

# Companion for Chapter 5

## Ending Extreme Poverty

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### SUMMARY

- A widely used definition of extreme poverty is the World Bank's poverty line, where extreme poverty lies at or below an income of \$1.25 per day (2005 international US\$). The *headcount poverty rate* measures the share of the population under a given poverty line.
- In 2000, 160 governments signed the “Millennium Declaration” to adopt eight developmental goals known as the Millennium Development Goals (MDGs), which contained 21 quantified targets and about 60 indicators to measure progress. The first MDG, to halve the amount of people with an income less than \$1.25 a day, was recently achieved—the poverty rate declined by half between 1990 and 2010. Notably, China has achieved the most remarkable poverty reduction in history with poverty falling from 84% in 1981 to 12% in 2010.
- A differential diagnosis of Africa's problems shows that there are challenges in nearly all of the seven big categories of economic diseases (as defined in the previous chapter); however, Africa can achieve rapid breakthroughs in four sectors: farm productivity, urban productivity, national infrastructure, and human capital investment.
- With a productivity of around 0.5 to 1 tons per hectare, African farmers often lack the income to make critical investments. This results in soil-nutrient depletion, little water management, and a lack of good seed varieties. Government programs must enable farmers to get the inputs they need, either on credit or as a grant, so that over time higher farm yields and higher incomes can help build creditworthiness. Gradually banks rather than government aid can intervene.
- A major buildup of infrastructure, including roads, rail, power, ports, and communication networks, will also be necessary to kick-start economic growth in Africa. The absence of electrification has been a chronic and enormous barrier and another aspect of Africa's poverty trap. Without electricity, productivity is very low. Low productivity or low output per person means that the government collects low taxes and doesn't have enough revenue to invest in projects such as electrification.
- The Internet grid and mobile telephony are spreading without the need for public financing due to favorable profitability and lower fixed costs than power generation. Information and communication technologies have already given a huge boost to Africa's development, and will continue to do so as they facilitate access to health care, education, banking, and other services.
- A final challenge that Africa must surmount is the very high fertility rate. Keeping the population on a low-fertility scenario would allow Africa to reap many development benefits, as families would be smaller and more could be invested per child (in areas like education, health, or nutrition). Governments can promote this by convincing families that they do not need to be large simply to ensure the survival of a few of the children, and by making sure modern contraceptives are available for free. Also, government should ensure that girls stay in school in order to discourage child marriages.

- The second main region where there is still extensive extreme poverty is South Asia. The implications of extraordinarily high population density have been adverse: small sized farms, crowded cities, and food insecurity. In the 1950s and 1960s, innovations in agricultural technology (such as high-yield seeds, fertilizer, irrigation, and transport facilitation) enabled South Asia to overcome chronic famines and kick-start economic growth. This breakthrough period was dubbed the “Green Revolution.”
- India's population growth remained rapid, however, and many agricultural gains actually diminished when measured in per capita terms. While there are many impressive aspects of India's development—such as its rapid growth in IT and manufacturing—there remains the worry over food security and decent nutrition.
- In order to overcome this challenge, India needs a second Green Revolution. As M.S. Swaminathan said, India needs an “Evergreen Revolution” that emphasizes not just crop yields, but crop efficiency. In addition, new crop varieties resilient to heat waves, droughts, and floods will be crucially needed as climate shocks inevitably will increase with climate change.
- South Asia also faces the continuing challenge of gender equality (the focus of the third MDG). In the past decade, microfinance institutions have empowered many rural women, thus contributing to lowering fertility rates. Another challenge of South Asian countries is the widespread undernutrition of children. This can be overcome through better diets, deworming, and provision of safe water and sanitation.
- Targeted investments in agriculture, health, education, infrastructure, and women's empowerment are necessary to get on to the “first rung of the development ladder,” and then the next rungs can be reached with successive investments. However, often a poor country is too poor to even get on the first rung by itself, and as a result, finds itself in a poverty trap.
- The idea behind official development assistance (ODA) is to give countries temporary help to get on the first rung of the development ladder. In 1970, the UN formally adopted the goal that high-income countries should contribute 0.7% of their national income to ODA. Only a few countries reached this target; in fact, aid is about 0.3% of gross national income (around \$120 billion per year). Foreign aid is often poorly directed or misused, but when aid is well targeted to urgent needs (such as building physical or human capital) it can be a crucial help for countries to achieve economic development.
- The goal of the Millennium Villages Project (MVP) was to demonstrate pathways to achieving the MDGs in a few selected places in rural Africa with distinctive agro-ecological zones. The MVP used \$120 per villager per year to build schools, clinics, water points, roads, power grids, etc. The project has helped spur innovations in health care delivery, for example by empowering Community Health Workers (CHWs) to reach even the poorest households in the villages.

## MODELING COMPANION

To go further, we invite you to read through modeling companion D and E. In modeling companion D, we explain one of the most famous growth model: the Solow model. In modeling companion E, we investigate how poverty traps can form within the Solow model.

**Concepts and Definition**

Can you define or explain the significance of these concepts?

Extreme poverty	Microfinance
Poverty line	Self-help groups
Headcount poverty rate	Official development assistance (ODA)
Millennium Development Goals (MDG)	Marshall Plan
Green Revolution	Poverty traps
Borlaug, Swaminathan, and Subramaniam	Humanitarian relief
Evergreen Revolution	Millennium Villages Project (MVP)
Crop efficiency	Community Health Workers (CHWs)

**Check your facts**

- 1) How many people were living under the poverty line in 2010?
- 2) How many people were living under \$2 per day (US\$ at international 2005 prices) in 2010?
- 3) By how much has the headcount poverty rate declined between 1990 and 2010 in developing countries?
- 4) In 2010, what percent of the population of tropical sub-Saharan Africa remained below the poverty line?
- 5) In 2010, what percent of the population of South Asia remained below the poverty line?
- 6) With a growth in GDP per capita of 3.5% per year, how many years will it take for sub-Saharan Africa to double its GDP per capita?
- 7) What yield (in ton of grain per hectare) do smallholder farmers in sub-Saharan Africa achieve, on average?
- 8) What was the estimated fertility rate for 2010-2015 in sub-Saharan Africa?
- 9) What was the average population density in Bangladesh in 2013?
- 10) What percent of national income should high-income countries contribute to ODA, according to the UN?

Answers: 1) 1.2 billion; 2) 2.4 billion 3) by half; 4) 48.5; 5) 31; 6) 20 years; 7) between 0.5 and 1 ton/hectare; 8) 5.1 children; 9) 1200 people per square km; 10) 0.7%

**Review questions**

How can poverty be defined? What are some pitfalls in defining poverty?

Where are the pockets of extreme poverty in the world?

In what areas can Africa achieve a rapid development breakthrough?

How can low farm productivity be a poverty trap?

How is the lack of electricity a poverty trap?

How did India manage to increase crop yields in the 1960s?

Was the Green Revolution able to solve all of India's food supply issues? Why or why not?

When did the concept of ODA originate?

Who are the main contributors to foreign aid today? How much foreign aid are high income countries asked to contribute, and how many countries follow this recommendation?  
How is ODA different from humanitarian relief?  
What kind of spending does ODA support?  
What does the Millennium Villages Project attempt to do?

## DATA ACTIVITIES

EASY

### A. **GDP growth rates**

Go to the World Development Indicators website (<http://data.worldbank.org/indicator/>).

- 1) Look at a graph of "GDP growth (annual %)" for low income and high income country groups. True or false: On average, low income countries grow more quickly than high income countries.
- 2) Check the GDP growth (annual %) rates for the following countries: USA, Ireland, Brazil, China, Cambodia, Nigeria, Malawi. Which country had the highest growth rate in 2012?
- 3) Look at China, USA, Ireland, Brazil, China, Cambodia, Nigeria, and Malawi from 2009-2013. Which country had the most volatile growth rate?

*Answer: 1) True; 2) China; 3) Malawi*

EASY

### B. **Maddison Project Database**

Download the Maddison Project Database on "Historical GDP per capita (GDPpc)" at (<http://www.ggd.net/maddison/maddison-project/data.htm>).

- 1) Look at income per capita in 1930. What was the richest country in the world based on the available data?
- 2) Which region (the bold column entries) was the richest in 1930?
- 3) Which region (the bold column entries) was the poorest in 2010?

*Answer: 1) Switzerland; 2) Western Offshoots; 3) Total Africa*

EASY

### C. **Official Development Assistance**

Use the World Bank Indicator database to answer the following questions.

- 1) In 2012, what 3 countries received the highest amount of net ODA in constant 2012 US\$?
- 2) What percent of their GNI did that represent for each of these 3 countries in 2012?

*Answer: 1) Afghanistan, Vietnam and Ethiopia; 2) respectively 32.6%, 2.8%, and 7.5%*

MEDIUM

### D. **Millennium Villages Simulation**

Go to the Millennium Village Simulation page at <https://mvsim.ccnmtl.columbia.edu> and create a project account. As a player of the MV Sim, you will experience the interdisciplinary nature of real-life challenges from the perspective of an African villager. You can consult the player's manual at <http://mvsim.wikischolars.columbia.edu/Player+Manual>, or get a shorter overview at <http://mvsim.wikischolars.columbia.edu/Player+Quick+Start+Guide>.

- 1) Can you survive your first 4 turns only growing cotton (no maize, no fishing; choose whatever you prefer on all other decisions)?

- 2) Can you survive your first 4 turns only fishing (no cotton, no maize; choose whatever you prefer on all other decisions)?
- 3) Can you survive your first 4 turns only growing maize (no cotton, no fishing; choose whatever you prefer on all other decisions)?
- 4) Which method worked out best and why?
- 5) Name one change in village conditions that you think would affect the best method.
- 6) Write a page about your decision regarding the number of children to have. What factors went into this decision? Discuss the costs and benefits of children as they relate to the simulation. Is there a cost to not having any children at all? Can you detect that while you play the simulation?

**MEDIUM**

**E. Agricultural Yield**

Using FAOStat, <http://faostat.fao.org/>, download data on total cereal yield in all countries since 1961.

- 1) Choose 8 different countries and plot time series of cereal yield since 1961 for these 8 countries on the same graph. Make sure you choose countries that span a broad range of yield outcomes (include India, some African countries, and some high income countries).
- 2) Describe and comment on the graph. Note key trends and provide a rationale for these trends.
- 3) Now download data on consumption (in tons of nutrients) for all countries in 2012 and graphically investigate whether the consumption of N fertilizers is correlated with cereal yield in 2012. Discuss whether you can graphically identify a trend, and whether/why there are any outliers.

**HARD**

**F. MDGs Progress**

Using the information at <http://mdgs.un.org/unsd/mdg>, examine countries' performance toward achieving targets set by the MDGs.

- 1) Click on the tab entitled "Data" and select "Country and Regional Progress Snapshots." Select 3 least developed countries. Review the MDG Country Progress Snapshots for each of these countries. Identify one indicator for which the country is either off-track or unlikely to achieve the MDG by 2015. Choose different indicators for each country.
- 2) Click on the tab entitled "Data" and select "Country Level Data." For each of the three countries and their respective indicators, download and plot this data in three separate Excel plots. In each plot, also include when possible the 2015 target value. Make sure you have scaled the x-axis (time) appropriately (i.e. if your last data point is 2010, there should be several tick marks on the x-axis before 2015).
- 3) Describe what you observe for each country's performance in their respective indicators leading up to today.
- 4) We're interested in understanding why country X seems unlikely to meet its target. Search the literature (academic papers, reports written by governments, NGOs, or international observers). For two of these countries, write a brief summary of what has been done to achieve the MDG target, what obstacles have hindered progress, and what recommendations are offered for accelerating improvements. Include appropriate citation and references for materials you have used in writing your summaries.

## DISCUSS AND DEBATE

- 1) Explain how a Green Revolution in sub-Saharan Africa (i.e., radically increased agricultural productivity) might unlock economic growth. What would you expect to happen in terms of savings rates, industrial development, and urbanization?
- 2) Figure 5.11 in the book depicts the network of subsea (Internet) cables for Africa in 2013, with each line's width corresponding to transmission capacity. Why is this map significant and what are its possible implications in regards to economic growth and global inequality?
- 3) Identify and describe 3 of the 7 possible factors leading to economic stagnation under a "differential diagnosis" (as described in chapter 4).
- 4) Argue why it is realistic to think that the world can end extreme poverty in a generation.
- 5) In light of the two case studies below, discuss how foreign companies and foreign governments can contribute to economic growth in poor countries. In addition, posit what might go wrong.
- 6) Using the two case studies below, discuss the relationship between foreign aid and corruption. Discuss solutions to prevent the misuse or misdirection of foreign aid.

## CASE STUDY

### **Plugging the leaks in food aid through better monitoring and evaluation**

Corruption in the delivery of food aid can arise from many sources, but as the Indian Government and World Vision both learned, understanding local power structures and carrying out careful monitoring can minimise it, whatever its origins. In a Food for Work scheme run by India in 2001-2 to help the most vulnerable people survive a severe drought in Andhra Pradesh, decision-making about recipients, payment and works identification was decentralised to community level – a move intended to optimise service delivery. But no account was taken of entrenched local elites, who severely distorted the process. Most employment opportunities went to village chiefs and projects were awarded to unscrupulous contractors to implement (many of whom paid bribes). These contractors acquired government rice for the scheme at a low cost; they then paid workers the cash equivalent instead of their rice allowance, based on the subsidised price, and sold the rice on the open market at great profit. They also used labour-displacing machinery, cheaply hired, leaving them free to sell the rice acquired for payment. Falsified roll-calls and paperwork covered their tracks. Complaints made to the local media and police prompted the authorities to designate officials to accompany the rice during transportation and prevent its diversion. But the officials were too busy with existing workloads, so this monitoring never took place. A subsequent evaluation of the project recognised the importance of monitoring and evaluation, but stressed that robust anti-corruption checks must be built into programme design. It also acknowledged the need to understand local power structures and involve independent local organisations in project implementation. The value of detailed monitoring also emerged from World Vision investigations into food distribution projects in Liberia. In February 2007 the agency received an anonymous tip that lower level local employees in key positions were diverting food deliveries, building supplies for personal gain. It immediately launched an investigation, sending internal auditors to its field sites to uncover the nature and extent of the violations. It gave detailed documentation for further investigations by the project funder, USAID. World Vision then acted swiftly to prevent future occurrences, including increased field oversight of programmes; improved background check procedures for hiring staff, and special training to increase the ability of local staff to detect and deter fraud. It also enhanced its round-the-clock integrity hotline, enabling employees worldwide to call confidentially if they suspect suspicious activity. Such combined measures create a formidable barrier to food diversion.

*Transparency International, Handbook of good practices, Preventing Corruption in Humanitarian operations*

[http://www.transparency.org/whatwedo/publication/handbook\\_of\\_good\\_practices\\_preventing\\_corruption\\_in\\_humanitarian\\_operations](http://www.transparency.org/whatwedo/publication/handbook_of_good_practices_preventing_corruption_in_humanitarian_operations)

## CASE STUDY

### Large-scale aid works—when done properly

Criticisms of aid come in many forms. Some critics charge that aid is inherently flawed because it strengthens governments, often corrupt governments, at the expense of the private sector. This is the famous argument of the late British economist Peter Bauer. Some charge that aid is not needed, since private saving and investment can and should be the backbone of economic growth. Some have taken the middle ground that aid works when it is channeled to well governed countries. This is the conclusion of the highly influential study by Burnside and Dollar (2000).

Our view, explained in the text, is that aid is most useful if channeled to the countries that truly need it (mainly those stuck in a poverty trap) and channeled to the right sectors (mainly infrastructure and human capital). It works best when delivered to well governed countries. And aid used to support public investment complements private saving and investment, rather than competing with private capital.

Many negative conclusions about the link between aid and economic growth have come from cross-country regressions of economic growth on aid volumes (and other variables). The volume of aid is often found to be statistically insignificant as a determinant of economic growth, leading some authors to conclude that “aid is ineffective” in promoting economic growth. An important weakness in such studies is that they tend to examine the links of growth to overall volumes of aid without paying attention to how the aid is actually delivered. Specifically, much aid comes in the form of technical assistance (for consultants from the donor country), administrative costs of running bilateral and multilateral agencies, and emergency food aid. It is not really surprising that such aid is not correlated with economic growth in the recipient country. Food aid, especially, is given in the midst of deep crises. So a regression of economic growth on food aid would tend to prove (erroneously) that aid causes output to decline, instead of the correct conclusion that an output decline (caused by drought, for example) causes emergency aid to rise!

In an important new study, Clemens, Radelet, and Bhavnani (2004) correct for this typical shortcoming by considering only aid volumes that effectively support investments and services on the ground in the recipient country, taking out emergency aid, technical assistance, and other kinds of aid that do not translate into growth-promoting investments and services. They find that aid, when measured properly, contributes significantly to economic growth. This suggests that aid is effective, if it is well targeted and administered as direct support for country-level investments. Of course, a minimum adequacy of governance is required for a country to be able to channel aid into investments.

Aid can and must be disbursed in ways that align the incentives of donors and recipients to support positive development outcomes. As this report argues, elements of a successful disbursement strategy include aid in the form of budget support for national poverty reduction strategies based on the Millennium Development Goals. While there have been real problems with the way that aid has been distributed in the past, governments in rich and poor countries alike are learning from their mistakes to design more effective ways of delivering financial assistance to those who need it most.

In sum, foreign aid can play a hugely positive part in growth and poverty reduction when properly targeted and administered toward vital infrastructure and human capital. This finding is underlined by the recent experience of Mozambique, Tanzania, and Uganda, which all experienced substantial social sector improvements financed largely through development assistance. Mozambique is a particular success story over the past decade, having averaged real per capita economic growth rates of 5 percent while receiving aid ranging from 20 percent to 60 percent of GNP every year since 1993.

Source: UN Millennium Project, *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals*. (2005) Box 8. <http://www.unmillenniumproject.org/documents/MainReportComplete-lowres.pdf>

## FURTHER READING

This New York Times bestseller offers an informed vision of the steps that can transform impoverished countries into prosperous ones.

Sachs, J. D. (2007). *The end of poverty*.

Bill and Melinda Gates discuss three myths that block progress for the poor: 1) poor countries are doomed to stay poor; 2) foreign aid is a big waste; 3) saving lives leads to over-population.

Bill Gates 2014 Annual Letter (25 pages) <http://annualletter.gatesfoundation.org>

This UN document describes how we define poverty, the different indicators, the causes of poverty and where the poor live.

SDSN. 2012b. "Global Profile of Extreme Poverty." Background Paper for the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda. New York: Sustainable Development Solutions Network.

- **MDGs**

This report examined the latest progress towards achieving the MDGs.

UN Millennium Project, *MDG Progress Report 2014* (2014)

This report recommended the way forward to achieve the MDGs.

Millennium Villages Project. 2011. *The Millennium Villages Project: The Next Five Years: 2011–2015*. New York: Millennium Villages Project.

- **Foreign Aid**

This essay makes the case for foreign aid.

Sachs, Jeffrey D. 2014. "The Case for Aid." *Foreign Policy*, January 21.

This document defines the keys terms related to official development assistance.

Organization for Economic Co-operation and Development. 2014. "Official Development Assistance—Definition and Coverage."

[www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm#Coverage](http://www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm#Coverage).

- **UN declaration**

This is the declaration that the world's leaders adopted after the Millennium Summit, on September 8, 2000.

UN General Assembly, *United Nations Millennium Declaration* (2000)

- **Demographics**

This report provides the demographic data and indicators to assess population trends at the global, regional and national levels and to calculate many other key indicators commonly used by the United Nations system.

[United Nations Department of Economic and Social Affairs Population Division \(DESA Population Division\).2015. "World Population Prospects: The 2015 Revision."](#)

This article describes the changes taking place during a demographic transition.

[Lee, R. \(2003\). The demographic transition: three centuries of fundamental change. Journal of Economic Perspectives, 17 \(4\).](#)

- **Others**

This factsheet provides an introduction to the "One million community health workers" initiative.

One Million Community Health Worker Fact Sheet

[http://1millionhealthworkers.org/files/2013/01/CHW\\_FactSheet\\_Final.pdf](http://1millionhealthworkers.org/files/2013/01/CHW_FactSheet_Final.pdf)

This report describes how we can achieve universal energy access, improve energy efficiency, and increase the use of renewable energy.

[Sustainable Energy for All, Annual report, 2014](#)

This report describes possible ways to improve our agricultural systems.

[Sustainable Development Solutions Network Thematic Group on Sustainable Agriculture and Food Systems. 2013. Solutions for Sustainable Agriculture and Food Systems: Technical Report for the Post-2015 Development Agenda. New York: Sustainable Development Solutions Network.](#)