond filling financing gaps and that can be used strategically to unlock, leverage, and catalyse private flows and domestic resources.” This, perhaps somewhat unfortunately, morphed into the idea that DFIs could leverage their balance sheets into (approaching) a trillion dollars of annual investment, through co-investment with private parties (if DFIs were themselves scaled-up, and each dollar of DFI invest was accompanied by four dollars of private capital).<sup>44</sup> This was never a realistic aspiration, and the manifest failure of DFIs to live up to inflated rhetoric is now causing something of a backlash.<sup>45</sup>

It is worth reflecting on what mobilising an additional trillion dollars of investments would look like. The GDP of South Asia is around \$3.5 trillion and sub-Saharan Africa is around \$1.75 trillion, so it would look like a very substantial increase in investment as a share of GDP. It would imply an investment boom on the scale approaching that which China experienced in the decades after 1980, when it grew its economy by around 10 per cent annually and lifted 800 million people out of extreme poverty. That might be what it would take to achieve the SDGs in Africa and South Asia, but it is asking a lot of DFIs to bring that about by themselves.

Nonetheless, DFIs’ investments can have a multiplier effect by inducing additional investments by private actors. Sometimes the presence of DFIs will be enough to persuade private investors to participate in a primary transaction. That can be as simple as filling the gap between what a project requires and how much private investors are willing to supply, without changing the underlying characteristics of the project or investors’ perceptions of them. But DFIs can also put more resources into project preparation, provide technical assistance, fund more thorough due diligence and screening that will cause private actors to invest where they would otherwise not. In some cases, multilateral development banks (MDBs) also enjoyed preferred creditor status, which changes underlying credit risk. In the right circumstances, these contributions have can have a powerful effect. Broccolini et al., (2021) show that syndicated lending by MDBs attracts seven dollars of private credit for every one of public.

<sup>43</sup> From Billions to Trillions: Transforming Development Finance Post-2015 Financing for Development: Multilateral Development Finance, issued by the Joint Ministerial Committee of the Boards of Governors of the Bank and the Fund on the Transfer of Real Resources to Developing Countries.

<sup>44</sup> See Better finance better world, Consultation paper of the Blended Finance Taskforce (2018).

<sup>45</sup> See New report casts doubt on World Bank ‘billions to trillions’ agenda.

Structuring projects to give different investors risk and return profiles to fit their requirements can induce private participation, even if the DFI, typically taking a higher-risk position, is pricing at market rates. But concessional finance can be used to adjust expected risk-adjusted returns, to make them acceptable to private investors (discussed at more length in Section 3.5). There is also the possibility that large asset managers are reluctant to invest in lower income countries because they misperceive risks or simply lack familiarity. In that case, DFIs can play a ‘risk discovery’ role by pioneering frontier markets and generating a track record. They can also package the assets they have originated for secondary sale to asset managers, who will then grow more comfortable and become more active over time. There is a more general point here, that private participation in a DFI-led investment can be the first step that leads to further investments.

But a larger potential multiplier than would be possible via co-investment could come through clusters of transformational investments that result in many other firms making investments, without DFI participation. As discussed in Section 2, there are two primary channels here: knowledge generation and demonstration effects; and complementarities and linkages in production networks. These are harder to observe and can sometimes get lost in debates about mobilisation, but they are where the promise of impact at scale lies. It is also worth recalling that the original statement of “billions to trillions” emphasised that, for most countries, domestic revenues (taxes) are the largest resource available to fund their national development plans, and investing in formal sector firms that grow the tax base is part of that.

Using concessional blended finance to mobilise private investors is intended to leverage scarce public funds to increase the overall quantity of development finance. It does not necessarily do that. Donor governments have a limited capacity to make fiscal transfers but, in theory at least, they can easily borrow to invest in positive-return assets, which does not increase their net debt.<sup>46</sup> Grants (and grant equivalents) are the scarce resource. A government that can afford a \$1 million grant to mobilise \$9 million of private investment can also afford to invest \$10 million itself, on terms that imply a \$1 million grant-equivalence. Arranging an investment with private participation does not necessarily increase the quantity of finance available – that depends on the scarce resources required to achieve it. If private investors require high risk-adjusted returns, and therefore costly inducements from the public sector to mobilise them, it can be more cost-effective for the public sector to finance investments itself. This does not negate the idea of using public funds to mobilise private investment, it merely implies that if the objective is to increase the overall supply of development finance, then there remains a cost-effectiveness threshold to be surpassed.



*DFIs can play a ‘risk discovery’ role by pioneering frontier markets and generating a track record.*

<sup>46</sup>The idiosyncrasies of legislation and institutional arrangements might mean that governments sometimes face constraints in practice on their ability to finance positive return investments, but as far as possible institutional arrangements should be designed to avoid that.

### 3.3 Market failures

- Some market failures affect the supply of investment, others the demand for it.
- Information and contract enforcement problems impede supply.
- Externalities that mean social costs and benefits are not reflected in prices result in the demand for investment being misaligned with what society needs.
- Environmental damage, especially carbon emissions, are a negative externality and their solutions generate positive externalities that justify public support.
- For DFIs, positive externalities from the creation of decent jobs, and from pioneering investments that prompt further investments, are especially relevant.

Economists would say DFIs exist to compensate for what they call ‘market failures’, a term that refers to numerous reasons why markets can result in outcomes that leave room for improvement. In economics jargon, that means outcomes are not ‘Pareto efficient’, and better outcomes are possible in which some people are better-off, and nobody is worse-off.<sup>47</sup> Some market failures result in a gap between the social and private returns to investment, but the concept is broader than that.<sup>48</sup> It is important to bear in mind that economists often judge market failures relative to a yardstick of efficiency that has nothing to do with distributional concerns. Distributional concerns are the second major justification for the existence of DFIs, and will be discussed in Section 3.4.

It may seem obvious that market outcomes can be improved on, given the widespread poverty and economic inefficiency in lower income countries but, in theory at least, the best approach might be to remove impediments to markets, rather than try to intervene in them. But the existence of market failures implies that governments can do more than provide the institutional foundations for markets (property rights, the rule of law) and then get out of the way.

Economists judge market failure relative to a hypothetical ideal. For example, in a perfect market all socially worthwhile investments would be financed. But if the information that investors have is imperfect, that would not happen. Typically, information is asymmetrical, and the borrower knows more than the lender. Lenders may therefore demand collateral, so entrepreneurs with positive-return projects but insufficient collateral will not be financed. Fernandez-Arias & Xu (2020) argue that there are market failure of supply (lenders are not willing to lend) and market failures of demand (firms do not want to borrow for investments that are socially beneficial but not profitable) and that DFIs should choose different instruments according to the nature of the market failure.<sup>49</sup>

<sup>47</sup> More relevant in the real world are potential Pareto improvements, in which a better outcome is possible but some redistribution from winners to losers would be necessary to ensure nobody is made worse-off. An example is opening to free trade, which in theory harms some people but creates gains large enough to compensate them.

<sup>48</sup> Some market failures may result in too few things happening, even if those things have equal private and social returns. Credit rationing in the absence of externalities is an example.

<sup>49</sup> The full argument is complicated because both types of market failure can be present at once, and if the DFI is working via an intermediary then there are questions about its ability to enforce policy which may undermine the effectiveness of some instruments, but as a rule if the problem is supply then risk sharing is more efficient, whereas if the problem is demand, then subsidised finance is better.

By saying that a market falls short of an ideal, economists do not suppose the ideal is obtainable – the idea is to go as far in that direction as possible. The ‘first-best’ solution to information problems is to increase the supply of information (by establishing credit bureaus, for example) or perhaps to design instruments that remove incentives to conceal information. A ‘second-best’ solution might be to subsidise or partially guarantee lending.<sup>50</sup> However, economists have long known that some second-best solutions can make things worse, and as Fernández-Arias et al., (2020) point out, if DFIs have no informational advantage over private lenders, the gain from realising some additional high return projects must be weighed against potential public financial losses.

DFIs might sometimes be able to address the underlying cause of a market failure, but it is probably more sensible to suppose that a constellation of market failures results in too little investment in lower income countries, and DFIs compensate by increasing the quantity of investment rather than fixing the underlying problems.

Information and contract enforcement problems are probably the most pervasive market failures that prevent the financial sector from supporting all investments with positive expected financial returns, but from a development perspective – hence for DFIs – ‘externalities’ are bigger problem. These are costs and benefits of investments (or economic activity more generally) that are not captured in prices. The best-known and most damaging externality is the cumulative damage done by GHG emissions. If everyone had had to pay for the long-run global harm done when burning fossil fuel, rather than just pay for the fossil fuel, we would have burnt less of it and invested more in alternatives, sooner.<sup>51</sup> Economists see carbon pricing, through a carbon tax or cap-and-trade, as the ideal approach to climate change, despite widespread doubts over their political feasibility.<sup>52</sup>

Another important externality is job creation. Private firms do not consider the social benefits of decent jobs when they make hiring decisions, hence “the market has a natural tendency to undersupply good jobs” (Acemoglu, 2020). The shortfall in ‘good’ jobs can be viewed as a massive market failure, “a kind of gross economic malfunction” according to Rodrik & Sabel (2019) and not just a source of inequality and economic exclusion.<sup>53</sup> Some of the concerns here are the social and political consequences of job polarisation – a few high-wage occupations in a sea of poor jobs – but even without looking at such wider consequences, private job creation is inefficient. Training and skills development are also undersupplied from society’s point of view, if workers move to other firms before firms can recoup the cost of training. In a competitive economy with full employment, the wage equals the opportunity cost to society of using a worker in production. In developing countries with large numbers of people employed in low-productivity, precarious self-employment, there is a ‘labour externality’ where the economic opportunity cost of labour is below market wages and firms will create too few jobs.<sup>54</sup> When there are complementarities in production networks, the social returns from an investment that increases the productivity of a ‘central’ input producer will also be larger than the private returns captured in the producer’s revenues.



*The shortfall in ‘good’ jobs can be viewed as a massive market failure, “a kind of gross economic malfunction”.*

<sup>50</sup>There is still some controversy about whether subsidising lending is a helpful policy – in some theoretical circumstance, information problems can result in too much lending. See de Meza & Webb (1987) for example.

<sup>51</sup> As Stern & Stiglitz (2021) point out, the negative externality of GHG is far from being the only market failure that matters for climate change. They list market failures in capital markets, innovation, and shared infrastructure, among others.

<sup>52</sup> Calculating the social cost of carbon is difficult. Kaufman et al., (2020) provides a helpful discussion and proposes a new approach. While almost all economists would say that making people pay for the harm done by carbon emissions is very important, fewer would say carbon taxes alone would keep global warming within acceptable limits.

<sup>53</sup> See Cassar & Meier (2018) and Hussam et al., (2021) on the benefits of jobs beyond wages.

<sup>54</sup> See Robalino & Walker (2017) and Carter & Selacek (2019) for further discussion.

In Section 2.2 investments that generate knowledge many firms can exploit were identified as an engine of economy-wide productivity growth, but knowledge too is an externality. Innovation is risky and firms will not invest for the sake of helping their competitors, even though society would benefit. Patents, of course, exist to partially solve that problem, and there are first-mover advantages that allow innovators to capture returns. But the lessons from experience cannot be patented and pioneering firms face the risk that later entrants will end up the main beneficiaries of their initiative. As a result, the social returns to innovation are larger than the private returns, hence the private sector underinvests in experimentation.<sup>55</sup> In response, many governments support primary research in universities and government laboratories, and target support at early-stage companies. Bai et al., (2021) found total state support for entrepreneurs has been roughly equal in size to the global private venture capital industry in recent decades. This is another area where governments in lower income countries, with limited fiscal resources, are at a disadvantage. Collier et al., (2019) argue the social benefits created by pioneering firms in low-income and fragile states are very large, where risk-tolerant development finance is needed. The same is true for experimentation with new environmentally sustainable technologies and business models. The social benefits from demonstrating successful circular-economy business models, or from the successful commercial application of new low-carbon industrial processes, or climate-smart agriculture, and so forth, will be enormous.

A final category of market failure worth mentioning is collective action or coordination problems. As discussed in Section 2.3, the existence of complementarities in production implies that some things might not be possible, or will perhaps operate far below potential, unless the right inputs are present. Private markets, of course, can create supply chains that depend on multiple inputs from different sources. But there can be circumstances in which multiple inputs from different firms would be needed to successfully start a new activity, and each individual firm will not enter because they cannot be sure others will. Private actors can solve coordination problems, but they will not always. If the local government lacks the political will, expertise or credibility, DFIs can sometimes help create new markets by corraling the necessary actors (although this may be more plausible for the larger multilateral DFIs).

## Setting standards

Knowledge is a public good, and investments can have high social returns by generating knowledge that others can use. But knowledge does not just consist of technologies and business models. More enlightened business practices can make a big difference to the quality of workers' lives. Society benefits when firms learn that they perform better under more diverse leadership, or when they are more attentive to the needs of their workers (perhaps offering better wages and conditions) and engage constructively with communities that are affected by their investments, or if they improve their corporate governance, and so on.

DFIs have always seen part of their role as setting higher ESG standards, which has a direct impact on the firm they are invested in. The impact of these efforts can be multiplied when they establish 'best practices' that other firms seek to emulate, and that workers and managers take with them when they leave to work elsewhere or start-up new firms. There may sometimes be the potential for DFIs to solve a collective action problem when producers would be collectively better-off after adopting higher standards but first-movers would lose out.



*The social returns to innovation are larger than the private returns, hence the private sector underinvests in experimentation.*

<sup>55</sup> Kremer et al., (2019) estimate the social returns from development innovations funded by USAID.

## Mission-driven public finance

Market failures provide a justification for government intervention, but some economists see a more expansive role for the state to adopt a 'mission-oriented' approach, by identifying the world's most pressing problems and setting out to solve them. Aghion and Roulet (2014) call for a strategic state that targets its investments to maximise growth and influences the path of innovation towards more socially desirable directions. The economist Mariana Mazzucato argues that development banks should play a mission-oriented role in shaping and creating markets, rather than just fixing them.<sup>56</sup> Another prominent economist, Daron Acemoglu, argues that the direction of research and commercial adoption of artificial intelligence (AI) is too focused on replacing humans, as opposed to creating new opportunities for people, and risks doing more harm than good to society, unless the direction of technological change can be influenced in better directions.<sup>57</sup>

These arguments are not too different from the idea that a variety of market failures create a gap between social and private returns, and will result in too much private investment in the wrong places, but they do change the emphasis to orienting the activity of DFIs around helping to solve global problems. Mission-orientation may point to a more expansive role for DFIs acting in concert with governments, particularly in the context of climate change where there are specific problems, such as hard-to-decarbonise sectors such as industrial heat, water and food security, to be tackled.

### 3.4 Inequalities

- Private markets can produce unacceptable inequalities. A second reason for DFIs to intervene in private markets is to push them towards more equitable outcomes.
- The relationship between individual investments and inequality is context dependent. Investments that increase competition for workers and customers, which create better jobs for low-income people, or reduce the prices of goods and services they consume, should reduce inequality.
- DFIs have limited abilities to reach people living in extreme poverty and their shareholders have more effective instruments at their disposal for that purpose.
- The role of DFIs is to reduce poverty over the long run by changing the economic environment.

DFIs invest in individual private enterprises, but inequality is an economy-wide phenomenon. Investments that either create better jobs for poor people, or reduce the prices of goods and services they consume, will probably reduce inequality, although it is possible to imagine exceptions.<sup>58</sup> More generally, the relationship between individual investments and inequality is ambiguous, context dependent and will change over time. For example, in one of the foundational theories of development, the Lewis model, capital accumulation in the 'modern' sector initially benefits capitalists and only starts to lift wages once surplus labour in the 'traditional' sector is exhausted (Gollin, 2014).

» *DFIs invest in individual private enterprises, but inequality is an economy-wide phenomenon.*

<sup>56</sup> See Mazzucato & Penna (2016); Mazzucato et al., (2018); and Mazzucato (2021).

<sup>57</sup> This argument is proposed and debated in the Boston Review.

<sup>58</sup> An investment in a 'gig economy' business might result in short-term increased earnings for people moving out of informal employment while also reducing worker bargain power in the long-term. In wealthy economies we might hesitate to say that business that create large number of low-paying jobs are inequality reducing.

In a capitalist economy, a successful business will enrich its owners but that does not mean all successful businesses increase inequality. Some successful investments may push up wages at the lower end of the distribution. If a business succeeds by putting competitive pressure on incumbents, then its investors may gain while also restraining the gains of others.

Competitive markets contribute to poverty reduction when they increase productivity and constrain profit margins to reduce inequality. But efficiency does not imply equity. Sen famously said, “a society can be Pareto optimal and still perfectly disgusting”. Markets do not care about eradicating poverty, and that is not called a market failure. The ability to trade in markets makes people better-off, but markets do not take from the rich and give to the poor.<sup>59</sup>

From this perspective, a second reason for DFIs to intervene in private markets is to achieve more equitable outcomes. Economists use the phrase the ‘social welfare function’ to include distributional concerns in society’s collective view of what is desirable.<sup>60</sup> Even if market failures are fixed, markets do not maximise social welfare. From a high-level perspective, although many DFIs have a regional focus we might say that collectively they exist to increase global social welfare (sometimes alongside other less altruistic objectives). The SDGs could be seen as an attempt to articulate a global social welfare function.<sup>61</sup>

DFIs are not governments and cannot redistribute income through taxing and spending. As individual investors, DFIs have only a limited ability to influence the distribution of consumption across society. However, they can lean against the iniquitous tendencies of markets and make more pro-poor investments than purely profit-motivated investors would, and prioritise investments that contribute more towards the SDGs.

Individual investments can reduce inequality within countries when they increase the competitiveness of markets to reduce the share of income captured by capitalists and senior executives, when they push up wages at the lower end of the income distribution, and when they reduce the prices of goods and services that lower income people buy, particularly the set of basic needs identified in the SDGs.

Development finance can also reduce inequalities across countries, by prioritising investments in lower income countries. Compared to commercial foreign investors, DFIs often have more experience investing in frontier markets, they can tolerate more risk and expend more effort developing investment opportunities, and they can wait longer for financial returns. Judged by the difference they make to human welfare over the long run, investments that get the process of structural change and economic growth moving in stagnant low-income countries are at the top of the impact rankings.



*A second reason for DFIs to intervene in private markets is to achieve more equitable outcomes.*



*Development finance can also reduce inequalities across countries, by prioritising investments in lower income countries.*

<sup>59</sup> Piccione & Rubinstein (2007) show market outcomes are efficient in the same way as the ‘law of the jungle’ is efficient, where the strong take what they want from the weak.

<sup>60</sup> Welfare economics includes the study of mechanisms, such as voting, through which society might agree on its priorities. Adler (2019) is a good introduction to social welfare functions.

<sup>61</sup> The SDGs are an incomplete social welfare function, because they do not say anything about the relative importance of the various targets, but they do at least provide a description of what ‘good’ looks like.

That said, we should be realistic about the quantity of investment DFIs can make in the poorest countries. First, we may assume the supply of investment opportunities is roughly proportional to the size of the economy. Many of the world's poorest countries also happen to be small, whereas some of the world's lower-middle income countries (such as India and Nigeria) have very large populations and are therefore large markets. Smaller economies also make it harder for firms to operate at the scale that is necessary for direct investment by DFIs.<sup>62</sup> Furthermore, in some of the world's poorest countries, the rule of law and protection of property rights can be haphazard, and external investment can become too prone to failure to be worthwhile. If successful investments have a greater development impact in riskier environments, that suggests investment should be concentrated not in the extremes of highest risk, but in a 'sweet spot' where the trade-off between the impact of investments when they are successful and the risks of them failing produces the highest expected impact.<sup>63</sup>

DFIs are not the most effective instrument of development cooperation for alleviating extreme poverty. Most private enterprises do not serve people living in extreme poverty, who mostly spend what little income they have on a few basic needs. Formal sector firms also do not so often hire workers from the poorest and most marginalised section of society. From the perspective of donor governments, grant-funded aid programmes can be targeted more effectively at extreme poverty. Most extremely poor people live in rural areas (around 80 per cent) and the most cost-effective development interventions include cash and asset transfers, subsidising improved agricultural inputs, and community basic health services.

Such interventions alleviate poverty, given the economic environment that people find themselves in. The role of development finance, in contrast, is to change the economic environment. Some investments can reduce extreme poverty directly, but often the impact of investment on poverty will be indirect and emerge over the longer run, as the structure of the economy changes, and prevailing wages rise relative to prices. From the donor government's point of view, the primary role of DFI finance is to help countries grow out of poverty through investments in more productive formal sector firms.

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» *The primary role of DFI finance is to help countries grow out of poverty through investments in more productive formal sector firms.*

62 Goldberg & Reed (2020) show how a larger market size allows firms to exploit increasing returns to scale, and that development in small economies requires access to global markets.

63 There is some evidence (from World Bank Independent Evaluation Group studies of IFC investments) that in more extreme environments, investments in telecoms and infrastructure and natural resources can perform well, while those in manufacturing, agribusiness and services more often fail to meet the financial and development objectives. In more challenging contexts, investing via local intermediaries with deeper market knowledge can be a more successful approach than trying to invest directly.

### 3.5 Creating investment opportunities

- The traditional demand-led model of development finance limits DFI investments to the set of investment opportunities that are unappealing to private investors and yet still offer a reasonable probability of commercial success.
- DFIs can increase the supply of investment opportunities by funding project development, pursuing more entrepreneurial strategies, and by moving into upstream ‘advisory’.

The traditional DFI model is demand-led, which means the quantity of investment DFIs can transact is limited by the number of project sponsors looking for money and which meet their investment criteria. DFIs exist to do the things private investors would not, referred to as being ‘additional’ to the market.<sup>64</sup> To increase the quantity of investment in the countries where they operate, DFIs must make investments happen that would not have happened in their absence.<sup>65</sup>

Even before considering impact-related requirements, that leaves DFIs operating in a narrow band: they are looking for investments that are not offering risk-adjusted returns high enough to have attracted commercial investors, and yet which still have a reasonably good chance of creating a profitable enterprise. The volume of DFI investment is constrained by the supply of investment opportunities that fits this profile.

DFIs can increase the quantity of viable projects by tolerating higher overheads and expending more effort than commercial investors would find profitable, to work with project sponsors to develop ‘bankable’ projects. Many DFIs offer grant-funded technical assistance and project preparation facilities. DFIs can do more to increase the quantity of investment by departing from the traditional demand-led model and adopting more entrepreneurial strategies. DFIs can create their own start-up companies, but that is very demanding and requires capabilities that not every DFI will possess.<sup>66</sup> An alternative is to invest in intermediaries, or ‘platforms’, that have specialist origination capabilities, and which take a more active role in creating investment opportunities.

Traditionally, DFIs have largely taken a country’s policy and institutional environment as given and have left such matters as advising on regulatory reforms to their sister development agencies (although regional and multilateral development banks combine private sector investing with policy engagement). Recently, however, responding to the need to increase supply of investable opportunities, DFIs are becoming more engaged with ‘upstream’ advisory, and take a more active role in supporting national development strategies and industrial policy.<sup>67</sup> It has always been possible to support a country’s industrial policy as a passive supplier of finance – the government encourages investment in certain areas, and DFIs then provide finance to firms that have responded. But the evidence suggests industrial policy is more likely to succeed when there is constructive dialogue between government, firms, and investors (Bardhan, 2016). Some observers have proposed that DFIs should explicitly see their role as uncovering information about market and government failures to inform the implementation of national development strategies (Fernández-Arias et al., 2020).



*DFIs exist to do the things private investors would not, referred to as being ‘additional’ to the market.*



*DFIs can do more to increase the quantity of investment by departing from the traditional demand-led model and adopting more entrepreneurial strategies.*

<sup>64</sup> As Section 3.2 discussed, that includes mobilising private investors to do things they otherwise would not.

<sup>65</sup> This does not necessarily imply making investments where nothing would have happened otherwise – it can also mean making a small investment larger. Sometimes additionality can consist of making investments that private investors would have made but doing something differently to raise their development impact. Because additionality is unobservable, the best DFIs can do is make investments that are probably additional. If DFIs set the bar for additionality too high, they would find themselves rejecting too many investments that would have been additional. See Carter et al., (2021) for discussion.

<sup>66</sup> CDC is one of the few DFIs to establish wholly-owned subsidiaries, which have included MedAccess, Gridworks, and Ayana.

<sup>67</sup> In this interview Philippe Le Houérou (outgoing CEO of the IFC) discusses the constraints on development finance being the lack of bankable projects, and the IFC’s move into upstream advisory.

### 3.6 Pricing and subsidies

- Although all DFIs can be seen as a subsidy of sorts, DFIs try to distinguish between their main investments made on commercial terms, and concessional finance.
- By pricing on commercial terms, DFIs ensure firms which have no need of their support see no advantage to getting it, which helps increase the probability that their investments are additional.
- DFIs can use concessional finance to make investments viable when justified by development impact.
- Some of the world's most pressing development challenges will require larger subsidies for investment than DFIs can provide within existing their financial parameters.

From one perspective, DFIs subsidise private investment when they make investments that commercial investors would not and – typically – produce lower portfolio financial returns than the average commercial asset manager would be satisfied with.<sup>68</sup> Even so, rather than being a blanket subsidy to all investors, development finance is allocated on a case-by-case basis only to those firms or other vehicles judged to need it.<sup>69</sup> From another perspective, only a subset of DFIs' investments confer a subsidy while most do not. As a rule, DFIs invest on what they consider to be commercial terms and draw a clear distinction between allocations of concessional finance (or explicit subsidies) and their regular investment activities (EDFI, 2021).

When a DFI invests on what it considers to be commercial terms, that does not mean it is exactly mimicking commercial investors. It means acting like a commercial investor, in a market segment where commercial investors are not active.<sup>70</sup> Because DFIs want to develop local financial markets and mobilise other investors, they want to set pricing benchmarks that would represent commercially attractive entry points. If DFIs simply approached the market with lower return requirements than commercial investors, they would be inundated with firms looking to take advantage. DFIs have also traditionally been wary of subsidies, because of the risk of propping up less efficient firms at the expense of competitors who lack access to concessional finance.<sup>71</sup>

By requiring competitive returns, DFIs can ensure that firms with no need of their support see no advantage in taking it. The combination of pricing on commercial terms, having higher requirements related to development impact, and more exacting ESG standards, helps screen out opportunistic applications. DFIs can also tolerate higher transaction costs than commercial investors would and hence make lower net returns, even if (from the investee's perspective) their required gross returns match commercial benchmarks. Therefore, commercial pricing can not only be consistent with additionality, but helpful.

» **Commercial pricing can not only be consistent with additionality, but helpful.**

<sup>68</sup> Schreiner & Yaron (2001) measure the subsidy conferred by development banks. But Cole et al., (2020) show that the IFC's returns from investing in private equity in emerging markets beat market benchmarks in some decades.

<sup>69</sup> Poorer countries tend to face higher relative prices for capital goods and the services necessary to install them, which is one potential reason why they remain poor: investment is too expensive. See Mutreja et al., (2018) for a discussion. If the relative price of capital goods and services falls as economy-wide productivity rises, there could be a case for subsidising investment to induce a virtuous circle in which the relative price of capital goods falls and encourages more investment.

<sup>70</sup> Buiters & Schankerman (2002) discuss how DFIs may also undercut local prices in uncompetitive markets where investors are making excess profits, without that constituting a subsidy. Buiters & Lankes (2003) outline the importance of sound banking practices when DFIs engage with the private sector, meaning that financial returns should be commensurate with risk (when not deliberately allocating a subsidy).

<sup>71</sup> DFIs and MDBs have agreed a set of 'enhanced principles' to govern the allocation of 'blended' concessional finance. These include not crowding-out the private sector, minimising the subsidy, having an objective of commercial viability, addressing market failures and avoiding market distortions, and promoting higher standards. See the IFC's DFI Working Group on Enhanced Blended Concessional Finance for Private Sector Projects. The OECD, which has a more expansive definition of blended finance that includes all co-investment with private actors, has also agreed a set of blended finance principles that promote adherence to high standards, including in areas of corporate governance, environmental impact, integrity, transparency, and disclosure.

Nonetheless, a subsidy is justified when social returns on investment exceed private returns, and private returns are below commercial benchmarks. The urgency of the 2030 agenda for sustainable development and the climate emergency call for the allocation of subsidies to make socially worthwhile investments viable when they would not otherwise be. DFIs therefore have an important role to play in the allocation of subsidies.<sup>72</sup>

Many of the high impact things we want DFIs to do are risky, and observers have identified the lack of risk-bearing capacity as a key constraint on the impact of development finance (Lee & Preston, 2019). Backing pioneers is risky. Taking a more entrepreneurial approach is risky. Investing in poorer countries is risky. As a rule, financial markets price assets so that higher risks are compensated with higher returns, but that is not always possible in the context of development finance. DFIs can take a more flexible approach to risk without experiencing lower average financial returns, because there is some scope to adjust pricing to keep expected returns constant as risks rise.<sup>73</sup> But only up to a point. Diving deeper into the pool of higher-risk investments would require DFIs to tolerate lower average financial returns. An equity investment in a pioneering agricultural business in a low-income country with a high risk of failure typically does not come with a compensating chance of becoming a billion-dollar ‘unicorn’.

Tolerating more risk is therefore not easy for a DFI with a mandate to generate positive financial returns. Larger DFIs can diversify risks within their portfolios, and also cross-subsidise investments with lower risk-adjusted expected return investments, as well as by making other higher risk-return investments, but the scope for doing so is limited while staying within a developmental mandate. To expand their ability to provide concessional finance beyond the constraints of their mandate, some DFIs have been given access to external sources of concessional finance, which they can combine with their own balance sheet. This is often referred to as blended concessional finance.<sup>74</sup>

The investments needed to move the economy onto a sustainable footing, in areas such as shipping and aviation, water and agriculture, and industrial processes, are large. If we want DFIs to play a role in encouraging private actors to experiment and adopt green technologies more rapidly, then the existing ‘capital preservation’ model of many DFIs may be inadequate, and either substantial dedicated concessional funds will be needed or partnerships with stand-alone climate funds with a mandate to allocate grants (or grant equivalents).

As investors, DFIs tend to subsidise upfront capital costs, but that is not the only, nor necessarily the best, way to subsidise private sector investment.<sup>75</sup> Bilateral development agencies and other organisations have been more active in results-based financing, but there may be scope for DFIs to adopt some of these mechanisms.<sup>76</sup> CDC’s MedAccess, for example, uses volume guarantees to induce private sector investment in neglected medical products.



*A subsidy is justified when social returns on investment exceed private returns, and private returns are below commercial benchmarks.*

<sup>72</sup> Buiters & Schankerman (2002) and Mutambatsere & Schellekens (2020) articulate the case for subsidies and outline how they should be allocated. World Bank (2018) sets out a framework for the allocation of concessional climate finance.

<sup>73</sup> It is also possible because while the usual methods investors use to evaluate investments may judge an investment to be risky because of unfamiliarity with a market, and a lack of track record, the underlying risks may not actually be higher.

<sup>74</sup> The World Bank’s \$2.5 billion IDA-IFC-MIGA Private Sector Window is a leading example of this. Through four dedicated facilities, the PSW backstops or blends with IFC investments or MIGA guarantees to support higher impact private sector investments.

<sup>75</sup> Barder & Talbot (2015) compare guarantees, capital subsidies and payments for success. Aldy et al., (2015) found output-based subsidies were more effective than capital subsidies in the context of wind power.

<sup>76</sup> See the Global Partnership for Results-Based Approaches for more detail.



## 04

### Where development finance has most impact

**Section 4 draws together the preceding two sections on development economics and the role of DFIs to suggest where development finance can have the most impact.**

In the jargon of economics, maximising the impact of development finance is a 'constrained optimisation problem', which consists of two parts: first we need to know the magnitude of the expected impact of the various investments that a DFI might make; second we must take into consideration constraints such as the distribution of investment opportunities (the 'addressable market'), the transaction costs involved in different types of investment, and DFIs' resources and capabilities.

This section is concerned with the first part of the impact maximisation problem: identifying high impact investments. The second part of the problem, accounting for constraints, is the preserve of a DFI's strategy and business planning processes and requires knowledge of investment opportunities on the ground that are beyond the scope of this paper. Once constraints are taken into consideration, it is quite likely DFIs may maximise their impact while rarely making the most impactful possible investments. For example, Section 3.4 discussed how DFIs might find relatively few viable investment opportunities in the very poorest countries, and that private enterprises that directly employ or serve those living in extreme poverty might also be few and far between. This section is also not likely to be a comprehensive list of the highest impact investments: there will be others that have escaped attention.

CDC has set three strategic impact objectives for the 2022-2026 period, to prioritise investments that are more productive, more sustainable, and more inclusive.<sup>77</sup> These three aspects of development impact emerge naturally from Section 2, in which the economics of development was distilled into a process of increasing the productivity of economies, ensuring the benefits of higher productivity are widely shared, and transforming the nature of economic production so that it is environmentally sustainable. This section will be organised under those headings, but these three aspects of the impact of investment are not mutually exclusive and the most impactful investments will combine all three.

» CDC has set three strategic impact objectives for the 2022-2026 period, to prioritise investments that are more productive, more sustainable, and more inclusive.

<sup>77</sup> In 2022, CDC will start using a new portfolio-level impact scoring tool that scores every investment on each of these three dimensions.

Some of the development impact objectives DFIs have traditionally targeted – such a job creation – involve all three dimensions: higher productivity is instrumental in creating better jobs that pay higher real wages; inclusivity entails job creation for poorer and more marginalised sections of society; and sustainability entails employment in environmentally friendly and climate-resilient activities.

This section will also look at where DFIs can have the most impact by investing in the financial sector, which is needed to increase the quantity and quality of private investment and build economies that are productive, sustainable and inclusive.

#### 4.1 Productive

- DFIs can have the greatest impact from investment that raise productivity in three main ways:
  - By increasing the supply of inputs whose high price or lack of availability is a meaningful constraint on the activities of many firms.
  - By generating knowledge or catalysing markets that will affect the behaviour of many firms.
  - By raising productivity in sectors important for specific global development goals, such as housing and healthcare.

Investments that raise the productive capacity of an economy have the greatest development impact when they contribute the most towards the achievement of global development goals. Taking output per worker as the measure of productivity, not all increases in output per worker are equally valuable for development (even before considering inclusivity and sustainability). Productivity gains in areas of the economy that are especially important for specific global development goals – such as in the supply of basic needs such as food, housing, and healthcare – are more valuable than gains in entertainment or luxury goods.

But the overarching goal of poverty reduction calls for investments that have an impact on productivity at scale across all sectors of the economy.<sup>78</sup> Investments that address constraints on growth and cause broad-based productivity gains, such as investments in power supply or communications infrastructure, for example, will help create better jobs and push up prevailing real wages. Investments that make finance available on a large scale to many credit-constrained firms will have a large development impact, even if many of those firms operate in sectors that are not themselves development priorities.

It would be a mistake to assume investments that indirectly affect the productivity of many firms will always have more impact than investments where impact is more direct but as a rule there is potential for greater impact through knock-on effects to the productivity of many firms. To assess whether an investment will have positive spillovers on other firms, the question is whether there is a credible sequence of events that will result in many firms increasing their productivity as a result of the investment.

As argued in Section 2.3, investments with large positive spillovers on the productivity of many firms will often involve producers of important intermediate goods and services where there are more likely to be complementarities across production networks. These sectors are often identified as binding constraints in growth diagnostic exercises.<sup>78</sup> Other commonly used inputs are not so important. It is unlikely that reducing the price of office stationery will prompt a round of productivity-increasing investments across the economy, for example. The test is not just whether many firms use the input, but also whether the current state of supply is a meaningful constraint on their behaviour.



*Investments that raise the productive capacity of an economy have the greatest development impact when they contribute the most towards the achievement of global development goals.*

<sup>78</sup> SDGs 8 (decent work and economic growth) and 9 (industry, innovation, and infrastructure) are also about broad based productivity improvements.

<sup>79</sup> A database of country growth diagnostics can be found on the website [countrydiagnostics.com](http://countrydiagnostics.com)

Leone et al., (2021) document that the prices of important intermediate inputs such as cement, steel rebar, urea fertiliser and broadband internet, are highest (on average) in the world's poorest countries, especially in Africa. Kirchberger & Beirne (2021) estimate that because construction costs are such an important part of the cost of investment, a 10 per cent reduction in the price of cement would increase the long-run stock of productive capital in Africa by around 2 per cent, a significant effect from a somewhat lower price for a single input. Fried & Lagakos (2020) describe how eliminating electricity power outages would cause existing firms to expand their operations, and new firms to operate better technologies that require electricity, and estimate that would increase output per worker across sub-Saharan African countries by around 25 per cent. Hjort & Poulsen (2019) show how the arrival of fast internet in Africa created more (and better) jobs as new firms entered, increased their productivity, and started exporting. Gollin et al., (2021) show how high-yielding crop varieties increased incomes and slowed population growth. They estimate that a ten-year delay of the Green Revolution would, in 2010, have cost 17 per cent of GDP per capita and added 223 million people to the developing world population.

These are some of the more obviously important intermediate goods. Similar evidence can be found for the productivity gains from logistics and transportation, water supply, information technology and mobile money. Although evidence might be harder to find for more niche examples, we may suppose that productivity improvements in important parts of medical supply chains, or in new construction technologies, or certain business services, could also have spillovers onto many other firms. Anderson and MacKenzie (2021) suggest that making it easier to outsource business functions such as accounting could raise the productivity of smaller firms, for example. The key idea is that while all firms benefit when the costs of inputs fall, some inputs are so important that when their cost falls, or their quality and availability increases, it makes new methods of production and business models viable, and stimulates investment by many firms.

Finance can also be a constraint on production, and high impact investments in the financial sector will be discussed in Section 4.5. However, there is an important financial input to production which is also produced by firms: foreign exchange. As economist Nick Lea has shown, almost no countries have experienced rapid real income growth without also achieving high nominal export growth.<sup>80</sup> Companies need foreign exchange to import capital and intermediate goods and services, and shortages inhibit growth.

Investments in the tradeable sectors are not only important for foreign exchange earnings. As countries develop, they move from producing simple to complex products (Hidalgo, 2021). Investments that help countries acquire new capabilities required to produce more complex products can have a big impact. There is ample evidence that exporting and FDI results in knowledge transfers that raise productivity (Gorodnichenko et al., 2020). As described in Section 2.2, knowledge creation is another important mechanism by which the benefits of investment spillover to other firms.

DFIs use the phrases 'catalysing' or 'creating' markets to refer to a set of ways in which investments can influence the behaviour of other firms and raise productivity at a market level. This is a context-specific idea, so it's hard to pick out examples of especially high-impact investments. In some cases, reforms to the policy environment in which markets can function may be necessary, in which case the 'upstream' advisory discussed in Section 3.5 will be required so DFIs can have the most impact by creating markets. Individual investments can catalyse markets by acting as 'disruptors' that elicit a competitive response from other firms, by pioneering new technologies and business models that others learn from, or by building new skills and capabilities that diffuse across a market, sometimes as employees leave to found new firms.



*Almost no countries have experienced rapid real income growth without also achieving high nominal export growth.*

<sup>80</sup>Nick Lea: VoxDev. Opinion: The case for tradable growth (2017).

The potential for innovative investments to have an outsized impact on productivity through creating knowledge that is adopted by many firms is greatest in 'mission-critical' sectors for the SDGs, where there is much still to be learned. Successful new business models that reach people living in poverty would also have far-reaching benefits if replicated. Innovative technologies and business models in healthcare, education and housing have potential for great impact. There is a great deal still to be learned about how to build an environmentally sustainable economy, and knowledge created there could lead to more productive economies (as opposed to replacing dirty production for green, without raising productivity). Climate-smart agriculture, for example, could increase agricultural productivity.

Finally, to achieve the SDGs, and support a decent standard of living for all, the economies of Africa and South Asia must increase the production of a range of goods and services that meet basic needs, to make them more affordable, even if those investment do not create spillovers beyond the firm receiving the investment, and the benefits are felt mainly by its workers and customers. Just as economists routinely assume diminishing marginal utility of consumption, they also assume diminishing marginal returns to capital. That means additional capital makes more of a difference to productivity where there is less capital to begin with. There are complications that mean this will not always be true, but when assessing the impact of an investment on the productive capacity of sectors that are important for development goals, then (as a rule of thumb) DFIs may presume that all else equal investments have more impact in places where those sectors are less developed.<sup>81</sup>

## 4.2 Sustainable

- Investments can have the greatest impact on sustainability by:
  - Increasing the supply of affordable and reliable green electricity.
  - Pioneering technologies and business models in hard to decarbonise sectors, and in the restoration and protection of natural capital.
  - Pioneering approaches to adapting production to the consequences of climate change.

Investments have the most impact on sustainability when they do the most to accelerate the transition of the economy towards net zero, protect and restore natural capital, and build resilience to climate change. Investments can deliver this by avoiding, reducing or sequestering emissions; by protecting and restoring natural capital; through the introduction of circular economy business models and increasing the efficiency with which resources are used; and by strengthening the adaptive capacity and building resilience of people, business and economies to acute and chronic physical climate risks.

As with productivity, sometimes the direct impact of an investment on sustainability might be substantial, for example when a particularly large consumer of materials reduces its environmental footprint. But as a rule, the potential for greater impact on sustainability comes from investments that will indirectly improve the sustainability of many firms. Limiting the increase in global temperatures in line with the ambition of the Paris Agreement will require the electrification of most of the economy, and increasing the supply of affordable and reliable electricity from renewable sources can both directly displace emissions from fossil electricity generation and also indirectly enable firms that currently use fossil-fuelled property, plant and equipment to electrify.



*Additional capital makes more of a difference to productivity where there is less capital to begin with.*



*Limiting the increase in global temperatures in line with the ambition of the Paris Agreement will require the electrification of most of the economy.*

<sup>81</sup> Those complications consist of arguments why effect of investment on sectoral productivity might not diminish or could even increase over some range. Questions of inclusivity also complicate the issue – perhaps the first modern hospital in a country will predominately serve the elites – as do questions of sequencing – perhaps the first modern hospital serving elites is a necessary step on the journey to more universal coverage.

Moving the economy onto an environmentally sustainable footing will require experimentation and learning, with both technologies and business models. All the arguments in Section 3.3 about market failures, knowledge creation and externalities point towards pioneering green investments as an area where the social returns will be enormous. Advances in the ‘hard to decarbonise’ sectors, that many firms can adopt, top the list of investments with the largest potential impact on sustainability.<sup>82</sup> These include innovations that decarbonise industrial processes that require high temperatures, cement production, aviation, and shipping, and also the long-term energy storage that is needed to fully decarbonise electricity generation. There is also much still to be learned about the use of more sustainable materials and other aspects of a ‘circular economy’, and new ways of protecting biodiversity in areas that are used for production (as opposed to in nature reserves). Demonstrating how investors can make returns from long-term land restoration projects, for example, could have a huge impact.

Judged only in terms of climate change mitigation, impact is measured in tonnes of carbon avoided per dollar invested, either from displacing existing emission or avoiding growth in emissions that would otherwise have taken place.<sup>83</sup> For DFIs, renewable power investments in large middle-income economies that are big users of fossil fuels (so there is more scope for displacement) are where the big numbers can be found. But the renewables industry is maturing. Wind and solar are increasingly often the least-cost option, and there are private developers capable of responding to demand, so the need for DFIs may fall over time (although in markets such as India, there is still a shortage of private capital relative to the enormous sums required).<sup>84</sup> There are, however, countries in Africa and South Asia that have barely started on the learning curve of integrating renewables into their power networks. So, while impact at scale is important, DFIs must also consider where their support might have more long-run impact by getting the ball rolling in nascent markets.

There are various green technologies on the horizon that will, at some point, hopefully become cost-competitive with incumbent brown technologies. But even then, relying on producers to switch to sustainable technologies for greenfield expansions, or when their existing equipment reaches the end of its economic life, is unlikely to transform the economy rapidly enough to stay within acceptable levels of global warming. DFIs may need to use concessional finance to induce producers to swap-out brown equipment more quickly.

The demand side is important. Cost reductions in solar panels were achieved through increasing returns to scale and ‘learning by doing’, but that required producers to be sufficiently confident in demand to make those initial investments to scale production. Although DFIs cannot single-handedly persuade the shipping industry to switch to hydrogen fuel, for example, they might play a supporting role in the early investments on the demand side that will get things moving.

DFIs must also help the economy adapt to the consequences of climate change. Some of the investments required here could be very large, such as protecting cities from coastal flooding. The cost of desalinated water and using solar energy is gradually falling and if technological advances or economies of scale accelerate that trend to the point it becomes commercially viable in agriculture, that would make a tremendous difference to the global food security situation. Cooling technologies are another area that will be needed to help economies cope with rising temperatures. The same arguments about the greatest impact on climate change mitigation coming from investments that indirectly effect many firms also apply to investments in climate change adaptation.

<sup>82</sup> Friedmann et al., (2019) survey the options for low carbon heat for heavy industry.

<sup>83</sup> Data on the cost per tonne of CO<sub>2</sub> mitigated is hard to find. Juden & Mitchell (2021) present data from Clean Technology Fund and Global Climate Fund, and show a very wide variation in cost-effectiveness across projects.

<sup>84</sup> The cost of capital is the most important factor that determines electricity pricing from renewable energy generation technologies with large upfront capital costs and low operating costs, so there will be a need for DFIs to drive adoption of renewables until either markets are so mature that commercial investors require lower returns or costs have fallen so that pricing is less of an issue.

In some countries, a ‘just transition’ that creates jobs for those affected by decarbonisation will be an important element of the response to climate change. It should be noted, however, that the dislocations caused by digitisation and other forces sweeping the economy, including the geographical location of light and garment manufacturing changing, are likely to impinge on a far greater number of workers, and the need to create decent jobs at scale is ever-present.

### 4.3 Inclusive

- DFIs can have the greatest impact from investment that are inclusive in three main ways:
  - By investing in agriculture, labour-absorbing manufacturing and business services, and some digital and ‘gig’ economy businesses.
  - By making investments that are likely to stimulate growth in the poorest countries
  - By supporting new entrants or incumbents that want to grow through innovation and price cutting, to increase the competitiveness of markets.

Investments are inclusive when they meet the needs and raise the incomes of those most in need. The main dimensions along which DFIs should measure inclusion across a portfolio are income and gender. Race, religion, disability and other sources of discrimination and disadvantage are also important in context.

Assuming that a dollar of consumption makes more of a difference to someone’s quality of life the poorer they are, the ranking is quite straightforward: investments that benefit poorer people have more impact. The common assumption that the ‘impact return’ of a dollar of consumption is twice as high in the hands of someone with half as much to begin with provides DFIs with a rough yardstick for gauging how much more impact investments have when they reach poorer populations.

The answer to the question of which investments are mostly likely to reduce poverty depends on the time horizon. As explained in Section 3.4, using the Lewis model of development, it is possible that the investments that will eradicate poverty in the long run might have relatively muted direct impact on poverty in the short run. When gauging which investments are most inclusive, the relevant time horizon is the short run. It is about which businesses are mostly likely to raise the real incomes of the poorest people, either by creating better jobs or reducing the prices that they face, directly and immediately.

A country will not transform from a low-income to a high-income income country through investments in agriculture alone, but the weight of evidence is that in the short run “growth in agriculture is on average more poverty reducing than an equivalent amount of growth outside agriculture”.<sup>85</sup> Garments and light manufacturing, which can create large amounts of jobs for relatively less experienced and skilled workers, who often migrate from rural regions, have historically been on the pathway out of poverty in Asia. Such investments may be harder to find today, thanks to automation, but they are high impact when they can be found. Business services also offer the potential for labour absorption at scale (Nayyar et al., 2021). Digital and ‘gig economy’ businesses also have the potential to reach poorer sections of society, but there are concerns these businesses can weaken labour bargaining power and are not always a force for good. They may, however, often deliver better livelihoods in the short run.<sup>86</sup>



*Investments are inclusive when they meet the needs and raise the incomes of those most in need.*

<sup>85</sup> This claim is taken from the introduction to a special issue of the journal World Development that contains eight papers on agriculture and poverty: Volume 109, September 2018. Investments in modern farming can have positive or negative indirect effects on nearby smallholder farmers, see Hofman et al., (2018); Ogotu & Qaim (2019) and Glover & Jones (2019) for examples of both.

<sup>86</sup> See Fu et al., (2021) for a survey.

There is also a cross-country dimension. Investments in lower income countries can be viewed as inclusive not only when they are more likely to benefit lower-income people, but also when the current rate of economic growth is low. By the same logic as the diminishing marginal utility of individual consumption, but taking a forward-looking perspective, starting from the same level of national income increasing the rate of a country's annual economic growth from 1 per cent to 2 per cent has a greater impact on human welfare than increasing growth from 5 per cent to 6 per cent. Countries that face a brighter future are less in need of help, and investments that stimulate growth in stagnant economies have higher impact than achieving the same growth uplift but in a country that is already growing. In the poorest countries that are not growing, longer run effects from infrastructure or financial sector investments become more relevant to inclusivity.

Because the pattern of economic activity typically disproportionately benefits men and deprives women of economic opportunities, DFIs should consider investments that either create better employment opportunities for women, or which supply goods and services that meet their needs, as higher impact. In Section 2 (consumption and the real wage) it was suggested that when evaluating the benefits of investments, it makes sense to place less importance on benefits experienced by investors and senior management, but ownership and leadership matters in the context of inclusion. An economy owned and run by white males is not acceptable. Diverse leadership is worthwhile in its own right, but there may also be instrumental benefits in making firms more attuned to the needs of diverse customers and workers.

Inequality is what economists call a 'general equilibrium' outcome, shaped by many forces, and beyond looking at the immediate beneficiaries of an investment (the firm's workers and customers) it is very hard to ascertain when an investment will indirectly increase or decrease inequality.<sup>87</sup> However, more competitive markets should result in lower profit margins, a smaller share of output going to investors and senior management, and more to workers and consumers. Hence investments in new entrants, or which otherwise catalyse competitive markets, are important from the perspective of inclusion.

This is one area where the standards-setting work done by DFIs' ESG teams can be high-impact, especially around workers' voice and bargaining rights. There is potential for demonstration effects from setting benchmarks that other firms follow.

#### 4.4 The financial system

- Investments in the financial sector that have the greatest impact include:
  - Backing pioneering and impact-oriented private equity and venture capital investors.
  - Geographical expansion of formal banking and supplying liquidity to support long-term bank lending.
  - Supporting microfinance institutions to offer more flexible terms, savings and insurance, expanding digital banking and mobile money in a responsible way.

One of the reasons why DFIs exist is to respond to the shortage of finance in developing economies, but DFIs cannot fill financing gaps by themselves. One of the most powerful indirect effects DFIs can have on the productivity of many firms is to improve the functioning of local financial markets and financial intermediaries. The goal is to increase the capacity of the local financial sector to provide growth capital that will support higher levels of productive investment; that will finance the investments needed for the transition to net zero and protect natural capital; and to extend the reach of high-quality financial services across society.

<sup>87</sup> Inequality has many causes. For example, Peter (2019) suggests European economies that are more reliant on debt are more unequal, because bank finance tends to create family dynasties, whereas equity financing tends to dilute ownership.

» *More competitive markets should result in lower profit margins, a smaller share of output going to investors and senior management, and more to workers and consumers.*

When it comes to economy-wide productivity, what matters most is the financial sector's ability to assess and take risks to support firms with innovative and ambitious business plans. Many firms can finance investment from internal cash flows. Those who cannot are often young firms, or those with particularly sizeable or long-term investment plans. The evidence on where DFIs should invest in financial intermediaries to put money into the hands of firms that need external finance to grow is patchy, and often comes from countries where data is easier to obtain (so less from Africa). Equity can be an especially high-impact form of finance because of its risk-bearing nature. There is potential for DFIs to have a large impact by supporting private equity and venture capital investment in new markets, but the evidence for that tends to come from more developed markets. There is ample evidence of the importance of venture capital for innovation and growth in rich economies (Brown et al., 2009; Akcigit et al., 2019) and Peter (2021) uses theory and data to show that easier access to external equity is much more important than debt for aggregate productivity in Europe.

There is evidence from Thailand that geographical expansion of formal banking can have a very large impact – Ji et al., (2021) estimate that the regions with new bank branches experienced as large as a 300 per cent growth in local GDP and 100 per cent growth in local total factor productivity, leading to a welfare gain of over 270 per cent. Bruhn & Love (2014) show expansion of banking targeted at previously underserved customers in Mexico had a sizeable impact on income and labour market activity, Fonseca & Matray, (2021) show bank expansion pushed up wages in Brazil. Besley et al., (2021) argue that bringing more people into the banking system is still much more important for productivity in developing countries than improving services for those that already have access. Choudhary & Limodio (2021) show that banks in developing countries are reluctant to lend for long-term projects because of liquidity risk, which has a measurable effect on local economic growth, suggesting that DFIs could have an important impact by supplying longer-term financing to banks. There is also evidence that 'relationship lending', as opposed to decisions based on credit scores, is better for growth and that small banks are more likely to lend based on personal knowledge (Lee, 2020). Bryan et al., (2021) show the performance from small loans does not predict who will profit most from larger loans, and find that psychometric data can identify top-performers. Technical assistance combined with risk sharing agreements are one way in which DFIs can induce banks to increase activity in unfamiliar but potentially higher impact activities.

The weight of evidence suggests that basic microfinance institutions are not a particularly effective way of raising the incomes of the poor (Meager, 2019), although there is some possibility that the economy-wide impact could be larger than the direct impact on borrowers (Breza and Kinnan, 2021). Only a few borrowers are "gung-ho entrepreneurs" who use loans to expand productive businesses (Banerjee et al., 2019). What lending to these few entrepreneurs amounts to, in terms of economy-wide productivity growth and job creation, is yet to be established. There is some evidence that microfinance institutions that offer a suite of products (savings and insurance) and more flexible repayment terms, have a greater positive impact (Battaglia et al., 2021) – potentially including micro equity (de Mel et al., 2019). But digital banking and mobile money are the most promising developments in financial inclusion, and there is growing evidence they have a meaningful impact on female empowerment and poverty reduction (Suri et al., 2021).

Finally, investments in financial intermediaries that are structured around directing lending towards women-owned enterprises, the adoption of stricter ESG lending standards and establishing business lines that specialise in loans for resource efficiency investments and other green lending, are areas of high potential impact.



*What matters most is the financial sector's ability to assess and take risks to support firms with innovative and ambitious business plans.*



# 05

## Conclusion

**The world's greatest development challenges will not be solved without a dramatic increase in the quantity and quality of investment in lower income countries. The domestic financial sectors in many low and middle-income countries do not provide the range of financial products in sufficient quantities or at the competitive prices that the private sector needs to fulfil its growth potential. Publicly-owned DFIs are also needed because private investment decisions are driven by private financial returns, and private financial returns do not capture social returns investment, for a variety of reasons. As a result, many of the investments needed for development will not happen without public support.**

This background paper has provided an overview of the aspects of development economics that are most relevant to impact investors and has explored the most important sources of high social returns on investment. Drawing on this, the final section has attempted to identify where DFIs can invest to have the greatest impact on development. Although the direct impact of investments on workers, customers and the environment can sometimes be substantial, the greatest impact will often come from investments that indirectly affect the activities of many firms, either through linkages and complementarities in production networks, or through knowledge creation and catalysing markets.

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