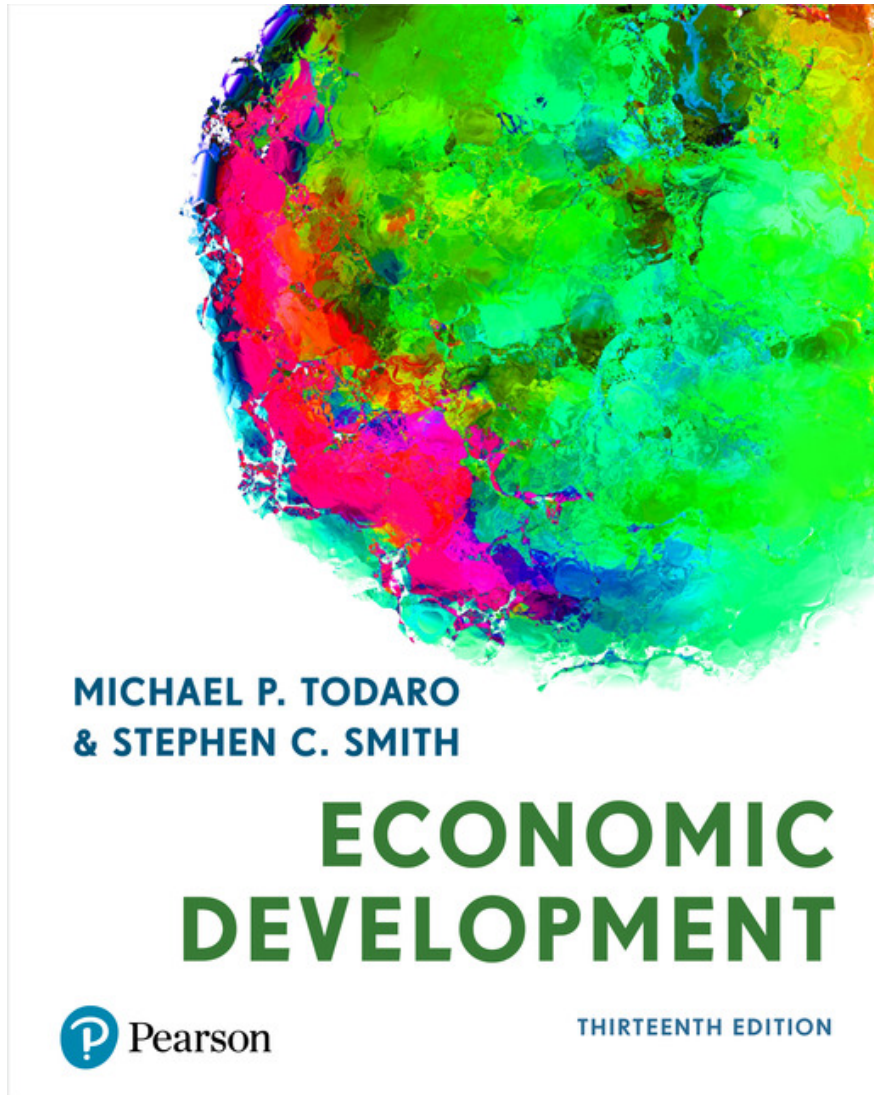


# Economic Development

Thirteenth Edition



## Chapter 8

Human Capital: Education and Health in Economic Development

# Notes and Omissions

- Omit the Child Labour Multiple Equilibria Model (middle of page 402 – 404).
- There are quite a few empirical studies mentioned in the text. If they are not mentioned in the notes, you are not responsible for them.

## 8.1 The Central Roles of Education and Health as both Objectives and “Inputs”

- First, health and education are important objectives of development:
- Second, health and education are also important components of growth and development – inputs in the aggregate production function

# Education and Health as Joint Investments for Development

- Health and education are investments in the same individual
- Greater health capital **may** improve the returns to investments in education
  - Healthier students, healthier working adults
- Greater education capital may improve the returns to investments in health
  - Public health programs in school for example

# Improving Health and Education: Why Increasing Incomes Is Not Sufficient

- Building on Chapter 1: Health, education, and income can function as complements
  - Increases in income often do not lead to substantial increases in investment in children's education and health
  - Why?
- 
- But better educated mothers tend to have healthier children, at any income level

- Significant market failures in education and health require policy action→higher incomes lead to higher tax revenues which allow more government programs

# Characteristics of Developing Country Education

- School enrollment at all levels in LDCs has more than doubled since 1970.
- The growth started in the primary schools and then moved on to secondary schools and onwards.

# Problems

- Problems: financial difficulties in many LDCs and shortages of skilled teachers.
- Also, in many countries, educational participation and attainment of girls lags behind that of boys.
- Dropouts, repeaters
- Low test scores
- Unemployment of the *educated* increased.



# World Education Forum 2000

- 113 million children had no access to primary education (55 were are girls)
- 880 million adults were illiterate, 2/ 3 of which were women
- Gender discrimination in education exists

## Positives

- Enrollment in primary education has increased, including enrollment of girls
- Repetitions and dropout rates have decreased
- Some limited improvement in gender inequality...regional differences exist...better in some geographical regions than others
- Overall adult literacy rate is higher for men than women but the gap is closing

World Stats	2018
Primary completion rate (male)	89.5% (net)
Primary completion rate (female)	89.3% (net)
Secondary Enrollment	66.3% (net)

Source: World Bank, World development Indicators.

Region	Literacy Rates- youth
East Asia & Pacific	99%
Euro Area	100%
Europe and Central Asia	100%
Latin America & Caribbean	98%
Middle East & North Africa	91%
South Asia	88%
Sub- Saharan Africa	75%
World	91%

Source: World Development Indicators, World Bank, 2016 stats (note 2019 stats almost the same)

# Benefits of Education

- On average, the higher the level of education, the higher the wages.
- **BUT.....Educational deepening:**
  - *Definition:*

# Lifetime Earnings Curves

## Characteristics:

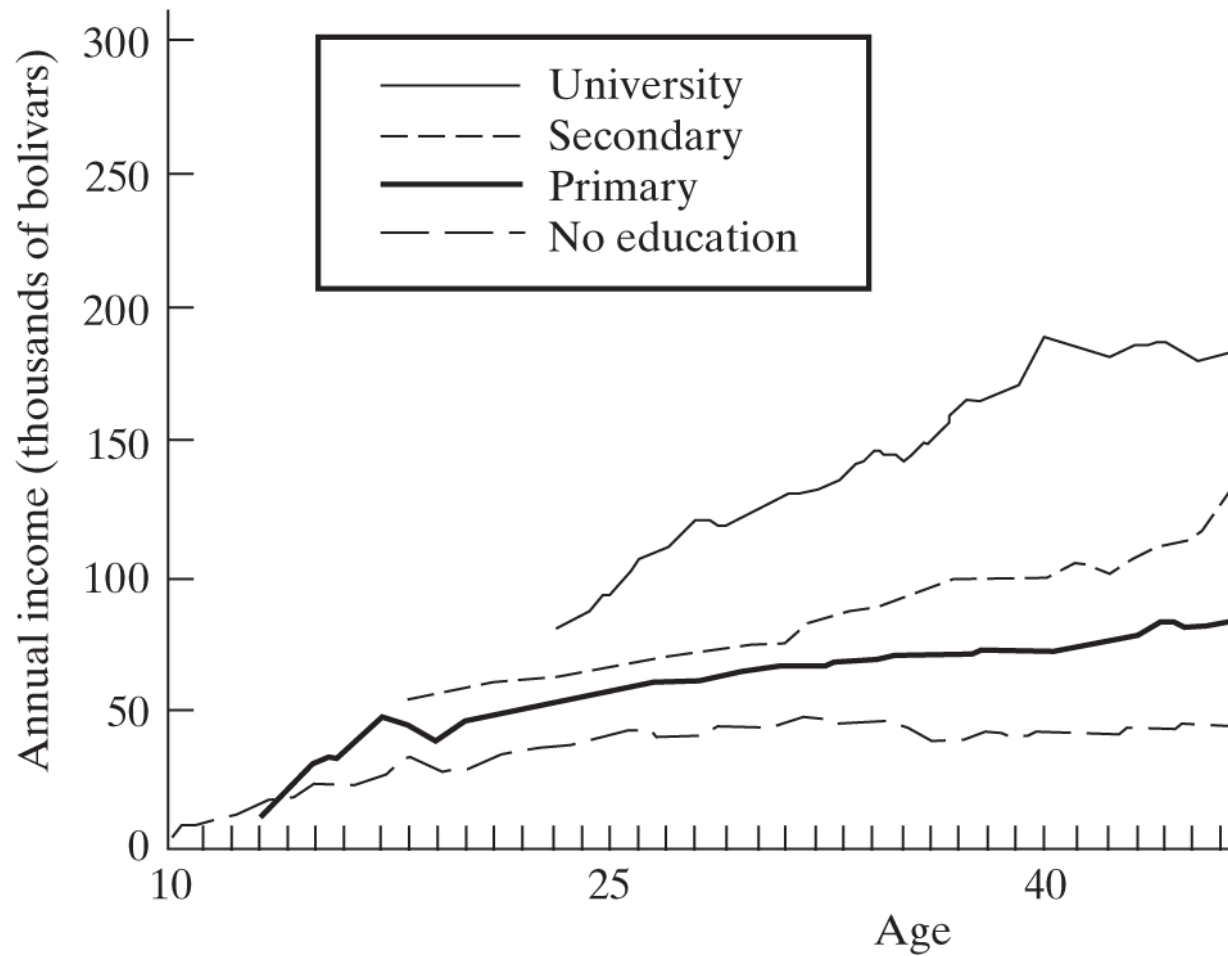
- 1) Earnings increase up to a maximum level, reached around age 40 and then level off or decline.
- 2) For those with larger amounts of schooling, the curve is higher and steeper in its rising phase.
- 3) More schooling leads to later attainment of maximum earnings and to higher returns in retirement.

## 8.2 Investing in Education and Health: The Human Capital Approach

- The present discounted value of this stream of future income is compared to the costs of the investment
- Private returns to education are often high
- However, private returns may be higher than social returns, particularly at higher educational levels, when accounting for education subsidies

# Figure 8.1

## Age-Earnings Profiles by Level of Education: Venezuela

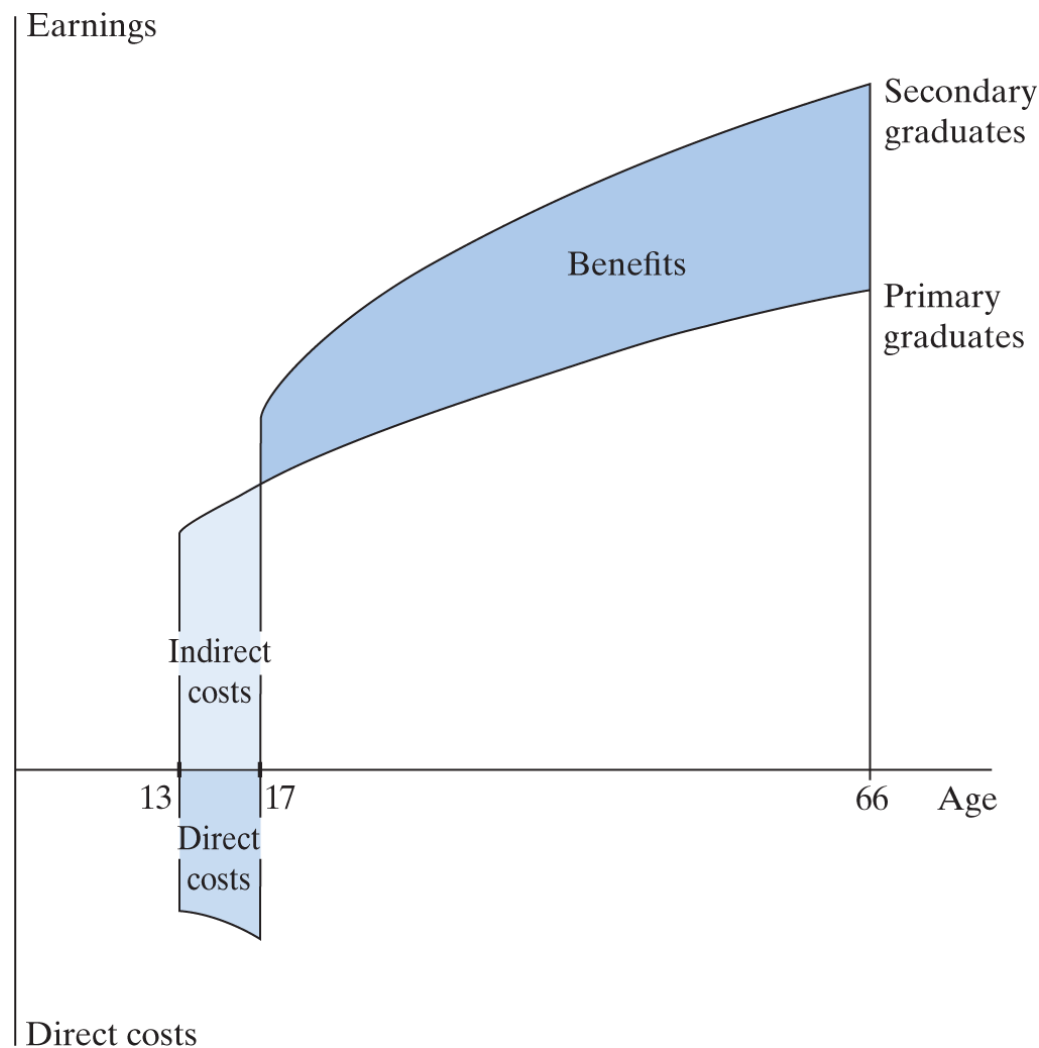


Source: International Bank for Reconstruction and Development/ The World Bank: *The Profitability of Investment in Education: Concepts & Methods* by George Psacharopoulos, 1995. Reprinted with permission.



# Figure 8.2

## Financial Trade-Offs in the Decision to Continue in School



# Algebraic version of the schooling decision diagram

(Note: you can also calculate the rate of return, as in Endnote 19)

Net Present Value (NPV) of the income stream is given by:

$$NPV = \sum_t \frac{Y_t - X_t - C_t}{(1+r)^t}$$

Where:

$t$  is time (year) from present. (The present is time  $t = 0$ .)

$Y_t$  is expected income from having gone to school, realized at time  $t$

$X_t$  is expected income from having NOT gone to school, at time  $t$

$C_t$  is the cost of going to school borne at time  $t$  (if any)

$r$  is the rate of discount used

NOTE 1: Looking ahead, compare this formula with Equation 11.10

NOTE 2: Some empirical NPV estimates are found in Table 8.1

# Private Costs

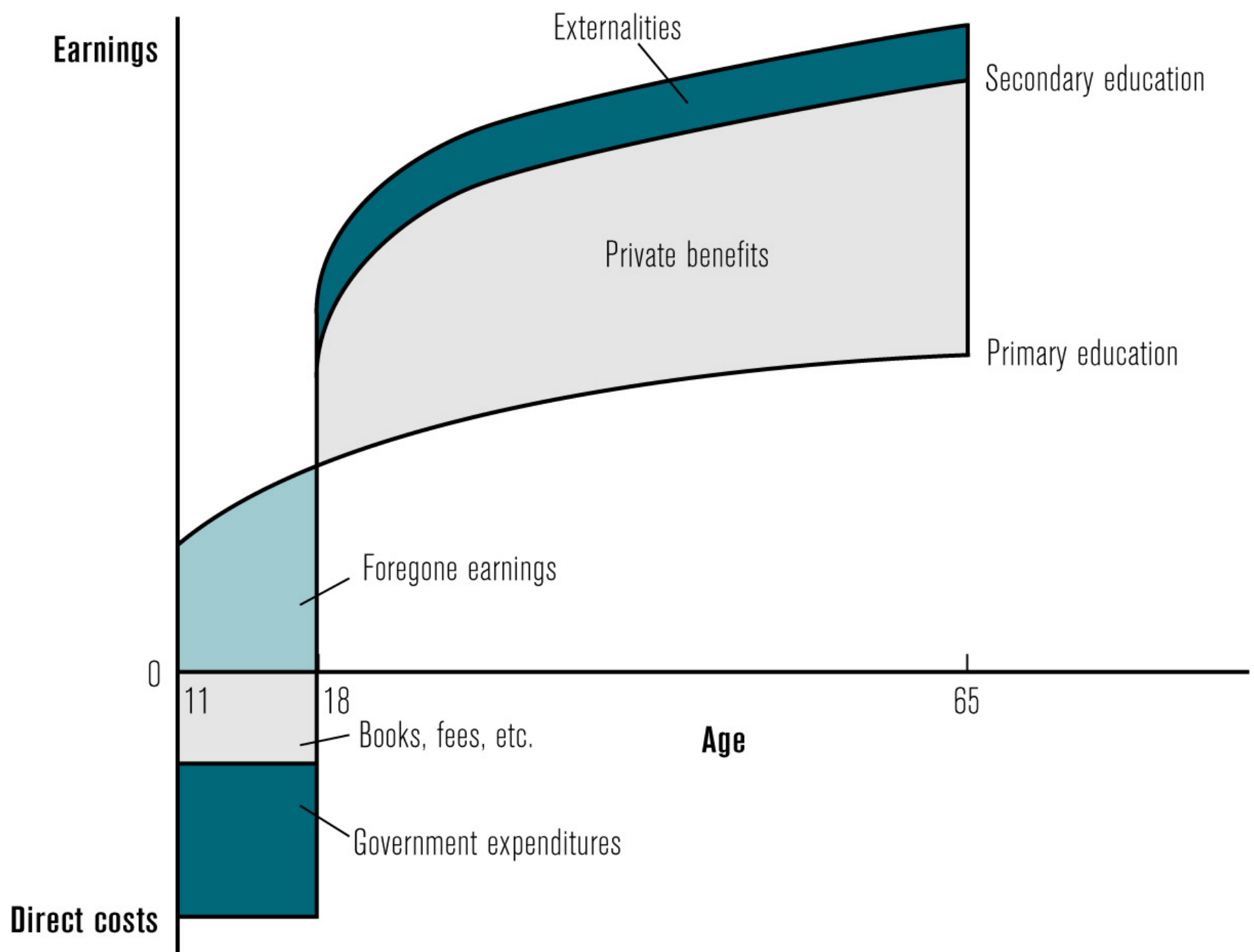
- These include explicit costs (actual outlays of cash) and implicit costs (foregone earnings of students who could be working).
- Costs are incurred before benefits are realized.
- If discounted benefits  $>$  discounted costs, investment should be made.

- In educational analysis, the internal rate of return or social rate of return is calculated by setting the costs = benefits.
- $C_t$  = private costs, explicit + implicit.

$$\sum_{t=1}^n \frac{E_t}{(1+r)^t} = \sum_{t=1}^n \frac{C_t}{(1+r)^t}$$

- OR

$$\sum_{t=1}^n \frac{Et - Ct}{(1+r)^t} = 0$$



**FIGURE 8.6** Determinants of the Social Returns to Schooling

# Social or Economic Rate of Return

- All costs of education, public and private are included (public- sector costs not reimbursed by tuition).
- Depending on the relative magnitude of the cost borne directly by the gov't and the income tax collected, the social rate of return could be *higher or lower* than private rate of return.

# Table 8.1

## Returns to Investment in Education by Level, Regional Averages (%)

Region	Social			Private		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Asia <sup>a</sup>	16.2	11.1	11.0	20.0	15.8	18.2
MENA <sup>b</sup>	15.6	9.7	9.9	13.8	13.6	18.8
Latin America/Caribbean	17.4	12.9	12.3	26.6	17.0	19.5
OECD	8.5	9.4	8.5	13.4	11.3	11.6
Sub-Saharan Africa	25.4	18.4	11.3	37.6	24.6	27.8
World	18.9	13.1	10.8	26.6	17.0	19.0

<sup>a</sup> Non-OECD.

<sup>b</sup> Europe/Middle East/North Africa, Non-OECD

Updated numbers range from 8.2% to 9.3% overall for private ROR  
By region, range from 5.7% to 11%.

Source: George G. Psacharopoulos and Harry A. Patrinos, "Returns to investment in education: A further update," *Education Economics* 12, No. 2 (August 2004), tab. 1.

Note: How these rates of return were calculated is explained in detail in note 19 at the end of this chapter.



- All the rates shown are **marginal rates**. They indicate the return on the additional investment needed to move from one level of educational attainment to the next.

## Conclusions:

- 1) Rates of return on education in LDCs are generally
- 2) The highest social rates of return are usually on schooling, especially in countries where primary schooling is not universal
- WHY?

- 3) The spread between private rates of return and social rates of return can be large when the gov't (vs. private schools)
- 4) Returns to education tend to as countries develop.

# Improving Schools

- There can also be an inefficient use of resources and lack of accountability and frequent teacher absences.
- Solutions?
  - more/ better teachers, buildings, school supplies,
  - hiring tutors has been proven to be very effective and cheaper than training teachers.
  - Think of how to achieve these goals?

- Other disincentives

- Extra costs like uniforms and books and transportation

- Possible solution: reducing fees ... This will increase enrollment but reduce revenues → less resources.

- Brain drain

## Other solutions

- Some countries have combined health and nutrition programs with schooling such as vaccinations, breakfast, checkups.
- Do not use a “one size fits all” approach.
- Treat countries/ regions differently based on characteristics to decide what is best.
- Get parents involved where possible.

# Challenges

- Making schooling more productive.
- Schooling by itself doesn't generate demand for labour.
- What is the “right amount” of schooling?
- Where should the money go?
  - Primary, secondary, tertiary?

- How should the money be invested?
  - Free education at all levels?
  - Education fees geared to income?
  - Paying students to go to school?



## 8.3 Child Labour

- Child labour is a widespread phenomenon
  - In 2008, 306 million children ages 5 to 17 were working according to the International Labour Office
  - Approximately 1/3 of this work was “permissible” according to national laws and the UN Conventions
  - So the children are not going to school and their health is worse
  - Updates: progress since 2016 has stalled
  - [https://www.ilo.org/wcmsp5/groups/public/-/-ed\\_norm/-/-ipec/documents/publication/wcms\\_800278.pdf](https://www.ilo.org/wcmsp5/groups/public/-/-ed_norm/-/-ipec/documents/publication/wcms_800278.pdf)

# Other approaches to child labour policy

- Help get more children into school (as in Sustainable Development Goals), e.g. building new village schools; and providing enrollment incentives for parents (such as in Progresa/ Oportunidades- conditional cash transfers)
- Consider child labour an expression of poverty, so emphasize ending poverty generally, rather than child labor directly (a traditional World Bank approach, now modified)

- If child labour is inevitable in the short run, regulate it to protect children, and to provide support services for working children (“ UNICEF approach” )such as time off work for schooling or schooling at the workplace
- Ban child labour; or if impossible, ban child labour in its most abusive forms (ILO approach; “ Worst Forms of Child Labor Convention” )
- **Activist approach: trade sanctions**
  - Concerns: Sanctions could backfire when the result is that children shift to informal sector; and if modern sector growth slows

# The Gender Gap:

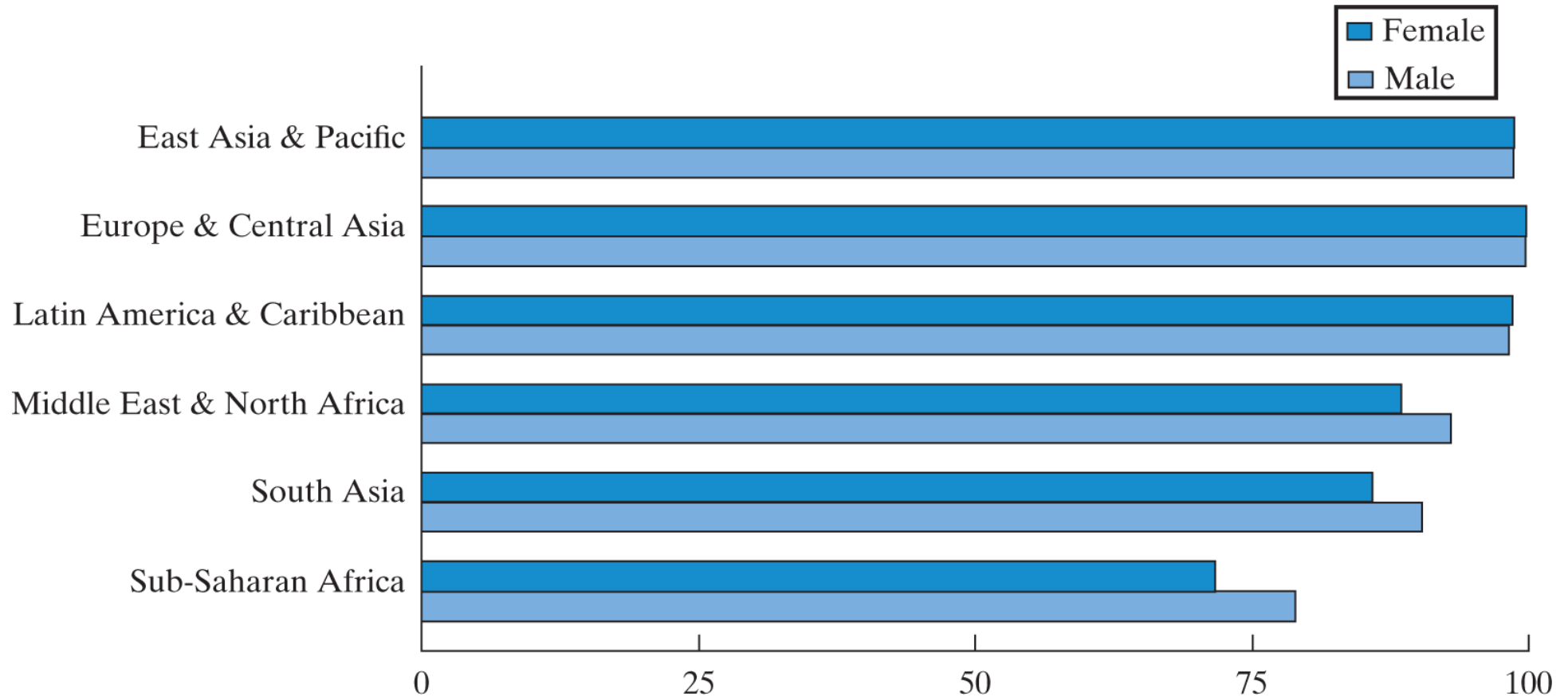
## Discrimination in Education and Health

- Young females receive less education than young males in nearly every low and lower- middle income developing country
- Closing the educational gender gap is important in part because the social rate of return on women's education is than that of men:

- Closing the educational gender gap is important because:
  - Education for women increases productivity, lowers fertility and has shown to be **one of the most cost effective** means of improving local health standards
  - Educated mothers have a *positive* impact on future generations
  - Education can break the vicious cycle of poverty and inadequate schooling for women
  - **Good news**: Millennium Development Goals on parity being approached, progress in every developing region

# Figure 8.5

## Youth Literacy Rate, 2016



Source: UNESCO Institute for Statistics

## 8.4 The Gender Gap: Discrimination in Education and Health (cont'd)

- Consequences of gender bias in health and education
  - Economic incentives and their cultural setting; families are more likely to seek care for boys than girls

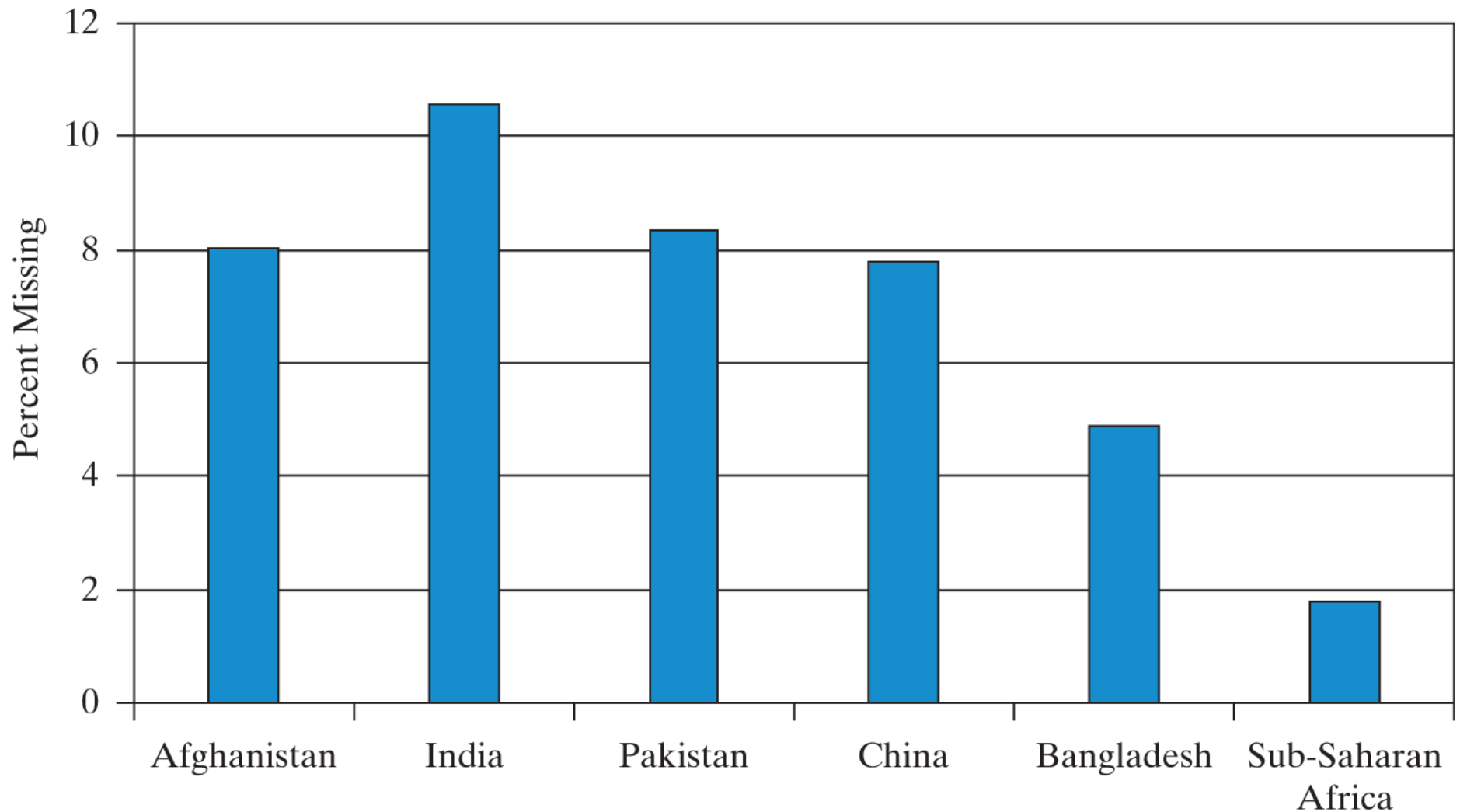
# The “Missing Women” Crisis

- Research has concluded that in Asia at least 100 million women are “missing” ...
  - Update: Bongaarts and Guilmoto 2015: 126 million missing globally; numbers still rising, projected to reach 150m by 2035
- Some women are also missing in Africa, but a much smaller proportion. Also in other areas of the world such as the indigenous population in Canada.
- Reasons include inferior medical care for girls (postnatal factors), and gender selective abortion (prenatal selection) or even female infanticide



## Figure 8.6

### Estimated Percentage of Women “Missing”



Source: United Nations, Department of Economic and Social Affairs, Population Division (2017)

## 8.5 Educational Systems and Development

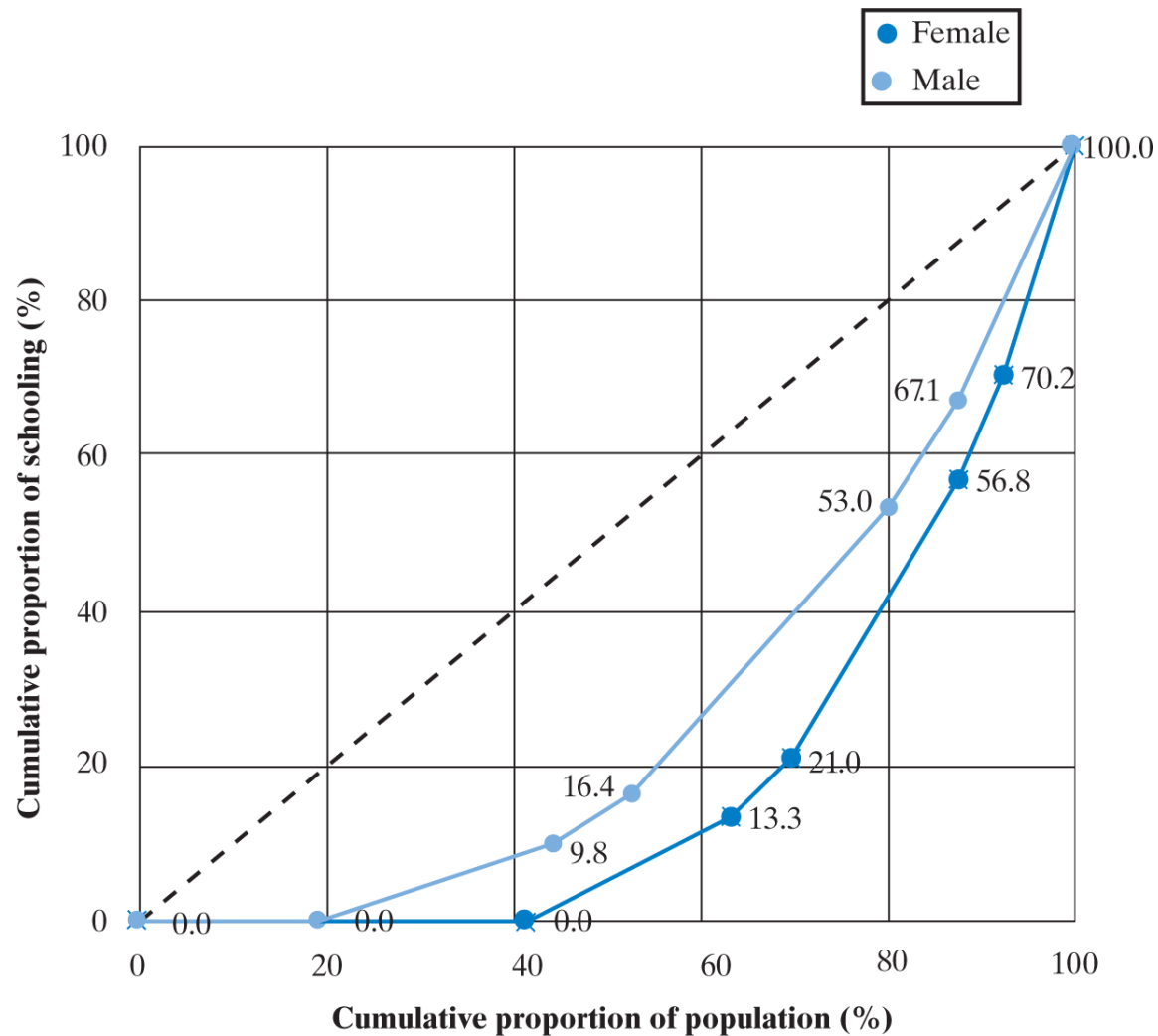
- The Political Economy of Educational Supply and Demand
  - The Relationship between Employment Opportunities and Educational Demands
- Social versus Private Benefits and Costs
  - Among factors that could augment net social returns are literacy spillover benefits
  - But net social returns could diminish are overstated by public subsidies for private education, to extent they represent transfers for private benefits (generally there are larger divergences at higher educational levels)

## 8.5 Educational Systems and Development (Continued)

- Distribution of Education
  - Lorenz curves for the distribution of education; and education Gini coefficients
  - See Figures 8.7 and 8.8 (on the next two slides)

# Figure 8.7

## Lorenz Curves for Education in India



Source: <https://www.epdc.org/epdc-data-points/epdc-spotlight-india>; Data are based on the 2006 DHS India household dataset.

# **Health and Nutrition in Economic Development: Further Topics**

# Health Measurement and Distribution

- World Health Organization (WHO), a UN agency:  
The key United Nations agency concerned with global health matters.
- Health defined:
  - According to the WHO, *health is defined as being “a state of complete, physical, mental and social well-being”.*
  - Are you healthy today?
  - *Health Disability Adjusted Life Year (DALY)*
    - Adjusts for disabilities and premature deaths

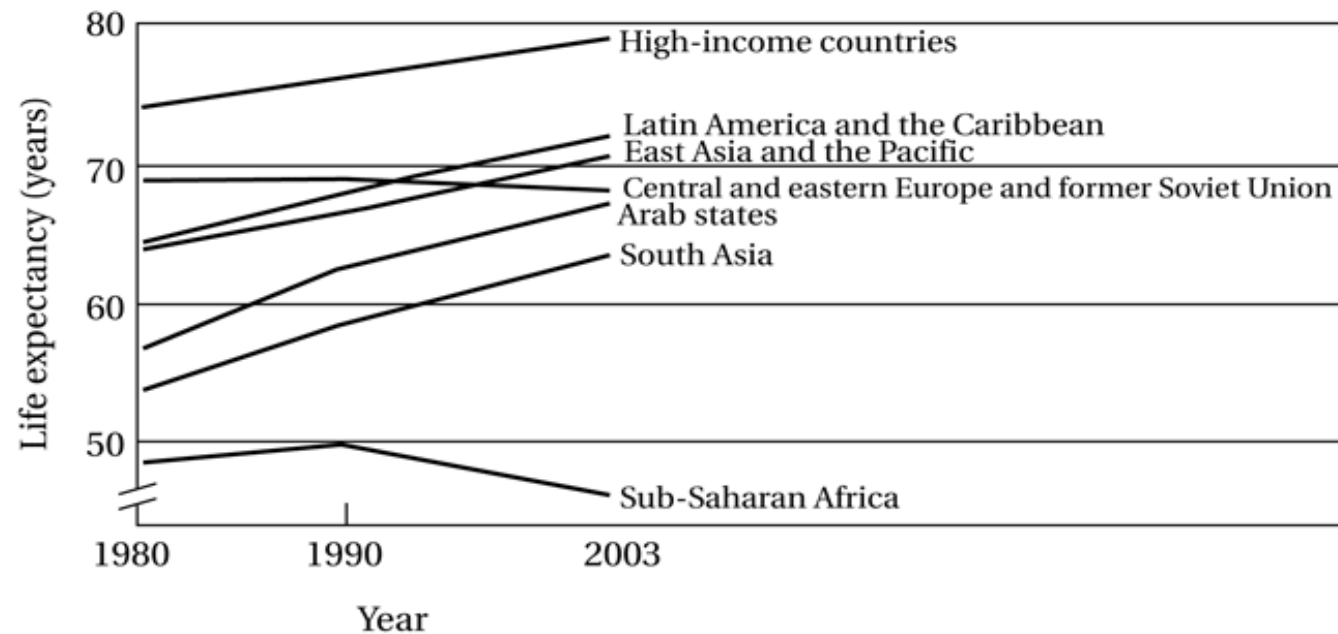
- The goal of improving health conditions in developing countries often has been given a low priority. In most countries, the Ministry of Health has little power and a very small budget.
- Health care in most LDCs is poorly funded, heavily skewed to favour urban areas and too concerned with curative rather than preventative care.

- The main diet problem in many developing countries is **calorie-protein malnutrition**; the main victims are infants and children.
- Governments can improve both the quantity and quality of food consumption through nutrition interventions.
- Food subsidies often prove to be wastefully expensive, as discussed in chapter 5.

—



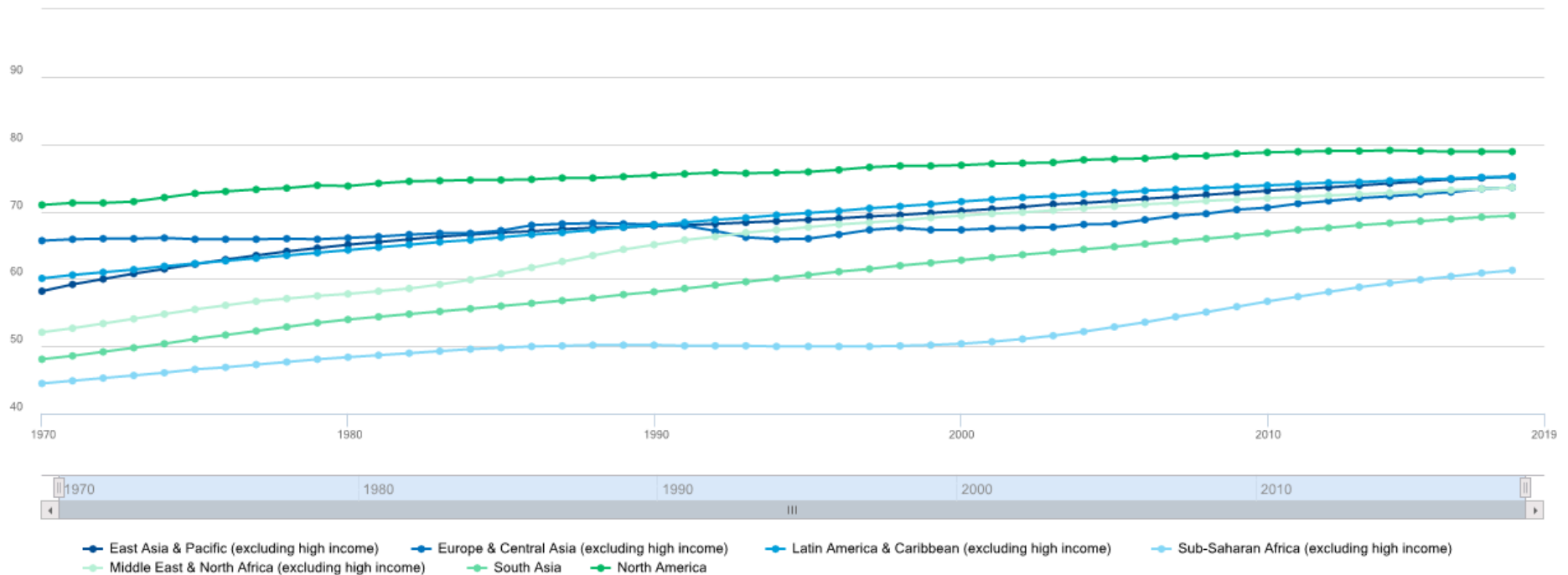
## Figure 8.9 Life Expectancy in Various World Regions



Source: From *Human Development Report, 2005*, fig. 1.1. Reprinted with permission from the United Nations Development Programme.

[http://www.who.int/gho/mortality\\_burden\\_disease/life\\_tables/situation\\_trends/en/](http://www.who.int/gho/mortality_burden_disease/life_tables/situation_trends/en/)

# Life expectancy at birth in various regions (see improvement from previous slide)



Series : Life expectancy at birth, total (years)

Source: World Development Indicators

Created on: 07/21/2020

# The Determinants of Improved Health

- In both rich and poor countries, positive relationship between better health and economic growth, income levels and poverty.

## Which comes first? Health or Growth?

- There is evidence that causality probably works in both directions

## Generally rising incomes improve health

- As incomes rise, can afford better food, clean water, etc.
- As incomes rise, tax dollars rise so public health expenditures can increase
- The more equal the ***distribution*** of income, the better is health.

# Better Health Increases Growth and Incomes

- One estimate: each 10% increase in life expectancy at birth leads to an increase in GDP growth by 0.3 to 0.4%.
- Better health usually improves productivity.
- Studies have found that better childhood health will also improve productivity as an adult.

# Health and Investment

- With increased life expectancy, people save more → more investment in physical capital and more investment in human capital.

# Health, Productivity, and Policy

- Health Systems Policy
  - Great variability in the performance of health systems at each income level

The WHO compared health systems around the world:

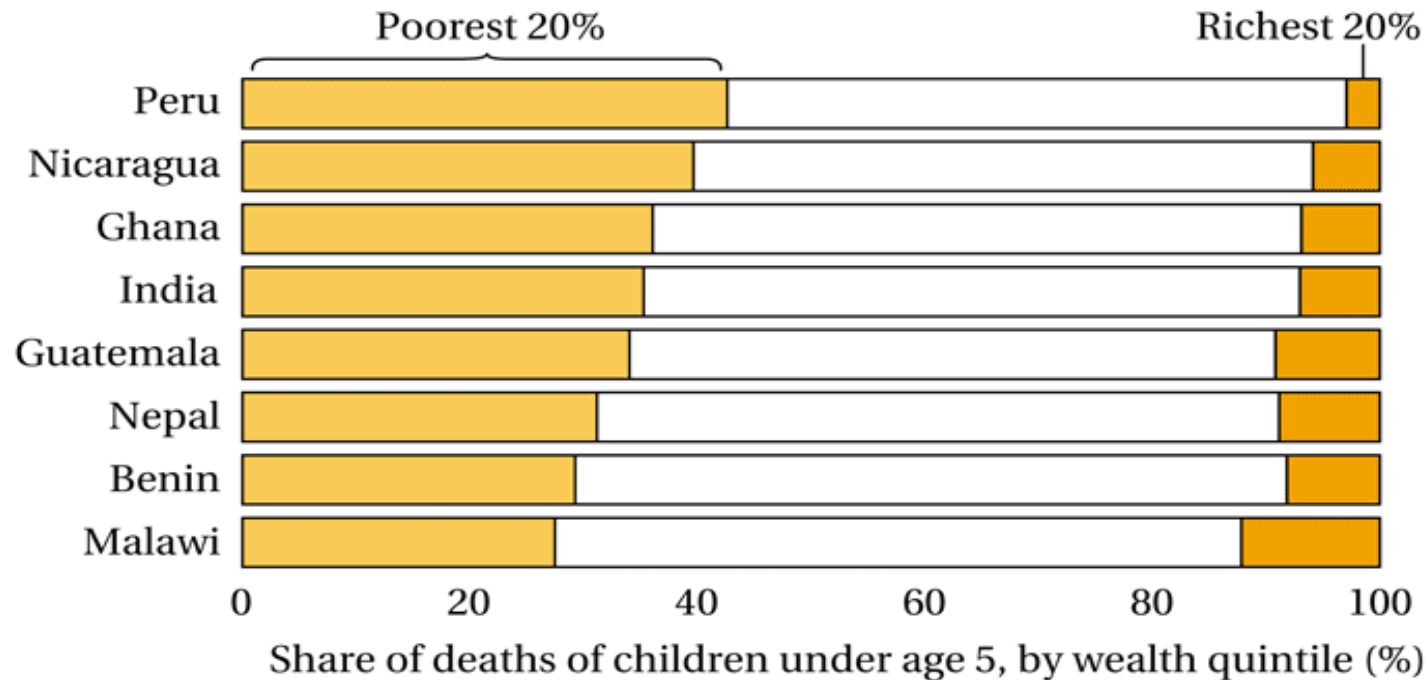
They found that many countries, including developing countries ranked higher than the US



# The Good and the Bad

- Increasing literacy
- International spread of health technology (sharing)
- Important causes of deaths in LDCs are diseases (infectious, respiratory and parasitic) which are now being brought under control BUT are being replaced by cancer and diseases of the circulatory systems.
- Malnutrition still a problem
- Pollution, urbanization and environmental problems.

## Figure 8.12A Children's Likelihood to Die in Selected Countries

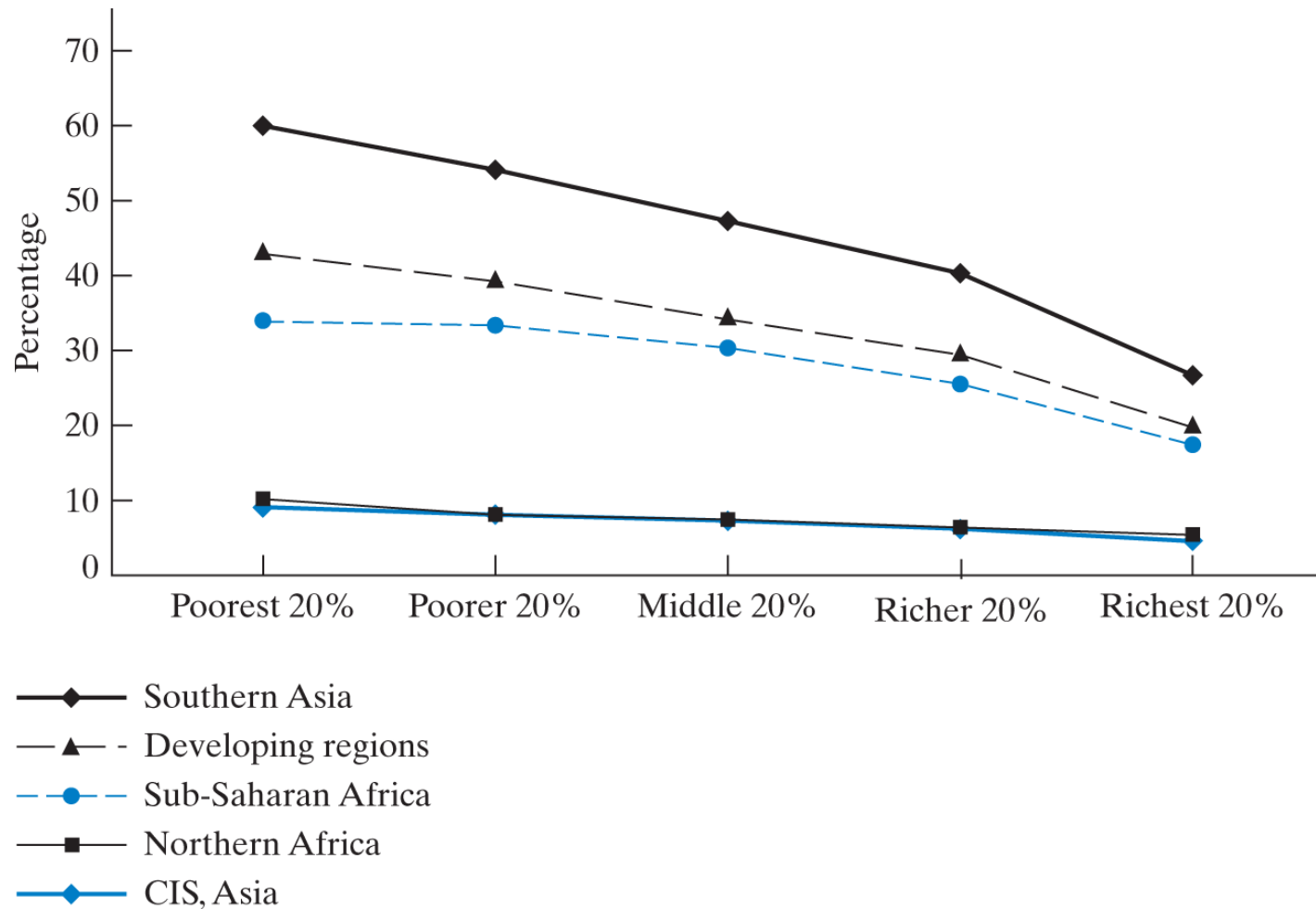


Source: *Human Development Report, 2005*, fig. 2.4. Reprinted with permission from the United Nations Development Programme.

[http://www.who.int/gho/child\\_health/mortality/mortality\\_under\\_five/en/](http://www.who.int/gho/child_health/mortality/mortality_under_five/en/)

# Figure 8.9

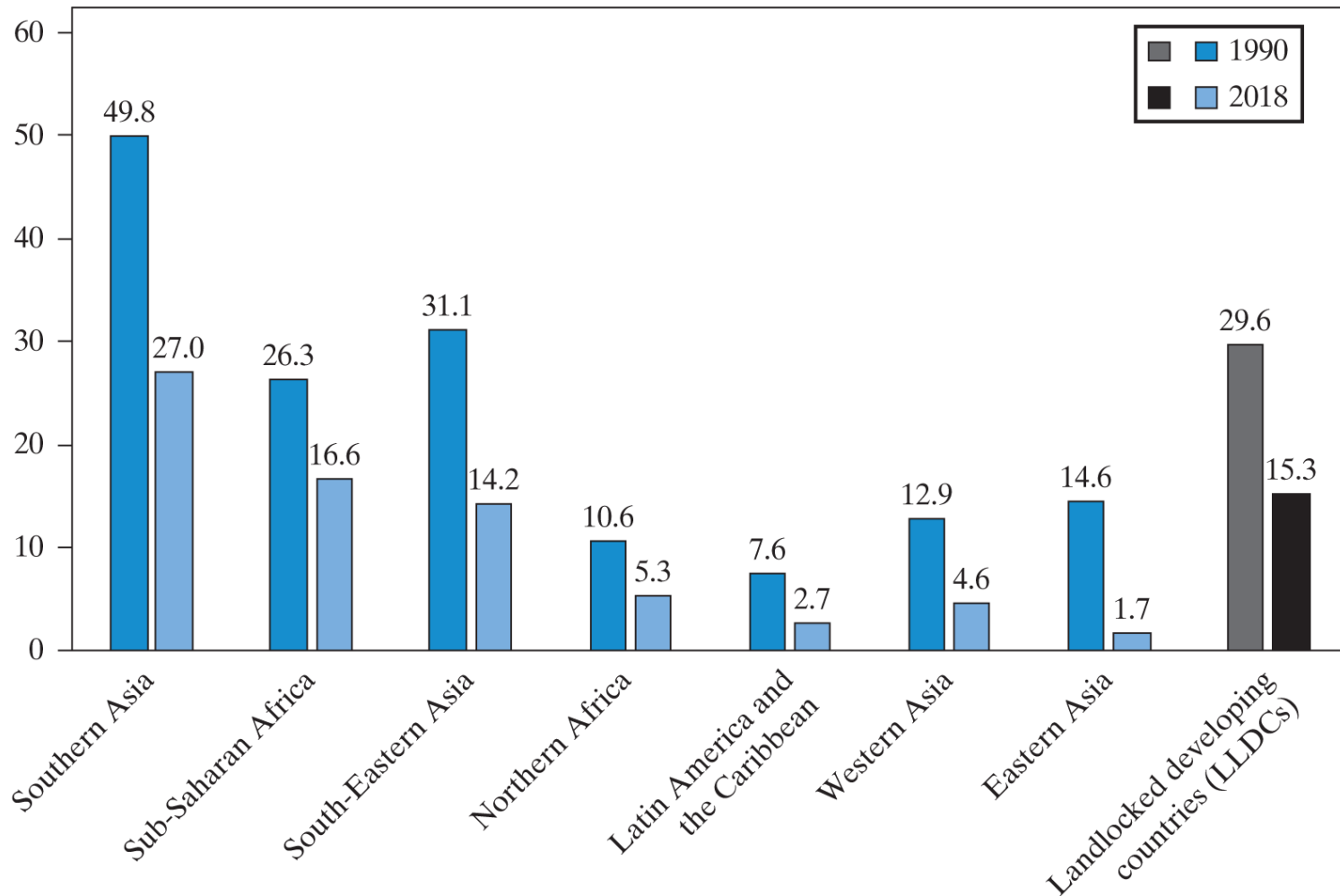
## Proportion of Children Under Five Who Are Underweight, by Household Wealth, Around 2008



Source: From *Millennium Development Goals Report, 2010*, p. 14. Reprinted with permission from the United Nations.

# Figure 8.10

## Proportion of Children Under Five Who are Underweight, 1990 and 2018

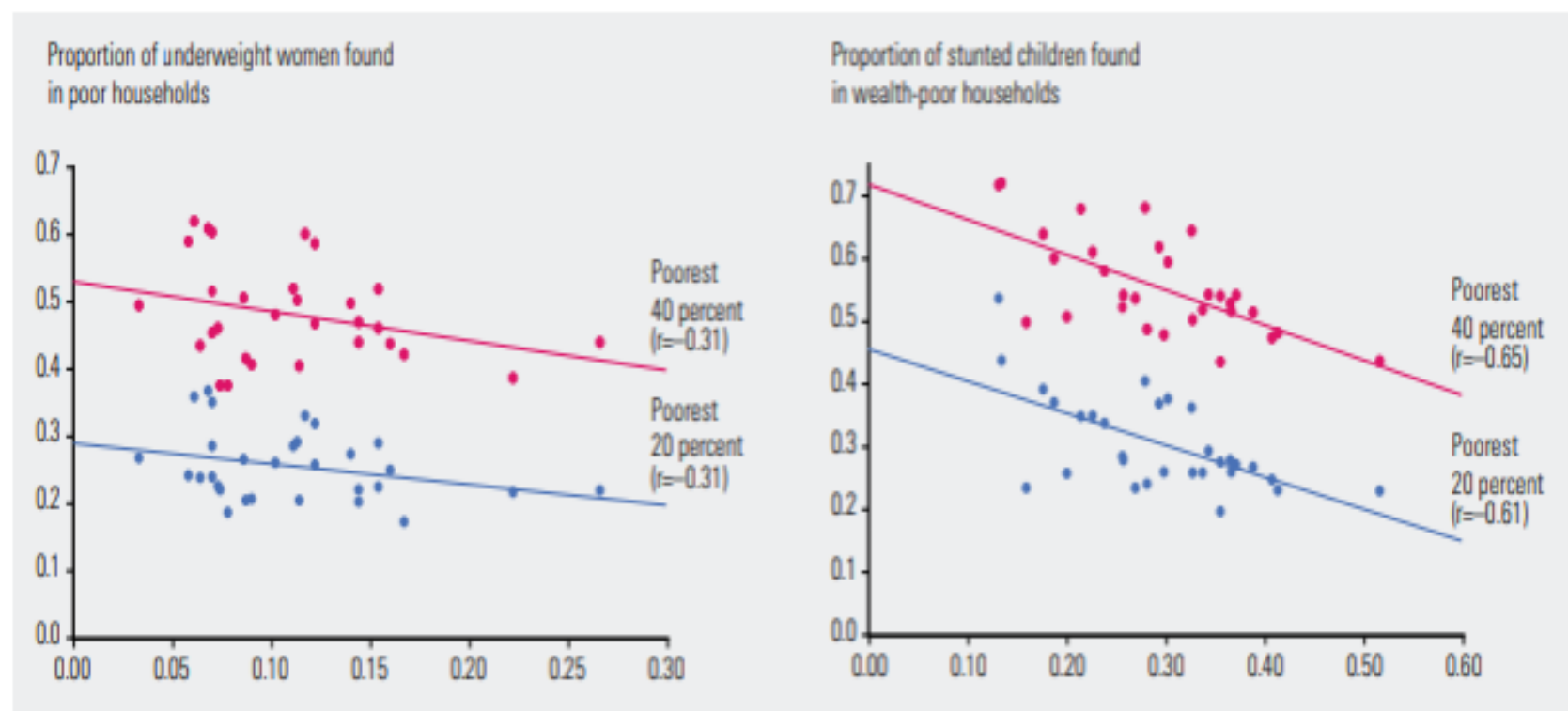


Source: World Health Organization, 2018

# Adult Female malnutrition, Stunted children

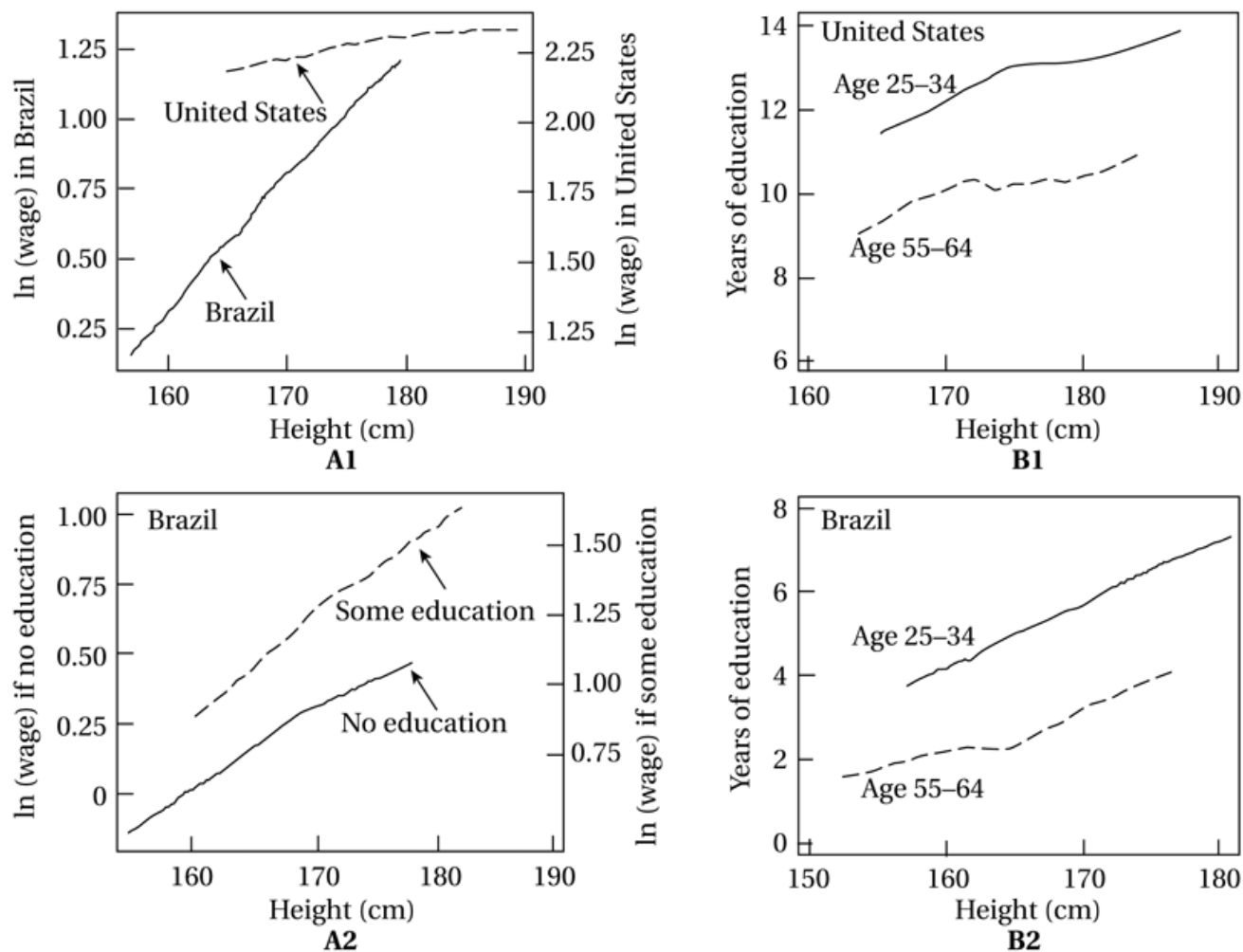
FIGURE S3.1.2

Adult female malnutrition and child stunting can be high in nonpoor households



Source: Brown, Ravallion and van de Walle 2017.

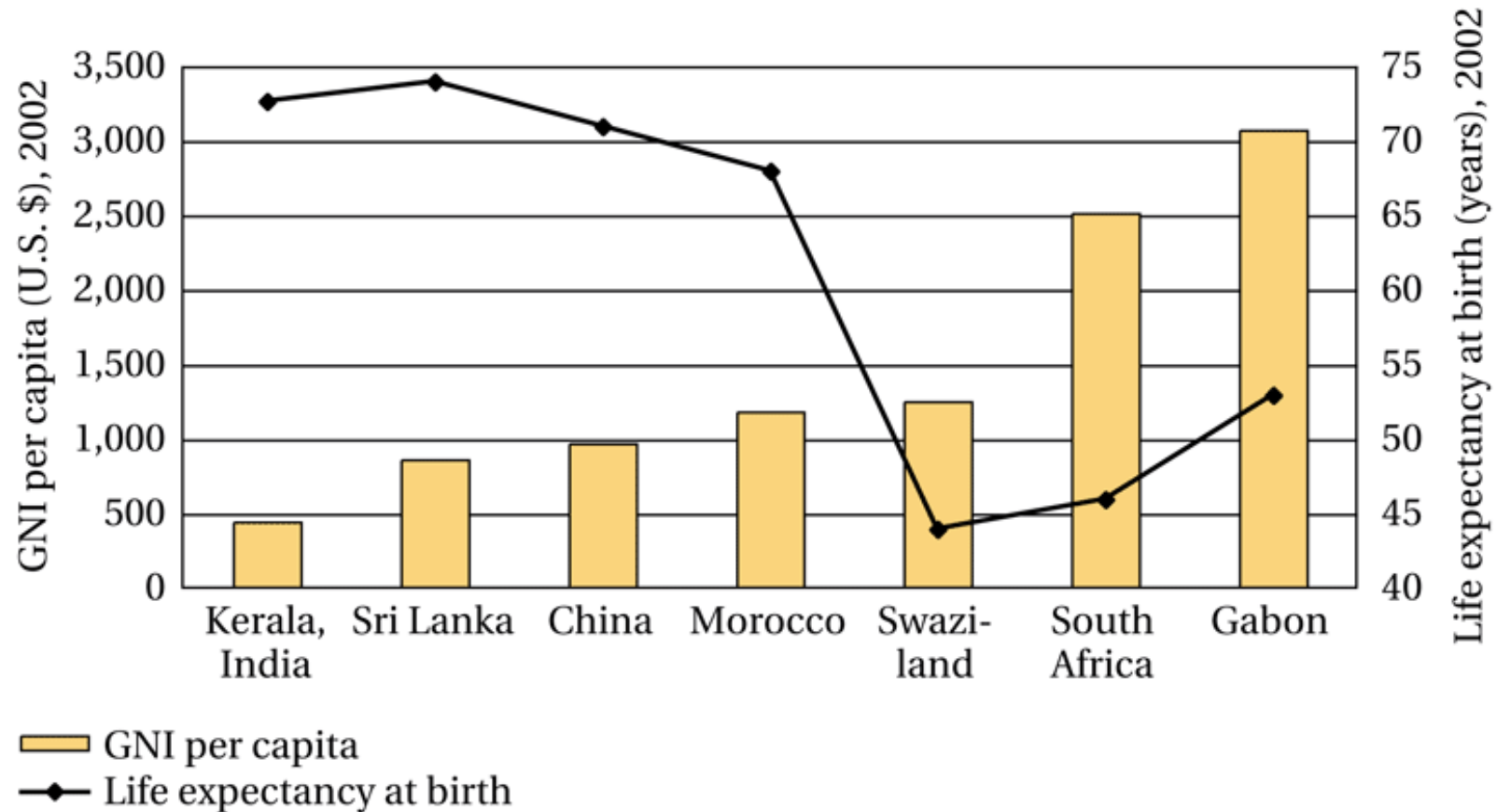
## Figure 8.14 Wages, Education, and Height of Males in Brazil and the United States



Why do you  
Think this  
Might be?

Source: "Health, nutrition, and economic development," by John Strauss and Duncan Thomas, *Journal of Economic Literature* 36 (1998): 766–817. Reprinted with permission.  
Note:  $\ln(\text{wage})$  stands for natural log of wage.

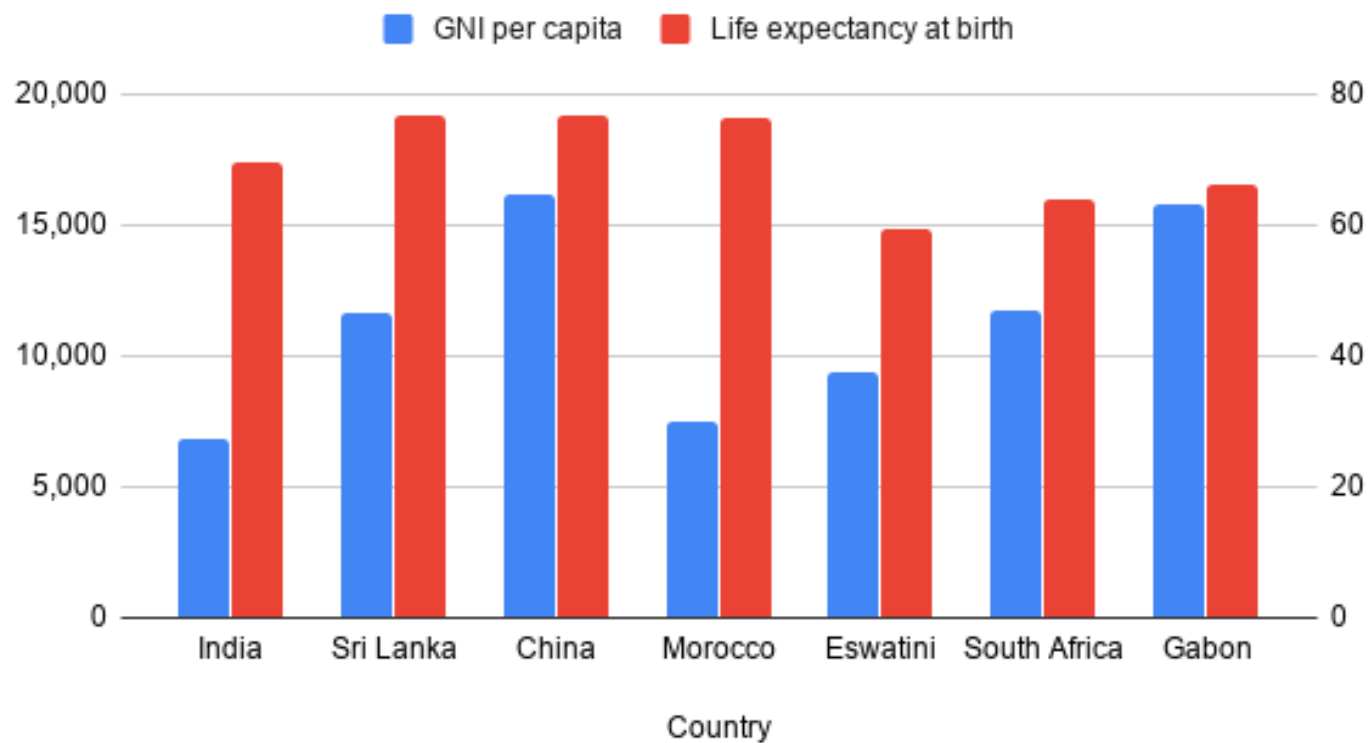
**Figure 8.15** GNI Per Capita and Life Expectancy at Birth, 2002



Source: International Bank for Reconstruction and Development/The World Bank, *World Development Indicators*, 2004. Reprinted with permission.

# GNI per capita and life expectancy

GNI per capita and life expectancy at birth (2019)





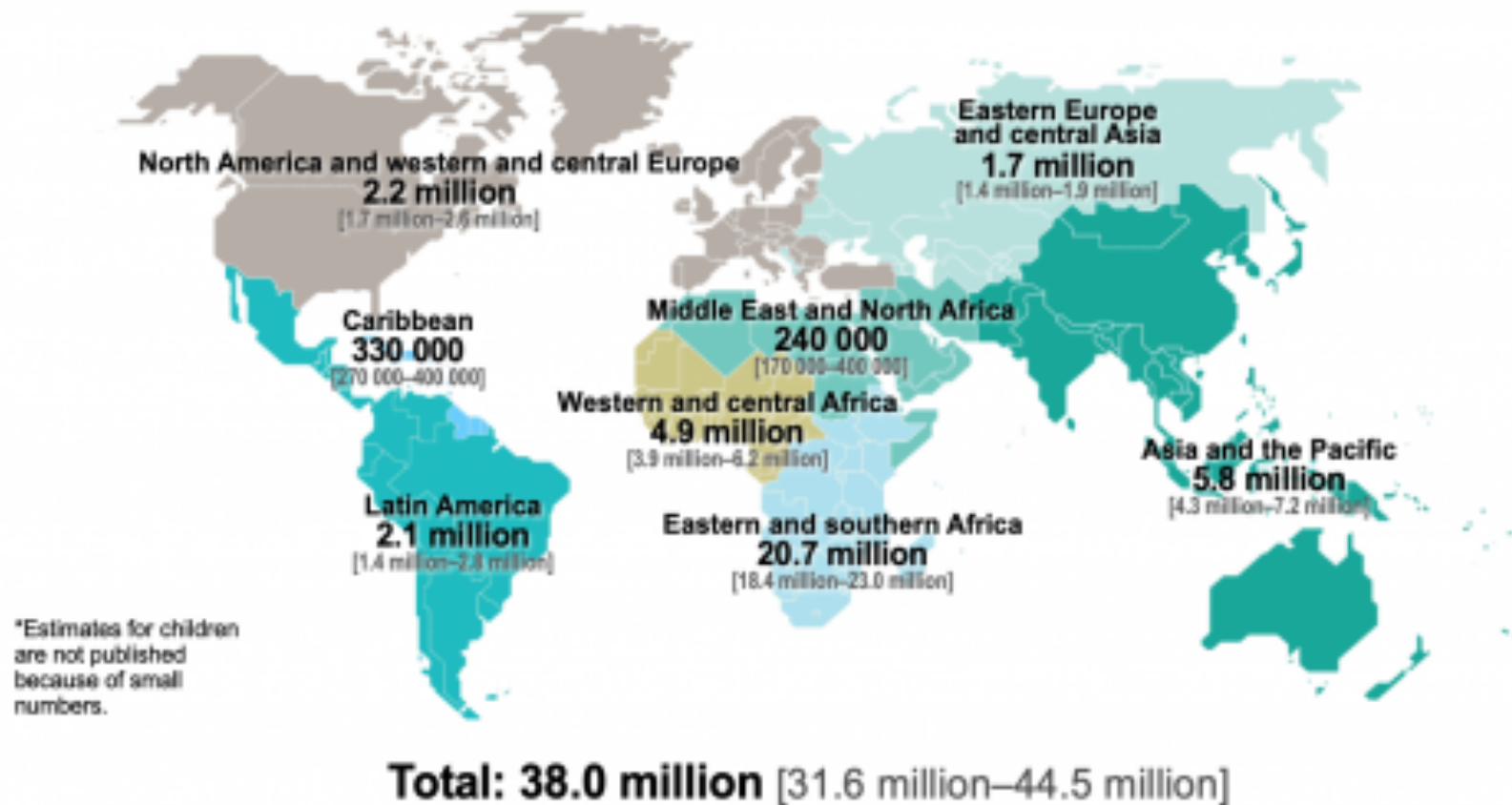
# Disease Burden - Outline

- HIV/ AIDS
- Malaria and TB
- Parasitic Worms and Other “ Neglected Tropical Diseases”
- We will talk about COVID- 19 later

# HIV/AIDS

- Became a major issue in the early 1980s.
- Since it began, 84.2 million infected, approximately 40.1 million whom died.
- In Sub- Saharan Africa, 1 in every 20 adults living with HIV
- But deaths are falling.

## Adults and children estimated to be living with HIV | 2019



Source: WHO

- As of 2021, 38.4 m living with HIV in the world,(1.7 million children), 28.7 m receiving treatment, 1.5 m new cases and 650,000 deaths globally (Source: UN Aids Org)
- The largest # infected
- 1) South Africa
- 2) Mozambique
- 3) India
- 4) Nigeria
  - Source:
  - [https:// www.unaids.org/ en/ resources/ fact- sheet](https://www.unaids.org/en/resources/fact-sheet)

# HIV/AIDS in Africa

Sub- Saharan Africa has approx. 2/ 3 of the world's infected but 1/ 10 of the world's population.

- 1/ 20 adults carries the virus.
- Not all countries within Africa are affected the same.
- Of HIV positive adults, more than half are women who tend to contract the disease at younger ages than men.
- The epidemic has severely affected **ALL levels of society.**

# Africa

- The educated middle class is at least as proportionately affected and may have been hit even harder than the poor.
- For many years, the growth rate of the Labour Force was falling (have seen some improvements)
- The epidemic had begun to affect production and had a significant impact on per capita income (labour productivity was low *before*).

# Options?

- Need national and international commitment.
- Need strong prevention programs.
- Death rates in Europe and N. America fell by 80% after taking anti- retroviral therapy (ARV).
- BUT, not all have access to these drugs.
  - MUST encourage generic versions.

[http://gamapserver.who.int/gho/interactive\\_charts/hiv/art/atlas.html](http://gamapserver.who.int/gho/interactive_charts/hiv/art/atlas.html)

## Success in Thailand

- The gov't implemented the “ 100% Condom Program” in 1991.
  - All sex workers in brothels required to use condoms
  - Health officials provided education and free condoms
  - Police had meetings with brothel owners and workers and could shut them down for non- compliance
  - VERY SUCCESSFUL



# Pharmaceutical Companies

- Pharmaceutical Companies often justify high prices for prescription drugs as a way of recapturing the huge development costs of some new drugs. This presents problems for many low- income countries.
- Some companies have agreed to sell to low-income countries at reduced rates but they worry about resale in other markets.

## <sup>疟疾</sup> **Malaria (source: WHO)**

- Malaria peaked in 2003 with 232m cases and 1.2m deaths in 2004
- Nigeria, the Democratic Republic of Congo (DRC) and India account for approximately 1/2 of deaths
- Country numbers have ranged from 6 million to 60 million
- There are declines in death rates.
- In 2020, 241 million malaria cases and 627000 deaths.
- One estimate states that lost growth due to malaria exceeds 0.25%.

- Africa has about 93% of the cases of clinical malaria and 98% of the deaths.
- Children under 5 account for 67% of all deaths.  
Almost 20% of all deaths of children under 5 in Africa are due to malaria.  
The poor are most affected.  
There are many types of inexpensive prevention strategies but no vaccine.
- There are also many economic costs to vaccines.

# Advanced Market Commitment

- International sponsors make legally binding commitment to pay for 200 million treatments of malaria at a guaranteed price of \$15: \$14 paid for by the sponsors, \$1 by the developing countries.
- This is believed to cover R&D
- After the 200 million, sell for \$1 each, believed to cover production costs.
- The WHO's ***Roll Back Malaria Program*** seeks to eradicate this disease.
- [https:// www.theglobalfund.org/ en/](https://www.theglobalfund.org/en/)

# Tuberculosis

- Almost ¼ of the world's population has a TB infection.
- <https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2021>
- The poor are most vulnerable due to the fact it is an airborne disease.

- The absolute number of **incident TB cases** per year has been falling since 2006 and the incidence rate (per 100 000 population) has been falling by 2% per year since 2002.
- 10 m. cases in 2020, of which 1.5 million people died in 2020, one of the top 10 causes of death globally. (2<sup>nd</sup> highest after COVID- 19, more than AIDS)
- Top countries: India, China, Indonesia, The Philippines, Pakistan, Nigeria, Bangladesh and South Africa
- (source, WHO, 2021)

# TB

- HIGH economic costs (an adult with TB can lose on average 3- 4 months work and children miss school to care for sick family members).
  - One estimate is the cost is 4 – 7% of GDP !!!
- A six month supply of drugs costs approximately \$10 per person, but **MUST** be monitored → DOTS strategy. (directly observed treatment, short course).
- **People living with HIV are 18 times more likely to contract TB!**

# China's Success

- TB used to be the leading cause of death in China
- They adopted the DOTS strategy which has had a 95% cure rate.
- Cases decreased by 37%.
- The program cost 130 million dollars, which translates to approximately \$100 pp.
- They had the second highest number of people infected after India, went to 3<sup>rd</sup> and now back to 2<sup>nd</sup>.



# Effects of Health on Development

- Can health expenditure legitimately be regarded as a form of investment in human capital?
- Like education, health services improve the *quality* of human resources, now and in the future. They also increase the *quantity* in the future by lengthening expected working life.

- Returns to the investment in health are difficult to quantify and verify empirically. In an economy where marginal product of labour (MPL) is low, the prod'n benefits of extended working life are small. The qualitative effects of health expenditure (increased productivity and earnings) are also difficult to measure and separate the health effects.
- Why?

- Studies that have been undertaken show *small* positive effects.
- Therefore, improving health may not necessarily increase productivity but is desirable from a humanitarian point of view.

# Environmental Health

- Environmental sanitation: contamination of the water supply and food and soil with human waste.
- This is an issue in both rural and urban areas.
- Many of the infectious, parasitic and respiratory diseases are waterborne.
- Another problem arises from housing with insufficient ventilation and access to sunlight
  - promotes the spread of airborne diseases such as TB.

- Some projects to improve water supply and waste disposal methods have led to dramatic reductions in disease. Others have had little effect.

# Malnutrition

- Average daily caloric intake has risen in all major regions in most countries and at all levels of GNP pp (PPP).
- Many countries with GDP pp of less than \$1000 fall below the prescribed minimum of 2300 calories daily.
- In 2020, an estimated 195 million children suffering from malnutrition, 45% of deaths for children under 5 linked to malnutrition

# Problems

- 1) People can survive at lower levels of caloric intake, but usually are less active and have a lower body weight.
- 2) Relying on *averages* problematic
- Why?

Therefore, should count *malnourished* people rather than calories.

- widely prevalent where GNP pp is less than \$4000
- highest area of malnutrition is S. Asia, slightly better in sub- Saharan African.



- Most of the malnutrition in the world today is **protein-calorie malnutrition** (lack of protein and calories).
- Also Vitamin A deficiency.

## Other Problems

- When people spend more money on food, they may not obtain better nutrition.
- Food beliefs and tastes can impede nutritional improvement.
- The distribution of food *within* a family is also not even; children and elderly tend to get less.
- **Conclusion:** income, prices and tastes are key factors in nutrition.

# Nutritional Interventions

- Must select a target group (eg. Women and children)
- If target working adults, this will lead to the most direct and immediate effect on eco growth *if* productivity increases (debatable empirically).
- Eg. School lunch programs: children often get fed **less** at home as a result.

- The best way to get supplementary food to infants and small children is to integrate food distribution with ***maternal and child health programs***. These programs aim to provide health services to mothers and infants through local clinics while also providing nutritional surveillance. The food offered can serve as an inducement for mothers to bring children in for check- ups.

# Broader Programs

- Campaigns to increase national food prod'n
- Food price subsidization for low- income families
- Problems:

- The cost effectiveness of different approaches has been debated. This is defined as achieving a larger amount of nutritional benefit for a given program expenditure.

## Medical Services

- Public expenditures on health services are much smaller in LDCs than in developed countries.
- they range from 2.5% of GNP to 9.8% of GNP or \$14 pp to \$2300 pp.
- Most countries have indigenous practitioners of all kinds...herbalists, exorcists, acupuncturists, etc.

- There is an inadequate stock of health facilities and personnel.
- Health services are unevenly distributed (very few in rural areas).
- There exist managerial and logistical problems.
- Many vaccines are ineffective due to age and/ or exposure to heat.



- Sterile conditions are very difficult to maintain.
  - the reuse of needles spreads diseases such as hepatitis and AIDs.
- Urban bias exists: general tendency for urban populations to benefit disproportionately from gov't expenditures and policies.

- Many experts believe that a **reformed health** system would include:
- 1) active and continuous promotion of  
instead of intermittent treatment of  
specific conditions in individuals
- 2) management of the system by

- 3) training health care recruited from the community to diagnose and treat simple ailments
- 4) limited of difficult cases
  - This one has pros and cons...obviously you want to
  - but if you can treat them locally and quickly you will get better results

- **Other suggestions :**

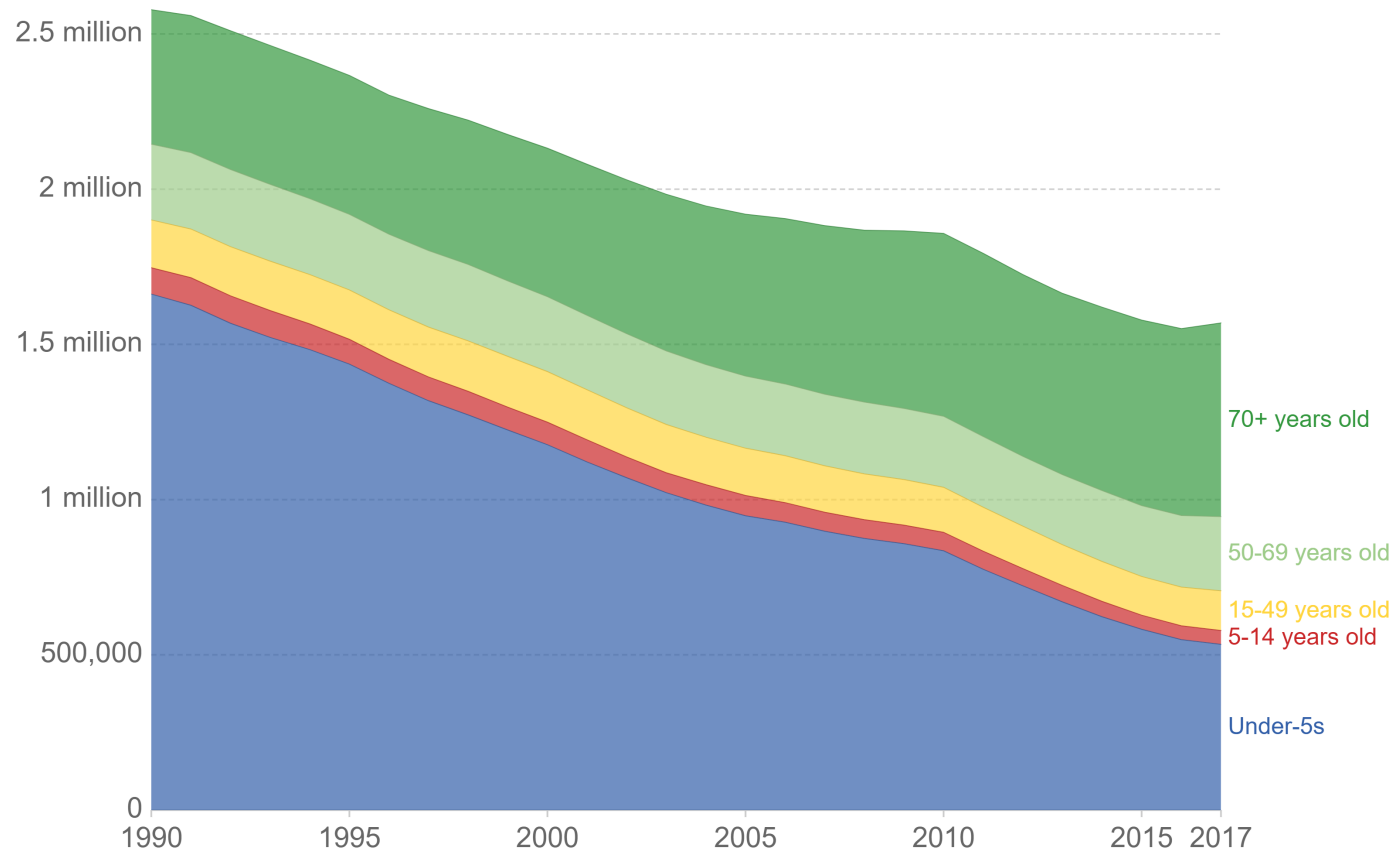
- The development and dissemination of simple cures for widespread medical problems must accompany the spread of medical services.
- Eg. Approx 10% of all children in LDCs die of **diarrhea** (**However in some countries it is more**). It is the leading cause of death among children in some countries.
- A simple inexpensive technology can prevent most of these deaths, which is oral rehydration therapy.

# Deaths due to diarrhea

## Deaths from diarrheal diseases, by age, World, 1990 to 2017

Annual deaths from diarrheal diseases, differentiated by age categories.

Our World  
in Data



Source: IHME, Global Burden of Disease (GBD)

CC BY

Source: <https://ourworldindata.org/childhood-diarrheal-diseases>

# Oral Rehydration Therapy

- Water, salt and sugar.
- Very cheap (less than \$1) and very effective.
- ORT saves the lives of approx 1 million children per year.
- If combined with better sanitation, even better results.

# Health Services and the Market

- According to the World Bank, only 7% of the cost of publicly provided services in LDCs was recovered through **user fees**.
  - This has led to proposals to increase fees or begin charging fees.
  - Revenue generated would be used to expand health services.
  - Think of advantages and disadvantages of user fees

- One theory is to distinguish between services that yield personal benefits **only** vs. those that have external benefits to society.
  - Charge user fees for those that have only personal benefits?
- If there exist large external benefits, the price must be less than cost or society will not benefit from it.
  - Eg. Flu shot in Canada



- Eg.
- If there is excess demand, fees can be increased. If there is no excess demand, the effect of a fee increase on revenue and level of service would not depend on the elasticity of demand for health services.
- Available evidence indicates demand is highly

- BUT,
- User fees can only be brought close to costs if
- Remember many people in LDCs have no insurance

# Conclusion

- The types of services which LDCs should be spending money on are those that yield major benefits to society in general and specifically to poor people in both rural and urban areas.

# Determinants of Success:

# Concepts for Review

- Acquired immunodeficiency syndrome (AIDS)
- Basic education
- Brain drain
- Discount rate
- Educational certification
- Educational gender gap
- Health system
- Human capital
- Human immunodeficiency virus (HIV)
- Literacy
- Private benefits of education
- Private costs of education
- Social benefits of education
- Social costs of education
- World Health Organization (WHO)