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Comparative Economic Development

Among countries colonized by European powers during the past 500 years, those that were relatively rich in 1500 are now relatively poor....The reversal reflects changes in the institutions resulting from European colonialism.

—Daron Acemoglu, Simon Johnson, and James A. Robinson, 2002

Emerging powers in the developing world are already sources of innovative social and economic policies and are major trade, investment, and increasingly development cooperation partners for other developing countries.

—Helen Clark, Administrator, United Nations Development Programme, 2012

The developing world has made substantial economic development progress in recent years. But the most striking feature of the global economy remains its extreme contrasts. Output per worker in the United States is about 10 times higher than it is in India and more than 50 times higher than in the Democratic Republic of Congo (DRC).¹ In 2011, real income per capita was \$48,820 in the United States, \$3,640 in India, and \$340 in the DRC.² If the world were a single country, its income would be distributed more unequally than every nation except Namibia.³ There are also enormous gaps in measures of welfare. Life expectancy is 79 in the United States, 65 in India, and just 48 in the DRC. The percent of children who are underweight is less than 3% in the United States but 43% in India and 24% in the DRC. Whereas almost all women are literate in the United States, just 51% are in India and 57% in the DRC.⁴ How did such wide disparities come about? In today's world, with so much knowledge and with the movement of people, information, and goods and services so rapid and comparatively inexpensive, how have such large gaps managed to persist and even widen? Why have some developing countries made so much progress in closing these gaps while others have made so little?

In this chapter, we introduce the study of comparative economic development. We begin by defining the developing world and describing how development is measured so as to allow for quantitative comparisons across countries. Average income is one, but only one, of the factors defining a country's level of

economic development. This is to be expected, given the discussion of the meaning of development in Chapter 1.

We then consider 10 important features that developing countries tend to have in common, on average, in comparison with the developed world. In each case, we also discover that behind these averages are very substantial differences in all of these dimensions among developing countries that are important to appreciate and take into account in development policy. These areas are the following:

1. Lower levels of living and productivity
2. Lower levels of human capital
3. Higher levels of inequality and absolute poverty
4. Higher population growth rates
5. Greater social fractionalization
6. Larger rural populations but rapid rural-to-urban migration
7. Lower levels of industrialization
8. Adverse geography
9. Underdeveloped financial and other markets
10. Lingering colonial impacts such as poor institutions and often external dependence.

The mix and severity of these challenges largely set the development constraints and policy priorities of a developing nation.

After reviewing these commonalities and differences among developing countries, we further consider key differences between conditions in today's developing countries and those in now developed countries at an early stage of their development, and we examine the controversy over whether developing and developed countries are now converging in their levels of development.

We then draw on recent scholarship on comparative economic development to further clarify how such an unequal world came about and remained so persistently unequal, and we shed some light on the positive factors behind recent rapid progress in a significant portion of the developing world. It becomes quite clear that colonialism played a major role in shaping institutions that set the "rules of the economic game," which can limit or facilitate opportunities for economic development. We examine other factors in comparative development, such as nations' levels of inequality. We will come to appreciate why so many developing countries have such difficulties in achieving economic development but also will begin to see some of the outlines of what can be done to overcome obstacles and encourage faster progress even among today's least developed countries.

The chapter concludes with a comparative case study of Bangladesh and Pakistan.

2.1 Defining the Developing World

World Bank An organization known as an “international financial institution” that provides development funds to developing countries in the form of interest-bearing loans, grants, and technical assistance.

Low-income countries

(LICs) In the World Bank classification, countries with a GNI per capita of less than \$1,025 in 2011.

Middle-income countries In the World Bank classification, countries with a GNI per capita between \$1,025 and \$12,475 in 2011.

The most common way to define the developing world is by per capita income. Several international agencies, including the Organization for Economic Cooperation and Development (OECD) and the United Nations, offer classifications of countries by their economic status, but the best-known system is that of the International Bank for Reconstruction and Development (IBRD), more commonly known as the **World Bank**. (The World Bank is examined in detail in Box 13.2). In the World Bank’s classification system, 213 economies with a population of at least 30,000 are ranked by their levels of gross national income (GNI) per capita. These economies are then classified as **low-income countries (LICs)**, lower-middle-income countries (LMCs), upper-middle-income countries (UMCs), high-income OECD countries, and other high-income countries. (Often, LMCs and UMCs are informally grouped as the **middle-income countries**.)

With a number of important exceptions, the developing countries are those with low-, lower-middle, or upper-middle incomes. These countries are grouped by their geographic region in Table 2.1, making them easier to identify on the map in Figure 2.1. The most common cutoff points for these categories are those used by the World Bank: Low-income countries are defined as having a per capita gross national income in 2011 of \$1,025 or less; lower-middle-income countries have incomes between \$1,026 and \$4,035; upper-middle-income countries have incomes between \$4,036 and \$12,475; and high-income countries have incomes of \$12,476 or more. Comparisons of incomes for several countries are shown graphically in Figure 2.2.

Note that a number of the countries grouped as “other high-income economies” in Table 2.1 are sometimes classified as developing countries, such as when this is the official position of their governments. Moreover, high-income countries that have one or two highly developed export sectors but in which significant parts of the population remain relatively uneducated or in poor health, or social development is viewed as low for the country’s income level, may be viewed as still developing. Examples may include oil exporters such as Saudi Arabia and the United Arab Emirates. Upper-income economies also include some tourism-dependent islands with lingering development problems, which now face daunting climate change adaptation challenges. Even a few of the high-income OECD member countries, notably Portugal and Greece, have been viewed as developing countries at least until recently—a perception that grew again with the ongoing economic crises (e.g., in October 2013 S&P Dow Jones reclassified Greece from “developed market” to “emerging market.”). Nevertheless, the characterization of the developing world as sub-Saharan Africa, North Africa and the Middle East, Asia (except for Japan and, more recently South Korea and perhaps two or three other high-income economies), Latin America and the Caribbean, and the “transition” countries of eastern Europe and Central Asia including the former Soviet Union, remains a useful generalization. In contrast, the developed world constituting the core of the high-income OECD is largely comprised of the countries of western Europe, North America, Japan, Australia, and New Zealand.

Sometimes a special distinction is made among upper-middle-income or newly high-income economies, designating some that have achieved relatively

TABLE 2.1 Classification of Economies by Region and Income, 2013

| Country | Code | Class | Country | Code | Class | Country | Code | Class |
|----------------------------------|------|-------|--|------|-------|---------------------------|------|-------|
| East Asia and the Pacific | | | Latin America and the Caribbean | | | Sub-Saharan Africa | | |
| American Samoa‡ | ASM | UMC | Antigua and Barbuda | ATG | UMC | Angola* | AGO | UMC |
| Cambodia* | KHM | LIC | Argentina | ARG | UMC | Benin* | BEN | LIC |
| China | CHN | UMC | Belize‡ | BLZ | LMC | Botswana† | BWA | UMC |
| Fiji‡ | FJI | LMC | Bolivia† | BOL | LMC | Burkina Faso*† | BFA | LIC |
| Indonesia | IDN | LMC | Brazil | BRA | UMC | Burundi*† | BDI | LIC |
| Kiribati*‡ | KIR | LMC | Chile | CHL | UMC | Cameroon | CMR | LMC |
| (North) Korea, Dem. Rep. | PRK | LIC | Colombia | COL | UMC | Cape Verde‡ | CPV | LMC |
| Lao PDR*† | LAO | LMC | Costa Rica | CRI | UMC | Central African Rep.*† | CAF | LIC |
| Malaysia | MYS | UMC | Cuba‡ | CUB | UMC | Chad*† | TCD | LIC |
| Marshall Islands‡ | MHL | LMC | Dominica‡ | DMA | UMC | Comoros*‡ | COM | LIC |
| Micronesia, Fed. Sts.‡ | FSM | LMC | Dominican Republic‡ | DOM | UMC | Congo, Dem. Rep.* | COD | LIC |
| Mongolia† | MNG | LMC | Ecuador | ECU | UMC | Congo, Rep. | COG | LMC |
| Myanmar | MMR | LIC | El Salvador | SLV | LMC | Côte d'Ivoire | CIV | LMC |
| Palau‡ | PLW | UMC | Grenada‡ | GRD | UMC | Eritrea* | ERI | LIC |
| Papua New Guinea‡ | PNG | LMC | Guatemala | GTM | LMC | Ethiopia*† | ETH | LIC |
| Philippines | PHL | LMC | Guyana‡ | GUY | LMC | Gabon | GAB | UMC |
| Samoa*‡ | WSM | LMC | Haiti*‡ | HTI | LIC | Gambia, The* | GMB | LIC |
| Solomon Islands*‡ | SLB | LMC | Honduras | HND | LMC | Ghana | GHA | LIC |
| Thailand | THA | UMC | Jamaica‡ | JAM | UMC | Guinea* | GIN | LIC |
| Timor-Leste*‡ | TLS | LMC | Mexico | MEX | UMC | Guinea-Bissau*‡ | GNB | LIC |
| Tonga‡ | TON | LMC | Nicaragua | NIC | LMC | Kenya | KEN | LIC |
| Tuvalu | TUV | LMC | Panama | PAN | UMC | Lesotho*† | LSO | LMC |
| Vanuatu*‡ | VUT | LMC | Paraguay† | PRY | LMC | Liberia* | LBR | LIC |
| Vietnam | VNM | LMC | Peru | PER | UMC | Madagascar* | MDG | LIC |
| Europe and Central Asia | | | St. Kitts and Nevis‡ | KNA | UMC | Malawi*† | MWI | LIC |
| Albania | ALB | LMC | St. Lucia‡ | LCA | UMC | Mali*† | MLI | LIC |
| Armenia† | ARM | LMC | St. Vincent and the Grenadines‡ | VCT | UMC | Mauritania* | MRT | LIC |
| Azerbaijan† | AZE | LMC | Suriname‡ | SUR | UMC | Mauritius‡ | MUS | UMC |
| Belarus | BLR | UMC | Uruguay | URY | UMC | Mayotte | MYT | UMC |
| Bosnia and Herzegovina | BIH | UMC | Venezuela, RB | VEN | UMC | Mozambique* | MOZ | LIC |
| Bulgaria | BGR | UMC | Middle East and North Africa | | | Namibia | NAM | UMC |
| Georgia | GEO | LMC | Algeria | DZA | UMC | Niger*† | NER | LIC |
| Kazakhstan† | KAZ | UMC | Djibouti* | DJI | LMC | Nigeria | NGA | LMC |
| Kosovo | KSV | LMC | Egypt, Arab Rep. | EGY | LMC | Rwanda*† | RWA | LIC |
| Kyrgyz Republic† | KGZ | LIC | Iran, Islamic Rep. | IRN | UMC | Sao Tome and Principe*‡ | STP | LMC |
| Latvia | LVA | UMC | Iraq | IRQ | LMC | Senegal* | SEN | LMC |
| Lithuania | LTU | UMC | Jordan | JOR | LMC | Seychelles‡ | SYC | UMC |
| Macedonia, FYR† | MKD | UMC | Lebanon | LBN | UMC | Sierra Leone* | SLE | LIC |
| Moldova† | MDA | LMC | Libya | LYB | UMC | Somalia* | SOM | LIC |
| Montenegro | MNE | UMC | Morocco | MAR | LMC | South Africa | ZAF | UMC |
| Romania | ROU | UMC | Syrian Arab Rep. | SYR | LMC | South Sudan | SSD | LIC |
| Russian Federation | RUS | UMC | Tunisia | TUN | LMC | Sudan* | SDN | LMC |
| Serbia | SRB | UMC | West Bank and Gaza | WBG | LMC | Swaziland† | SWZ | LMC |
| Tajikistan† | TJK | LIC | Yemen, Rep.* | YEM | LMC | Tanzania* | TZA | LIC |
| Turkey | TUR | UMC | South Asia | | | Togo* | TGO | LIC |
| Turkmenistan† | TKM | UMC | Afghanistan*† | AFG | LIC | Uganda*† | UGA | LIC |
| Ukraine | UKR | LMC | Bangladesh* | BGD | LIC | Zambia*† | ZMB | LMC |
| Uzbekistan† | UZB | LMC | Bhutan*† | BTN | LMC | Zimbabwe† | ZWE | LIC |
| | | | India | IND | LMC | | | |
| | | | Maldives*‡ | MDV | UMC | | | |
| | | | Nepal*† | NPL | LIC | | | |
| | | | Pakistan | PAK | LMC | | | |
| | | | Sri Lanka | LKA | LMC | | | |

(Continued)

TABLE 2.1 (Continued)

| Country | Code | Class | Country | Code | Class | Country | Code | Class |
|-----------------------------------|------|-------|------------------------------------|------|-------|---------------------------|------|-------|
| High-Income OECD Countries | | | Spain | ESP | | Guam‡ | GUM | |
| Australia | AUS | | Sweden | SWE | | Hong Kong, China | HKG | |
| Austria | AUT | | Switzerland | CHE | | Isle of Man | IMN | |
| Belgium | BEL | | United Kingdom | GBR | | Israel | ISR | |
| Canada | CAN | | United States | USA | | Kuwait | KWT | |
| Czech Rep. | CZE | | Other High-Income Economies | | | Liechtenstein | LIE | |
| Denmark | DNK | | Andorra | AND | | Macao, China | MAC | |
| Finland | FIN | | Antigua and Barbuda‡ | ATG | | Malta | MLT | |
| France | FRA | | Aruba‡ | ABW | | Monaco | MCO | |
| Germany | DEU | | Bahamas, The‡ | BHS | | Netherlands Antilles‡ | ANT | |
| Greece | GRC | | Bahrain‡ | BHR | | New Caledonia‡ | NCL | |
| Hungary | HUN | | Barbados‡ | BRB | | Northern Mariana Islands‡ | MNP | |
| Iceland | ISL | | Bermuda | BMU | | Oman | OMN | |
| Ireland | IRL | | Brunei Darussalam | BRN | | Poland | POL | |
| Italy | ITA | | Cayman Islands | CYM | | Puerto Rico‡ | PRI | |
| Japan | JPN | | Channel Islands | CHI | | Qatar | QAT | |
| Korea, Rep. (South) | KOR | | Croatia | HRV | | San Marino | SMR | |
| Luxembourg | LUX | | Cyprus | CYP | | Saudi Arabia | SAU | |
| Netherlands | NLD | | Estonia | EST | | Singapore‡ | SGP | |
| New Zealand | NZL | | Equatorial Guinea* | GNQ | | Slovenia | SVN | |
| Norway | NOR | | Faeroe Islands | FRO | | Taiwan, China | TWN | |
| Portugal | PRT | | French Polynesia‡ | PYF | | Trinidad and Tobago‡ | TTO | |
| Slovak Republic | SVK | | Greenland | GRL | | United Arab Emirates | ARE | |

* least developed countries

† landlocked developing countries

‡ small island developing states

Source: Data from World Bank, *World Development Indicators*, 2013 (Washington, D.C.: World Bank, 2013) and WDI online; United Nations; and <http://www.iso.org>.

Newly industrializing countries (NICs) Countries at a relatively advanced level of economic development with a substantial and dynamic industrial sector and with close links to the international trade, finance, and investment system.

Least developed countries A UN designation of countries with low income, low human capital, and high economic vulnerability.

Human capital Productive investments in people, such as skills, values, and health resulting from expenditures on education, on-the-job training programs, and medical care.

advanced manufacturing sectors as **newly industrializing countries (NICs)**. Yet another way to classify the nations of the developing world is through their degree of international indebtedness; the World Bank has classified countries as severely indebted, moderately indebted, and less indebted. The United Nations Development Programme (UNDP) classifies countries according to their level of human development, including health and education attainments as low, medium, high, and very high. We consider the traditional and new UNDP Human Development Indexes in detail later in the chapter.

Another widely used classification is that of the **least developed countries**, a UN designation that as of 2012 included 49 countries, 34 of them in Africa, 9 in Asia, 5 among Pacific Islands, plus Haiti. For inclusion, a country has to meet each of three criteria: low income, low **human capital**, and high economic vulnerability. Other special UN classifications include landlocked developing countries (of which there are 30, with 15 of them in Africa) and small island developing states (of which there are 38).⁵

Finally, the term *emerging markets* was introduced at the International Finance Corporation to suggest progress (avoiding the then-standard phrase *Third World* that investors seemed to associate with stagnation). While the term is appealing, we do not use it in this text for three reasons. First, *emerging market* is widely used in the financial press to suggest the presence of active

stock and bond markets; although financial deepening is important, it is only one aspect of economic development. Second, referring to nations as *markets* may lead to an underemphasis on some non-market priorities in development. Third, usage varies, and there is no established or generally accepted designation of which markets should be labeled as *emerging* and which as yet to emerge (the latter now sometimes dubbed *frontier markets* in the financial press).

The simple division of the world into developed and developing countries is sometimes useful for analytical purposes. Many development models apply across a wide range of developing country income levels. However, the wide income range of the latter serves as an early warning for us not to overgeneralize. Indeed, the economic differences between low-income countries in sub-Saharan Africa and South Asia and upper-middle-income countries in East Asia and Latin America can be even more profound than those between high-income OECD and upper-middle-income developing countries.

2.2 Basic Indicators of Development: Real Income, Health, and Education

In this section, we examine basic indicators of three facets of development: real income per capita adjusted for purchasing power; health as measured by life expectancy, undernourishment, and child mortality; and educational attainments as measured by literacy and schooling.

Purchasing Power Parity

In accordance with the World Bank's income-based country classification scheme, **gross national income (GNI)** per capita, the most common measure of the overall level of economic activity, is often used as a summary index of the relative economic well-being of people in different nations. It is calculated as the total domestic and foreign **value added** claimed by a country's residents without making deductions for **depreciation** (or wearing out) of the domestic **capital stock**. **Gross domestic product (GDP)** measures the total value for final use of output produced by an economy, by both residents and nonresidents. Thus, GNI comprises GDP plus the difference between the income residents receive from abroad for factor services (labor and capital) less payments made to nonresidents who contribute to the domestic economy. Where there is a large nonresident population playing a major role in the domestic economy (such as foreign corporations), these differences can be significant (see Chapter 12). In 2011, the total national income of all the nations of the world was valued at more than U.S. \$66 trillion, of which about \$47 trillion originated in the economically developed high-income regions and about \$19 trillion was generated in the less developed nations, despite their representing about five-sixths of the world's population. In 2011, Norway had 240 times the per capita income of Ethiopia and 63 times that of India.

Per capita GNI comparisons between developed and less developed countries like those shown in Figure 2.2 are, however, exaggerated by the use of official foreign-exchange rates to convert national currency figures into U.S. dollars. This conversion does not measure the relative domestic purchasing

Gross national income

(GNI) The total domestic and foreign output claimed by residents of a country, consisting of gross domestic product (GDP) plus factor incomes earned by foreign residents, minus income earned in the domestic economy by non-residents.

Value added The portion of a product's final value that is added at each stage of production.

Depreciation (of the capital stock) The wearing out of equipment, buildings, infrastructure, and other forms of capital, reflected in write-offs to the value of the capital stock.

Capital stock The total amount of physical goods existing at a particular time that have been produced for use in the production of other goods and services.

Gross domestic product

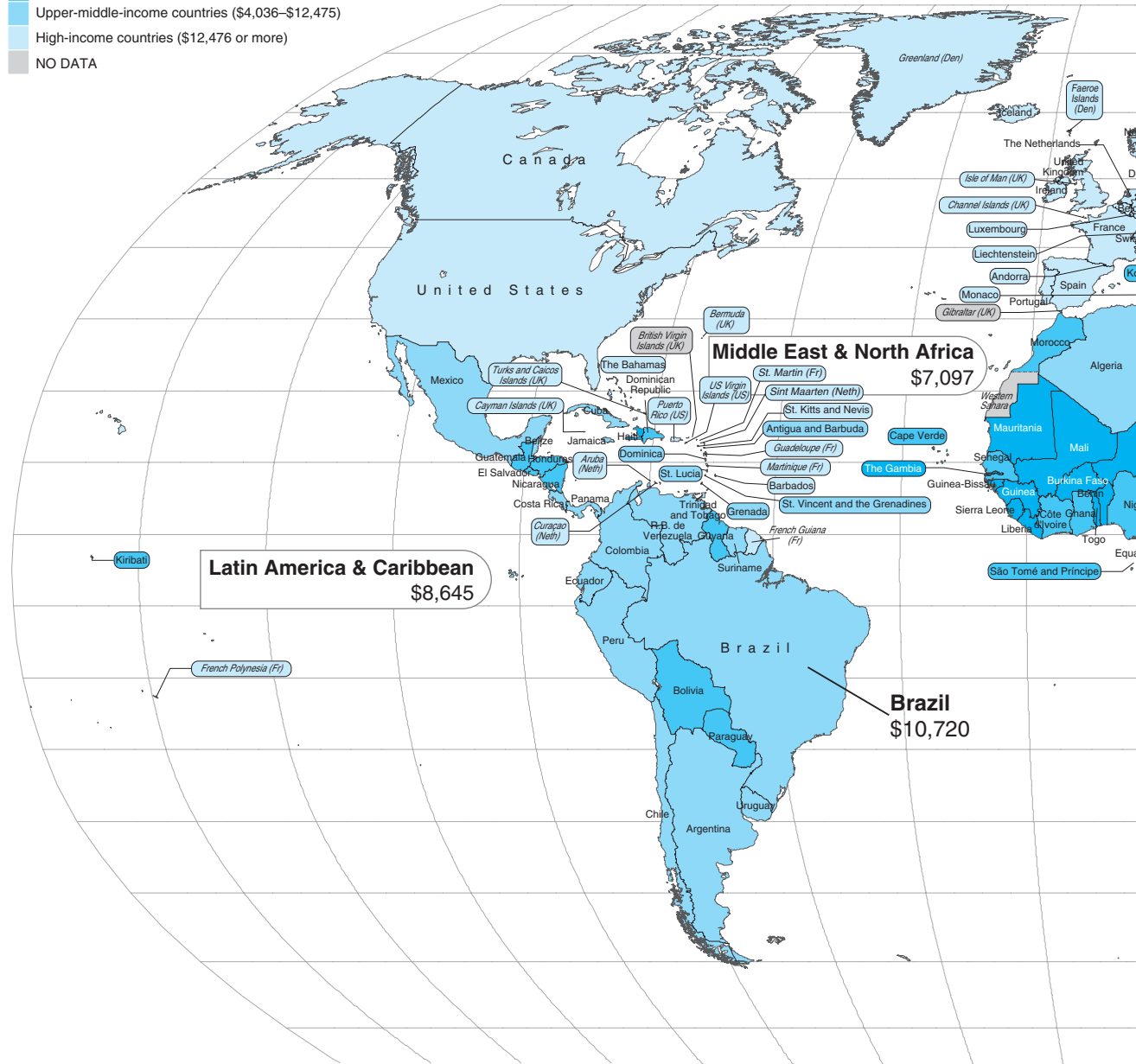
(GDP) The total final output of goods and services produced by the country's economy within the country's territory by residents and nonresidents, regardless of its allocation between domestic and foreign claims.

FIGURE 2.1 Nations of the World, Classified by GNI Per Capita

Income

GNI per capita, World Bank Atlas method, 2011

- Lower-income-countries (\$1,025 or less)
- Lower-middle-income countries (\$1,026–\$4,035)
- Upper-middle-income countries (\$4,036–\$12,475)
- High-income countries (\$12,476 or more)
- NO DATA



Source: Data from *Atlas of Global Development*, 4th ed., pp. 16-17: World Bank and Collins. 2013. *ATLAS OF GLOBAL DEVELOPMENT: A VISUAL GUIDE TO THE WORLD'S GREATEST CHALLENGES, FOURTH EDITION*. Washington, DC and Glasgow: World Bank and Collins. doi: 10.1596/978-0-8213-9757-2. License: Creative Commons Attribution CC BY 3.0

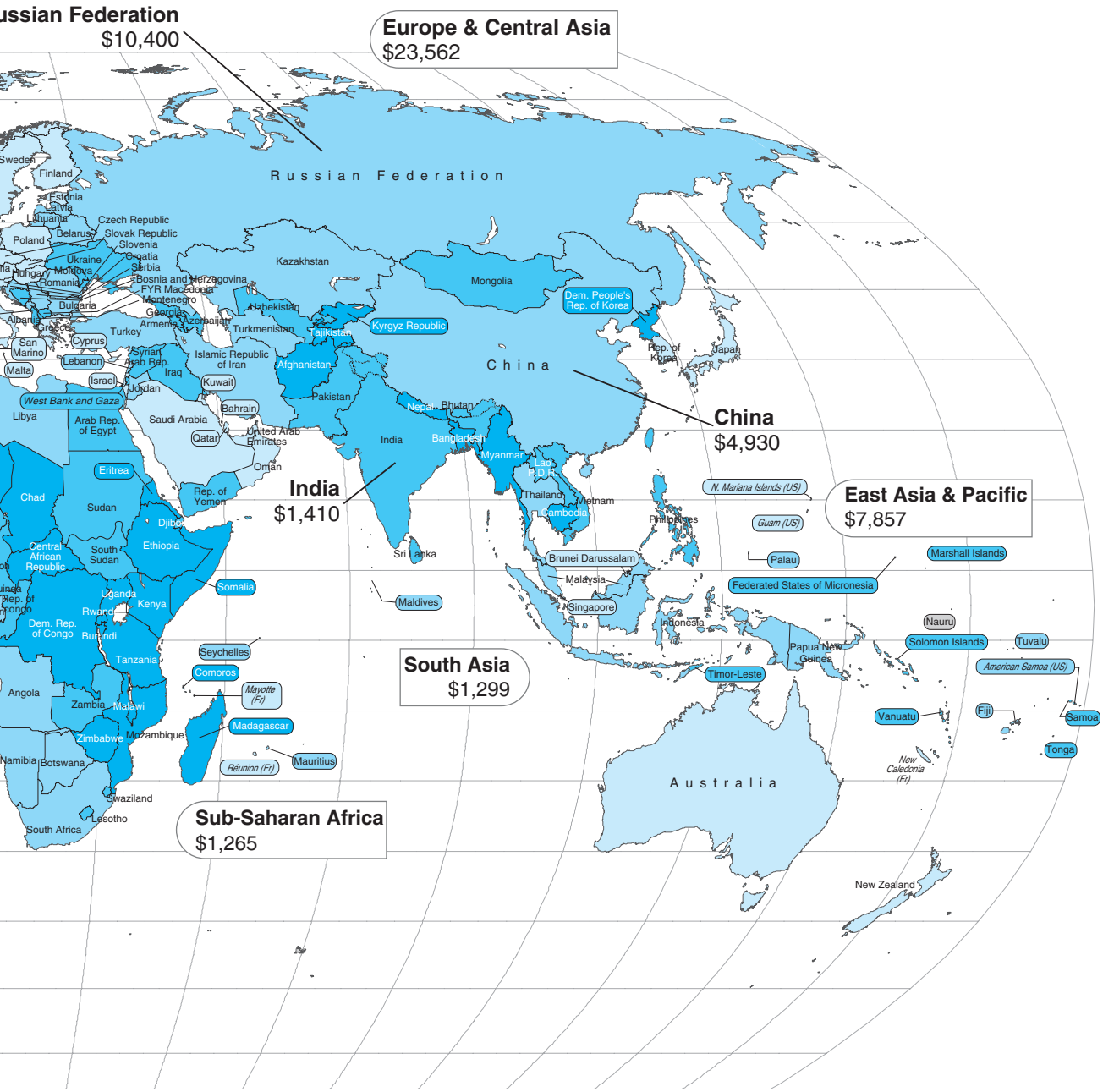
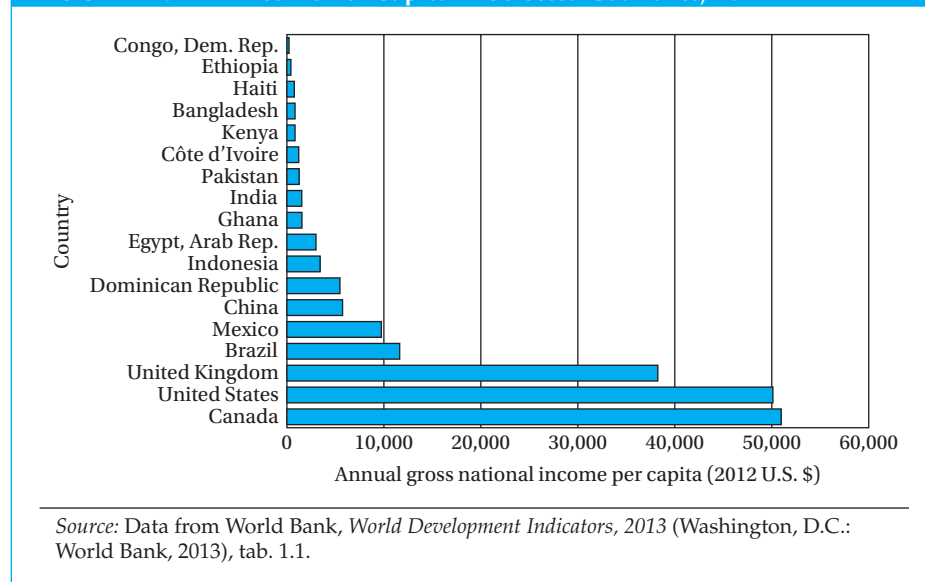


FIGURE 2.2 Income Per Capita in Selected Countries, 2011**Purchasing power parity**

(PPP) Calculation of GNI using a common set of international prices for all goods and services, to provide more accurate comparisons of living standards.

power of different currencies. In an attempt to rectify this problem, researchers have tried to compare relative GNIs and GDPs by using **purchasing power parity (PPP)** instead of exchange rates as conversion factors. PPP is calculated using a common set of international prices for all goods and services. In a simple version, *purchasing power parity* is defined as the number of units of a foreign country's currency required to purchase the identical quantity of goods and services in the local developing country market as \$1 would buy in the United States. In practice, adjustments are made for differing relative prices across countries so that living standards may be measured more accurately.⁶ Generally, prices of nontraded services are much lower in developing countries because wages are so much lower. Clearly, if domestic prices are lower, PPP measures of GNI per capita will be higher than estimates using foreign-exchange rates as the conversion factor. For example, China's 2011 GNI per capita was only 10% of that of the United States using the exchange-rate conversion but rises to 17% when estimated by the PPP method of conversion. Income gaps between developed and developing nations thus tend to be less when PPP is used.

Table 2.2 provides a comparison of exchange rate and PPP GNI per capita for 30 countries, 10 each from Africa, Asia, and Latin America, plus Canada, the United Kingdom and the United States. In the first column of Table 2.2, incomes are measured at market or official exchange rates and suggest that income of a person in the United States is 242 times that of a person in the DRC. But this is unbelievable, as many services cost much less in the DRC than in the United States. The PPP rates give a better sense of the amount of goods and services that could be bought evaluated at U.S. prices and suggest that real U.S. incomes are closer to 135 *times* that of the DRC—still a level of inequality that stretches the imagination. Overall, the average real (PPP) income per capita in

TABLE 2.2 A Comparison of Per Capita GNI in Selected Developing Countries, the United Kingdom, and the United States, Using Official Exchange-Rate and Purchasing Power Parity Conversions, 2011

| Country | GNI Per Capita (U.S. \$) | |
|----------------------|--------------------------|-------------------------|
| | Exchange Rate | Purchasing Power Parity |
| Bangladesh | 770 | 1,910 |
| Bolivia | 2,020 | 4,890 |
| Botswana | 7,070 | 15,550 |
| Brazil | 10,700 | 11,410 |
| Cambodia | 800 | 2,180 |
| Canada | 46,730 | 41,390 |
| Chile | 12,270 | 19,820 |
| China | 4,940 | 8,390 |
| Colombia | 6,090 | 9,600 |
| Congo, Dem. Rep. | 200 | 360 |
| Costa Rica | 7,660 | 11,910 |
| Côte d'Ivoire | 1,140 | 1,780 |
| Dominican Republic | 5,190 | 9,350 |
| Egypt, Arab Rep. | 2,760 | 6,440 |
| Ghana | 1,420 | 1,830 |
| Guatemala | 2,870 | 4,760 |
| Haiti | 700 | 1,190 |
| India | 1,450 | 3,680 |
| Indonesia | 2,930 | 4,480 |
| Kenya | 810 | 1,690 |
| Korea, Rep. | 20,870 | 29,860 |
| Mexico | 8,970 | 15,930 |
| Niger | 330 | 600 |
| Nigeria | 1,260 | 2,270 |
| Pakistan | 1,120 | 2,880 |
| Peru | 5,120 | 9,390 |
| Philippines | 2,200 | 4,120 |
| Senegal | 1,070 | 1,940 |
| Thailand | 4,620 | 8,710 |
| Uganda | 470 | 1,230 |
| United Kingdom | 37,840 | 35,950 |
| United States | 48,550 | 48,820 |
| Vietnam | 1,270 | 3,250 |
| Low income | 554 | 1,310 |
| Middle income | 3,923 | 6,802 |
| High income | 36,390 | 36,472 |

Source: Data from World Bank, *World Development Indicators, 2013* (Washington, D.C.: World Bank, 2013), tab. 1.1.

high-income countries is more than 28 times that in low-income countries and more than 5 times higher than in middle-income countries.

Indicators of Health and Education

Besides average incomes, it is necessary to evaluate a nation's average health and educational attainments, which reflect core capabilities. Table 2.3 shows some basic indicators of income, health (the under-5 mortality rate for 1990 and 2011, plus the rate of malnutrition and life expectancy), and education

TABLE 2.3 Commonality and Diversity: Some Basic Indicators

| | Prevalence of Malnutrition Underweight | Primary Completion Rate Total | | Under-5 Mortality Rate Total | | Life Expectancy |
|----------------------------|--|-------------------------------|------|------------------------------|------|-----------------|
| | % of Children Under Age 5 | % of Relevant Age Group | | per 1,000 Live Births | | |
| | 2005-11 | 1991 | 2011 | 1990 | 2011 | |
| Bangladesh | 41.3 | 46 | .. | 139 | 46 | 69 |
| Bolivia | 4.5 | 71 | 95 | 120 | 51 | 67 |
| Botswana | 11.2 | 89 | 97 | 53 | 26 | 53 |
| Brazil | 2.2 | 92 | .. | 58 | 16 | 73 |
| Cambodia | 29 | 38 | 90 | 117 | 43 | 63 |
| Central African Republic | 28 | 28 | 43 | 169 | 164 | 48 |
| Chile | 0.5 | .. | 95 | 19 | 9 | 79 |
| China | 3.4 | 109 | .. | 49 | 15 | 73 |
| Colombia | 3.4 | 73 | 112 | 34 | 18 | 74 |
| Congo, Dem. Rep. | 28.2 | 49 | 61 | 181 | 168 | 48 |
| Costa Rica | 1.1 | 80 | 99 | 17 | 10 | 79 |
| Côte d'Ivoire | 29.4 | 43 | 59 | 151 | 115 | 55 |
| Cuba | 1.3 | 94 | 99 | 13 | 6 | 79 |
| Dominican Republic | 3.4 | 63 | 92 | 58 | 25 | 73 |
| Egypt, Arab Rep. | 6.8 | .. | 98 | 86 | 21 | 73 |
| Ethiopia | 29.2 | 23 | 58 | 198 | 77 | 59 |
| Ghana | 14.3 | 65 | 94 | 121 | 78 | 64 |
| Guatemala | 13 | .. | 86 | 78 | 30 | 71 |
| India | 43.5 | 63 | 97 | 114 | 61 | 65 |
| Indonesia | 18.6 | 89 | 108 | 82 | 32 | 69 |
| Mexico | 3.4 | 88 | 104 | 49 | 16 | 77 |
| Mozambique | 18.3 | 27 | 56 | 226 | 103 | 50 |
| Niger | 39.9 | 18 | 46 | 314 | 125 | 55 |
| Nigeria | 26.7 | .. | 74 | 214 | 124 | 52 |
| Pakistan | 30.9 | .. | 67 | 122 | 72 | 65 |
| Peru | 4.5 | .. | 97 | 75 | 18 | 74 |
| Philippines | 20.7 | 89 | 92 | 57 | 25 | 69 |
| Senegal | 19.2 | 41 | 63 | 136 | 65 | 59 |
| Uganda | 16.4 | .. | 55 | 178 | 90 | 54 |
| Vietnam | 20.2 | .. | 104 | 50 | 22 | 75 |
| Low income | 22.6 | 46 | 67 | 164 | 95 | 59 |
| Middle income | 16 | 83 | 94 | 82 | 46 | 69 |
| High income | 1.7 | 97 | 101 | 12 | 6 | 79 |
| East Asia & Pacific | 5.5 | 84 | .. | .. | 21 | 72 |
| Latin America & Caribbean | 3.1 | 84 | 102 | 53 | 19 | 74 |
| Middle East & North Africa | 6.3 | 77 | 91 | 70 | 32 | 72 |
| South Asia | 33.2 | 63 | 88 | 119 | 62 | 66 |
| Sub-Saharan Africa | 21.4 | 52 | 69 | 178 | 109 | 55 |

Note: Some of the specific countries listed in Table 2.3 differ from those listed in Table 2.2 due to differing availability of the most recent comparable data by topic; for example, primary completion rate was not available for Haiti; and income was not available for Cuba.

Source: World Bank, *World Development Indicators 2013*, and World Bank WDI online, accessed 1 August 2013.

(the primary completion rate for 1991 and 2011). (Each country's region and income grouping can be found in Table 2.1). Life expectancy is the average number of years newborn children would live if subjected to the mortality risks prevailing for their cohort at the time of their birth. Undernourishment means consuming too little food to maintain normal levels of activity; it is what is often called the problem of hunger. High fertility can be both a cause and a consequence of underdevelopment, so the birth rate is reported as another basic indicator. Literacy is the fraction of adult males and females reported or estimated to have basic abilities to read and write; functional literacy is generally lower than the reported numbers.

Table 2.3 shows these data for the low-, lower-middle-, upper-middle-, and high-income country groups. The table also shows averages from five developing regions (East Asia and the Pacific, Latin America and the Caribbean, the Middle East and North Africa, South Asia, and sub-Saharan Africa) and from 30 illustrative countries balanced across developing regions similar to those in Table 2.2 (with a few substitutions due to data availability).

Note that in addition to big differences across these income groupings, the low-income countries are themselves a very diverse group with greatly differing development challenges.

For example, even Bangladesh has a real income that is now more than five times greater than the DRC; and India's income is more than 10 times greater. Under-5 malnutrition (underweight) is higher in Bangladesh, at 41.3%, than DRC (a still very high 28.2%). The under-5 mortality rate in Bangladesh is 46, while that of the DRC is nearly quadruple that number at 168. Life expectancy in Congo is just 48, compared with 69 in Bangladesh. But while India and Bangladesh clearly do better overall than countries like the DRC, most low- and lower-middle-income countries still face enormous development challenges as seen by comparing these statistics even to Botswana, Peru, or Thailand

2.3 Holistic Measures of Living Levels and Capabilities

The New Human Development Index

The most widely used measure of the comparative status of socioeconomic development is presented by the United Nations Development Programme (UNDP) in its annual series of *Human Development Reports*. The centerpiece of these reports, which were initiated in 1990, is the construction and refinement of its informative **Human Development Index (HDI)**. This section examines the New HDI, initiated in 2010 (the well-known traditional HDI—the UNDP centerpiece from 1990–2009—is examined in detail in Appendix 2.1). Box 2.2 summarizes “What Is New in the New HDI.”

The New HDI, like its predecessor, ranks each country on a scale of 0 (lowest human development) to 1 (highest human development) based on three goals or end products of development: *a long and healthy life* as measured by life expectancy at birth; *knowledge* as measured by a combination of average schooling attained by adults and expected years of schooling for school-age children; and a *decent standard of living* as measured by real per capita gross

Human Development Index (HDI) An index measuring national socioeconomic development, based on combining measures of education, health, and adjusted real income per capita.

Diminishing marginal utility

The concept that the subjective value of additional consumption lessens as total consumption becomes higher.

domestic product adjusted for the differing purchasing power parity of each country's currency to reflect cost of living and for the assumption of **diminishing marginal utility** of income.

There are two steps in calculating the New HDI: first, creating the three "dimension indices"; and second, aggregating the resulting indices to produce the overall New Human Development Index (NHDI).

After defining the relevant minimum and maximum values (or lower and upper "goalposts"), each dimension index is calculated as a ratio that basically is given by the percent of the distance above the minimum to the maximum levels that a country has attained.

$$\text{Dimension index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}} \quad (2.1)$$

The health (or "long and healthy life") dimension of the New HDI is calculated with a life expectancy at birth index, which takes a minimum value of 20 years and a maximum value of 83.57 years (the observed maximum value for any country). For example, for the case of Ghana this is:

$$\text{Life expectancy index} = (64.6 - 20) / (83.6 - 20) = 0.701 \quad (2.2)$$

The education ("knowledge") component of the HDI is calculated with a combination of the average years of schooling for adults aged 25 and older and expected years of schooling for a school-age child now entering school. As explained by the UNDP, these indicators are normalized using a minimum value of 0, and maximum values are set to the actual observed maximum value of mean years of schooling from the countries in the time series, 1980–2012, which is 13.3 years estimated for the United States in 2010. For Ghana, the average years of schooling among adults is 7 years, so the mean years of schooling subindex is calculated as:

$$(7.0 - 0) / (13.3 - 0) = 0.527 \quad (2.3)$$

We can think of this as saying that Ghana is about 53% of the way to the global standard of average education.

In considering expected future education, the highest value (cap, or "goalpost") is given as 18 years (which we may think of as approximately corresponding to a master's degree).

For Ghana, the expected number of years of schooling for a child entering school now is estimated at 11.4 years. The expected years of schooling subindex is then calculated as:

$$(11.4 - 0) / (18.0 - 0) = 0.634 \quad (2.4)$$

The education index is then calculated as a version of the geometric mean of the two subindexes.⁷

The standard of living (income) component is calculated using purchasing-power-adjusted per-capita gross national income (GNI). For Ghana, the income index then is (where ln stands for natural log):

$$\text{Income index} = [\ln(1,684) - \ln(100)] / [\ln(87,478) - \ln(100)] = 0.417 \quad (2.5)$$

Using these three measures of development and applying the formula to data for all 187 countries for which data is available, the HDI currently ranks countries into four groups: low human development (0.0 to 0.535), medium human development (0.536 to 0.711), high human development (0.712 to 0.799), and very high human development (0.80 to 1.0).

The component indexes of the NHDI are computed by taking the difference between the country's actual achievement and the minimum goalpost value, and then dividing the result by the difference between the overall maximum goalpost and minimum goalpost values. But in calculating the overall index, in place of the arithmetic mean, a geometric mean of the three indexes is used (a geometric mean is also used to build up the overall education index from its two components).

Let's look at why this change is important and how the calculations are done.

Computing the NHDI The use of a geometric mean in computing the New HDI is very important. When using an arithmetic mean (adding up the component indexes and dividing by 3) in the HDI, the effect is to assume perfect substitutability across income, health, and education. For example, a higher value of the education index could compensate, one for one, for a lower value of the health index. In contrast, use of a geometric mean ensures that poor performance in any dimension directly affects the overall index. Thus, allowing for imperfect substitutability is a beneficial change; but there is active debate about whether using the geometric mean is the most appropriate way to accomplish this.⁸

Thus, as the UNDP notes, the new calculation "captures how well rounded a country's performance is across the three dimensions." Moreover, the UNDP argues "that it is hard to compare these different dimensions of well-being and that we should not let changes in any of them go unnoticed."

So in the New HDI, instead of adding up the health, education, and income indexes and dividing by 3, the New HDI is calculated with the geometric mean:

$$\text{NHDI} = H^{1/3}E^{1/3}I^{1/3} \quad (2.6)$$

where H stands for the health index, E stands for the education index, and I stands for the income index. This is equivalent to taking the cube root of the product of these three indexes. The calculations of the NHDI are illustrated for Ghana in Box 2.1.

Table 2.4 shows the 2013 values of the New HDI for a set of 31 countries. South Korea has achieved the status of a fully developed country, ranking below Canada but above the United Kingdom. Countries such as the United Arab Emirates, Turkey, Guatemala, Gabon, Côte d'Ivoire, Pakistan, Papua New Guinea, and South Africa perform more poorly on the New HDI than would be predicted from their income level, while the reverse is true of South Korea, Chile, Bangladesh, Cuba, Madagascar, and Ghana. Countries such as Russia, Mexico, India, and Niger perform on the New HDI just about as predicted by their income levels.

Income predicts rather weakly how countries will perform on education and health, or on the NHDI in particular. For example, Cuba and Egypt have nearly the same real income per person, but Cuba ranks 59th on the New HDI (44 points



BOX 2.1 Computing the New HDI: Ghana

Example: Ghana

| Indicator | Value |
|----------------------------------|-------|
| Life expectancy at birth (years) | 64.6 |
| Mean years of schooling | 7.0 |
| Expected years of schooling | 11.4 |
| GNI per capita (PPP \$) | 1,684 |
| Indexes | |

Note: Values are rounded.

$$\text{Life expectancy index} = \frac{64.6 - 20}{83.6 - 20} = 0.701$$

$$\text{Mean years of schooling index} = \frac{7.0 - 0}{13.3 - 0} = 0.527$$

$$\text{Expected years of schooling index} = \frac{11.4 - 0}{18.0 - 0} = 0.634$$

$$\text{Education index} = \frac{\sqrt{0.527 \times 0.634} - 0}{0.971 - 0} = 0.596$$

$$\text{Income index} = \frac{\ln(1,684) - \ln(100)}{\ln(87,478) - \ln(100)} = 0.417$$

Human Development Index

$$= \sqrt[3]{0.701 \times 0.558 \times 0.417} = 0.596$$

UN income estimate will differ somewhat from World Bank estimate.

Source: UNDP, *Human Development Report, 2013*, Technical Notes (online); <http://hdr.undp.org/en/media/HDR%202013%20technical%20notes%20EN.pdf>.

above where predicted by its income level) and Egypt ranks 112th (6 below where predicted by income). Mexico and Gabon have a very similar income, but Mexico is 4 places above what would be predicted by its income and Gabon is 40 points below. Bangladesh and Pakistan have an identical New HDI ranking, but Pakistan has a much higher income, and Bangladesh is 9 places higher than expected while Pakistan is 9 places below; see the case study at the end of this chapter for a detailed examination of diverging development in these two countries.

The UNDP now also offers the Inequality-Adjusted Human Development Index (IHDI)—which imposes a penalty on the HDI that increases as inequality across people becomes greater—and the Gender Inequality Index (GII), as well as an important innovation, the Multidimensional Poverty Index (MPI), which is examined in detail in Chapter 5.

Clearly, the Human Development Index, in its Traditional as well as New forms, has made a major contribution to improving our understanding of what constitutes development, which countries are succeeding (as reflected by rises in their NHDI over time), and how different groups and regions within countries are faring. By combining social and economic data, the NHDI allows nations to take a broader measure of their development performance, both relatively and absolutely.

Although there are some valid criticisms, the fact remains that the New HDI and its Traditional version considered in Appendix 2.1, when used in

TABLE 2.4 2013 New Human Development Index and its Components for Selected Countries

| Country | NHDI Rank | Life Expectancy at Birth | Mean Yrs Schooling (of Adults) | Expected Years Schooling (of children) | GNI Per Capita | New HDI value | GNI Per Capita Rank Minus HDI Rank |
|----------------------|-----------|--------------------------|--------------------------------|--|----------------|---------------|------------------------------------|
| United States | 3 | 78.7 | 13.3 | 16.8 | 43,480 | 0.937 | 6 |
| Canada | 11 | 81.1 | 12.3 | 15.1 | 35,369 | 0.911 | 5 |
| South Korea | 12 | 80.7 | 11.6 | 17.2 | 28,231 | 0.909 | 15 |
| United Kingdom | 26 | 80.3 | 9.4 | 16.4 | 32,538 | 0.875 | 5 |
| Chile | 40 | 79.3 | 9.7 | 14.7 | 14,987 | 0.819 | 13 |
| United Arab Emirates | 41 | 76.7 | 8.9 | 12 | 42,716 | 0.818 | -31 |
| Russian Federation | 55 | 69.1 | 11.7 | 14.3 | 14,461 | 0.788 | 0 |
| Cuba | 59 | 79.3 | 10.2 | 16.2 | 5,539 | 0.78 | 44 |
| Mexico | 61 | 77.1 | 8.5 | 13.7 | 12,947 | 0.775 | 4 |
| Costa Rica | 62 | 79.4 | 8.4 | 13.7 | 10,863 | 0.773 | 12 |
| Brazil | 85 | 73.8 | 7.2 | 14.2 | 10,152 | 0.73 | -8 |
| Turkey | 90 | 74.2 | 6.5 | 12.9 | 13,710 | 0.722 | -32 |
| Sri Lanka | 92 | 75.1 | 9.3 | 12.7 | 5,170 | 0.715 | 18 |
| China | 101 | 73.7 | 7.5 | 11.7 | 7,945 | 0.699 | -11 |
| Gabon | 106 | 63.1 | 7.5 | 13 | 12,521 | 0.683 | -40 |
| Egypt | 112 | 73.5 | 6.4 | 12.1 | 5,401 | 0.662 | -6 |
| Botswana | 119 | 53 | 8.9 | 11.8 | 13,102 | 0.634 | -55 |
| South Africa | 121 | 53.4 | 6.7 | 10.6 | 9,594 | 0.629 | -42 |
| Guatemala | 133 | 71.4 | 4.1 | 10.7 | 4,235 | 0.581 | -14 |
| Ghana | 135 | 64.6 | 7 | 11.4 | 1,684 | 0.558 | 22 |
| Equatorial Guinea | 136 | 51.4 | 5.4 | 7.9 | 21,715 | 0.554 | -97 |
| India | 136 | 65.8 | 4.4 | 10.7 | 3,285 | 0.554 | -3 |
| Kenya | 145 | 57.7 | 7 | 11.1 | 1,541 | 0.519 | 15 |
| Bangladesh | 146 | 69.2 | 4.8 | 8.1 | 1,785 | 0.515 | 9 |
| Pakistan | 146 | 65.7 | 4.9 | 7.3 | 2,566 | 0.515 | -9 |
| Madagascar | 151 | 66.9 | 5.2 | 10.4 | 828 | 0.483 | 28 |
| Papua New Guinea | 156 | 63.1 | 3.9 | 5.8 | 2,386 | 0.466 | -15 |
| Côte d'Ivoire | 168 | 56 | 4.2 | 6.5 | 1,593 | 0.432 | -9 |
| Burkina Faso | 183 | 55.9 | 1.3 | 6.9 | 1,202 | 0.343 | -18 |
| Chad | 184 | 49.9 | 1.5 | 7.4 | 1,258 | 0.34 | -20 |
| Niger | 186 | 55.1 | 1.4 | 4.9 | 701 | 0.304 | -4 |

Source: 2013 Human Development Report 2013, Table 1, pages 144-147 (New York: United Nations Development Programme, 2013)

conjunction with other economic measures of development, greatly increase our understanding of which countries are experiencing development and which are not. And by modifying a country's overall NHDI to reflect income distribution, gender, regional, and ethnic differentials, as presented in recent Human Development Reports, we are now able to identify not only whether a country is developing but also whether various significant groups within that country are participating in that development.⁹

2.4 Characteristics of the Developing World: Diversity within Commonality

As noted earlier, there are important historical and economic commonalities among developing countries that have led to their economic development



BOX 2.2 What Is New in the New Human Development Index

In November 2010, the UNDP introduced its New Human Development Index (NHDI), which has eight notable changes, each with strengths but also a few potential drawbacks.

1. Gross national income (GNI) per capita replaces gross domestic product (GDP) per capita. This should be an unambiguous improvement: GNI reflects what citizens can do with income they receive, whereas that is not true of value added in goods and services produced in a country that go to someone outside it, and income earned abroad still benefits some of the nation's citizens. As trade and remittance flows have been expanding rapidly, and as aid has been better targeted to very low-income countries, this distinction has become increasingly important.
2. The education index has been completely revamped. Two new components have been added: the average actual educational attainment of the whole population and the expected attainment of today's children. Each of these changes to the index has implications. Use of actual attainment—average years of schooling—as an indicator is unambiguously an improvement. Estimates are regularly updated, and the statistic is easily compared quantitatively across countries. And even though it is at best a very rough guide to what is actually learned—on average, a year of schooling in Mali provides students with much less than a year of schooling in Norway—this is the best measure we have at present because more detailed data on quality that are credible and comparable are simply not available.
3. Expected educational attainment, the other new component, is somewhat more ambiguous: It is not an achievement but a UN forecast. History shows that much can go wrong to derail development plans. Nevertheless, there have also been many development upside surprises, such as rapid improvements in educational attainment in some countries; there is a risk that low expectations will prove discouraging. Note that life expectancy, which remains the indicator for health, is also a projection based on prevailing conditions.
4. The two previous components of the education index, literacy and enrollment, have been correspondingly dropped. In contrast to expected attainment, literacy is clearly an achievement, and even enrollment is at least a modest achievement. However, literacy has always been badly and too infrequently measured and is inevitably defined more modestly in a less developed country. And enrollment is no guarantee that a grade will be completed or for that matter that anything is learned or that students (or teachers) even attend.
5. The upper goalposts (maximum values) in each dimension have been increased to the observed maximum rather than given a pre-defined cutoff. In some ways, this returns the index to its original design, which was criticized for inadequately recognizing small gains by countries starting at very low levels.
6. The lower goalpost for income has been reduced. This is based on updated estimates for the historic low for recorded income for any country.¹⁰
7. Another minor difference is that rather than using the common logarithm (log) to reflect diminishing marginal benefit of income, the NHDI now uses the natural log (ln), as used in the fifth equation in Box 2.1. This reflects a more usual construction of indexes.
8. Possibly the most consequential change is that the NHDI is computed with a geometric mean rather than a simple arithmetic mean, as examined previously.

problems being studied within a common analytical framework in development economics. These widely shared problems are examined here in detail on an issue-by-issue basis. At the same time, however, it is important to bear in mind that there is a great deal of diversity throughout the developing world, even within these areas of broad commonality. The wide range of income, health, education, and HDI indicators already reviewed is sometimes called a “ladder of development.”¹¹ Different development problems call for different specific policy responses and general development strategies. This section examines the 10 major areas of “diversity within commonality” in the developing world.

Lower Levels of Living and Productivity

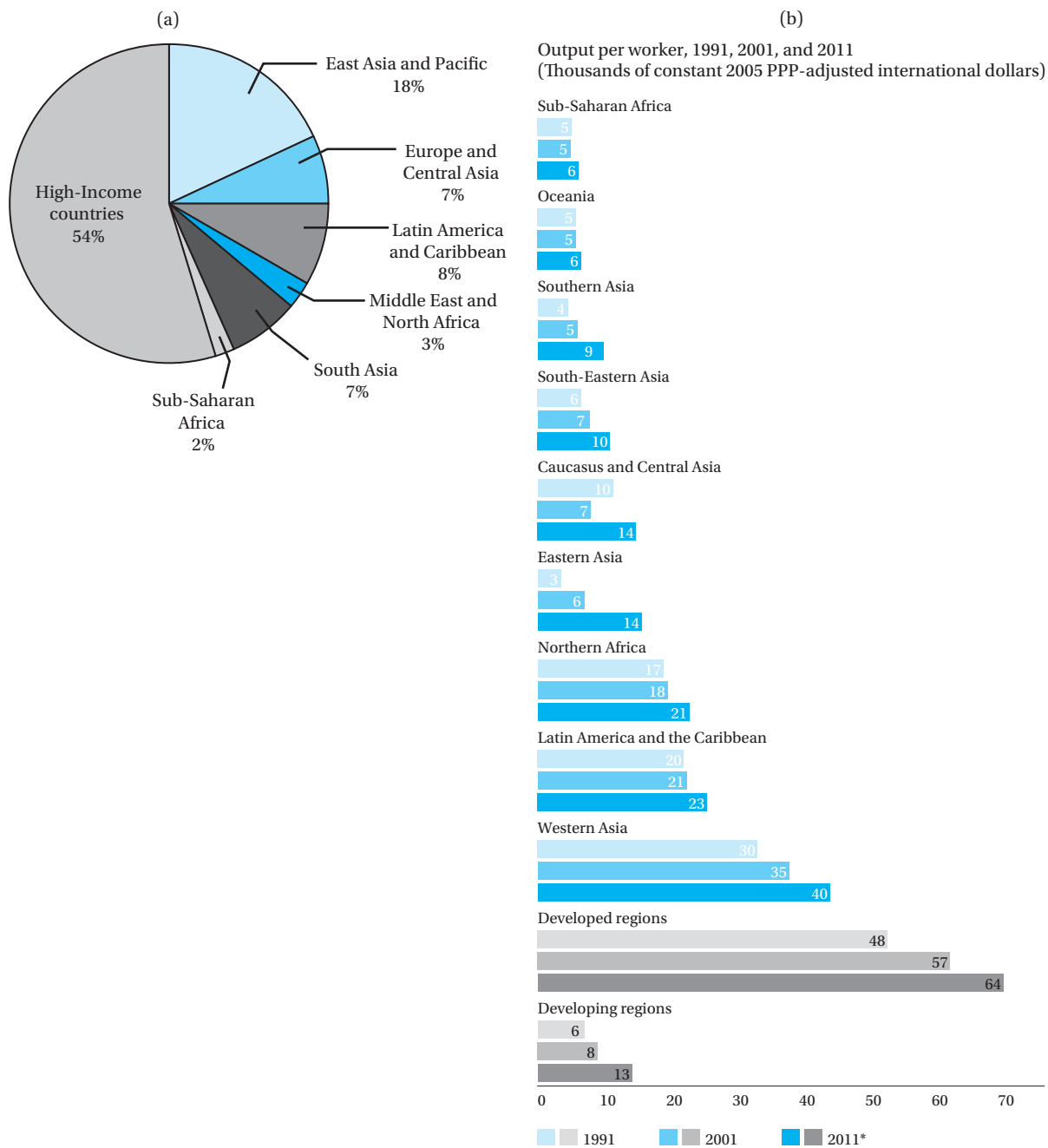
As we noted at the outset of the chapter, there is a vast gulf in productivity between advanced economies such as the United States and developing nations, including India and the DRC, but also a wide range among these and other developing countries. And as we have seen, all countries with averages below what is defined as high income are considered developing in most taxonomies (and some in the high-income range as defined by the World Bank are still considered developing). The lower average levels but wide ranges of income in developing areas are seen in Table 2.3. Even when adjusted for purchasing power parity and despite extraordinary recent growth in China and India, the low- and middle-income developing nations, with more than five-sixths (84%) of the world’s people, received only about 46% of the world’s income in 2011, as seen in Figure 2.3a. Though resulting from a number of deeper causes, the wide disparity in income largely corresponds to the large gaps in output per worker between developing and developed countries as seen in Figure 2.3b.¹²

At very low income levels, in fact, a vicious circle may set in, whereby low income leads to low investment in education and health as well as plant and equipment and infrastructure, which in turn leads to low productivity and economic stagnation. This is known as a *poverty trap* or what Nobel laureate Gunnar Myrdal called “circular and cumulative causation.”¹³ However, it is important to stress that there are ways to escape from low income, as you will see throughout this book. Further, the low-income countries are themselves a very diverse group with greatly differing development challenges.¹⁴

Some star performers among now high-income economies such as South Korea and Taiwan were once among the poorest in the world. Some middle-income countries are also relatively stagnant, but others are growing rapidly—China most spectacularly, as reviewed in the case study at the end of Chapter 4. Indeed, income growth rates have varied greatly in different developing regions and countries, with rapid growth in East Asia, slow or even no growth in sub-Saharan Africa, and intermediate levels of growth in other regions. Problems of igniting and then sustaining economic growth are examined in depth in Chapters 3 and 4.

One common misperception is that low incomes result from a country’s being too small to be self-sufficient or too large to overcome economic inertia. However, there is no necessary correlation between country size in population or area and economic development (in part because each has different advantages and disadvantages that can offset each other).¹⁵

FIGURE 2.3 (a) Shares of Global Income, 2008. (b) Developing regions lag far behind the developed world in productivity measured as output per worker.



Source: Figure 2.3a, Data from World Bank, *World Development Indicators 2013* (Washington, D. C.: World Bank, 2013), p.24. Figure 2.3b, United Nations, *Millennium Development Goals Report 2012*, p.9.

TABLE 2.5 The 12 Most and Least Populated Countries and Their Per Capita Income, 2008

| Most Populous | Population (millions) | GNI Per Capita (U.S. \$) | Least Populous ^a | Population (thousands) | GNI Per Capita (U.S. \$) |
|-----------------------|-----------------------|--------------------------|------------------------------------|------------------------|--------------------------|
| 1. China | 1,325 | 2,940 | 1. Palau | 20 | 8,630 |
| 2. India | 1,140 | 1,040 | 2. St. Kitts and Nevis | 49 | 10,870 |
| 3. United States | 304 | 47,930 | 3. Marshall Islands | 60 | 3,270 |
| 4. Indonesia | 227 | 1,880 | 4. Dominica | 73 | 4,750 |
| 5. Brazil | 192 | 7,300 | 5. Antigua and Barbuda | 87 | 13,200 |
| 6. Pakistan | 166 | 950 | 6. Seychelles | 87 | 10,220 |
| 7. Bangladesh | 160 | 520 | 7. Kiribati | 97 | 2,040 |
| 8. Nigeria | 151 | 1,170 | 8. Tonga | 104 | 2,690 |
| 9. Russian Federation | 142 | 9,660 | 9. Grenada | 104 | 5,880 |
| 10. Japan | 128 | 38,130 | 10. St. Vincent and the Grenadines | 109 | 5,050 |
| 11. Mexico | 106 | 9,990 | 11. Micronesia | 110 | 2,460 |
| 12. Philippines | 90 | 1,890 | 12. São Tomé and Príncipe | 160 | 1,030 |

^aCriteria for inclusion in the least-populous rankings: United Nations member as of mid-2010, with 2008 comparable population and GNI per capita data in tab. 1.6 in the source.

Source: The World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010), tabs 1.1 and 1.6.

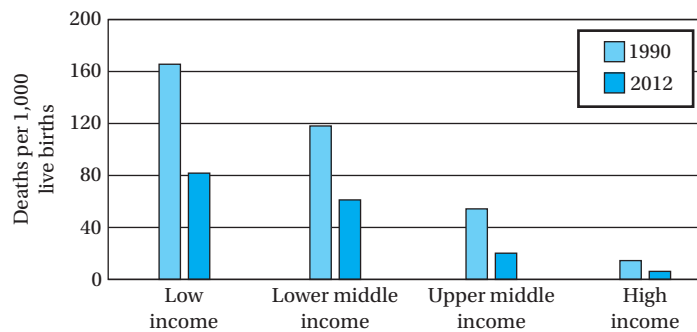
The 12 most populous countries include representatives of all four categories: low-, lower-middle-, upper-middle-, and high-income countries (see Table 2.5). The 12 least populous on the list include primarily lower-middle- and upper-middle-income countries, although the 12th least populous country, São Tomé and Príncipe, has a per capita income of just \$1,030. And four very small but high-income European countries that are UN members (Andorra, Monaco, Liechtenstein, and San Marino) would appear on the list if comparable World Bank income data were available.

Lower Levels of Human Capital

Human capital—health, education, and skills—is vital to economic growth and human development. We have already noted the great disparities in human capital around the world while discussing the Human Development Index. Compared with developed countries, much of the developing world has lagged in its average levels of nutrition, health (as measured, for example, by life expectancy or undernourishment), and education (measured by literacy), as seen in Table 2.3. The under-5 mortality is 17 times higher in low-income countries than in high-income countries, although great progress has been made since 1990, as shown graphically in Figure 2.4.

Table 2.6 shows primary school enrollment rates (percentage of students of primary age enrolled in school) and the primary school pupil-to-teacher ratio for the four country income groups and for six major developing regions. Enrollments have strongly improved in recent years, but student attendance and completion, along with attainment of basic skills such as functional literacy, remain problems. Indeed, *teacher* truancy remains a serious problem in South Asia and sub-Saharan Africa.¹⁶

Moreover, there are strong synergies (complementarities) between progress in health and education (examined in greater depth in Chapter 8). For

FIGURE 2.4 Under-5 Mortality Rates, 1990 and 2012

Source: Data drawn from World Bank, World Development Indicators, accessed 22 Sept. 2013. Reprinted with permission.

example, under-5 mortality rates improve as mothers' education levels rise, as seen in the country examples in Figure 2.5.

The well-performing developing countries are much closer to the developed world in health and education standards than they are to the lowest-income world countries.¹⁷ Although health conditions in East Asia are relatively good, sub-Saharan Africa continues to be plagued by problems of malnourishment, malaria, tuberculosis, AIDS, and parasitic infections. Despite progress, South Asia continues to have high levels of illiteracy, low schooling attainment, and undernourishment. Still, in fields such as primary school completion, low-income countries are also making great progress; for example, enrollments in India are up from 68% in the early 1990s to a reported 94% by 2008.

Higher Levels of Inequality and Absolute Poverty

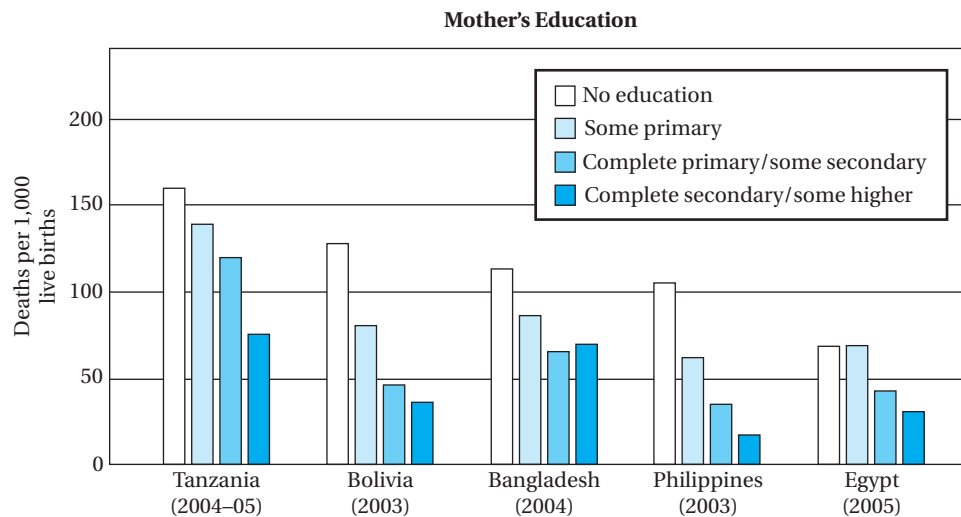
Globally, the poorest 20% of people receive just 1.5% of world income. The lowest 20% now roughly corresponds to the approximately 1.2 billion people

TABLE 2.6 Primary School Enrollment and Pupil-Teacher Ratios, 2010

| Region or Group | Net Primary School Enrollment (%) | Primary Pupil-Teacher Ratio |
|---------------------------------|-----------------------------------|-----------------------------|
| Income Group | | |
| Low | 80 | 45 |
| Lower Middle | 87 | 23 ^a |
| Upper Middle | 94 | 22 |
| High | 95 | 15 |
| Region | | |
| East Asia and Pacific | 93 ^a | 19 |
| Latin America and the Caribbean | 94 | 25 |
| Middle East and North Africa | 91 | 24 |
| South Asia | 86 | 40 ^a |
| Sub-Saharan Africa | 73 | 49 |
| Europe and Central Asia | 92 | 16 |

^aData for 2009.

Source: Data from World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010), tabs 2.11 and 2.12.

FIGURE 2.5 Correlation between Under-5 Mortality and Mother's Education

Source: International Bank for Reconstruction and Development/World Bank, *World Development Indicators*, 2007 (Washington, D.C.: World Bank, 2007), p. 119. Reprinted with permission.

living in extreme poverty on less than \$1.25 per day at purchasing power parity.¹⁸ Bringing the incomes of those living on less than \$1.25 per day up to this minimal poverty line would require less than 2% of the incomes of the world's wealthiest 10%.¹⁹ Thus, the scale of global inequality is also immense.

But the enormous gap in per capita incomes between rich and poor nations is not the only manifestation of the huge global economic disparities. To appreciate the breadth and depth of deprivation in developing countries, it is also necessary to look at the gap between rich and poor *within* individual developing countries. Very high levels of inequality—extremes in the relative incomes of higher- and lower-income citizens—are found in many middle-income countries, partly because Latin American countries historically tend to be both middle-income and highly unequal. Several African countries, including Sierra Leone, Lesotho, and South Africa, also have among the highest levels of inequality in the world.²⁰ Inequality is particularly high in many resource-rich developing countries, notably in the Middle East and sub-Saharan Africa. Indeed, in many of these cases, inequality is substantially higher than in most developed countries (where inequality has in many cases been rising). But inequality varies greatly among developing countries, with generally much lower inequality in Asia. Consequently, we cannot confine our attention to averages; we must look within nations at how income is distributed to ask who benefits from economic development and why.

Corresponding to their low average income levels, a large majority of the extreme poor live in the low-income developing countries of sub-Saharan Africa and South Asia. Extreme poverty is due in part to low human capital but also to social and political exclusion and other deprivations. Great progress has already been made in reducing the fraction of the developing world's population living on less than \$1.25 per day and raising the incomes of those still below that level, but much remains to be done, as we examine in detail in Chapter 5.

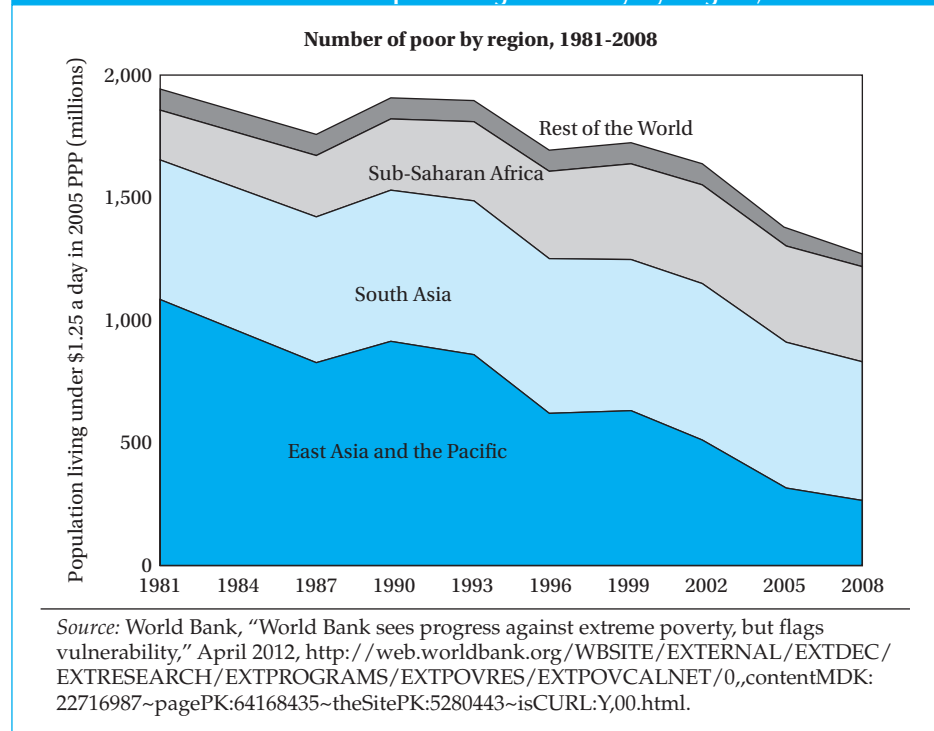
Absolute poverty The situation of being unable or only barely able to meet the subsistence essentials of food, clothing, shelter, and basic health care.

Development economists use the concept of **absolute poverty** to represent a specific minimum level of income needed to satisfy the basic physical needs of food, clothing, and shelter in order to ensure continued survival. A problem, however, arises when one recognizes that these minimum subsistence levels will vary from country to country and region to region, reflecting different physiological as well as social and economic requirements. Economists have therefore tended to make conservative estimates of world poverty in order to avoid unintended exaggeration of the problem.

The incidence of extreme poverty varies widely around the developing world. The World Bank estimates that the share of the population living on less than \$1.25 per day is 9.1% in East Asia and the Pacific, 8.6% in Latin America and the Caribbean, 1.5% in the Middle East and North Africa, 31.7% in South Asia, and 41.1% in sub-Saharan Africa.²¹ The share of the world population living below this level had fallen encouragingly to an estimated 21% by 2010, though there are concerns that the pace of poverty reduction may have slowed recently.²² But as Figure 2.6 shows, the number living on less than \$1.25 per day fell from about 1.9 billion in 1981 to about 1.2 billion by 2008, despite a 59% increase in the developing world's population.

Extreme poverty represents great human misery, and so redressing it is a top priority of international development. Development economists have also increasingly focused on ways in which poverty and inequality can lead to slower growth. That is, not only do poverty and inequality result from distorted growth, but they can also cause it. This relationship, along with

FIGURE 2.6 Number of People Living in Poverty by Region, 1981–2008



measurements of inequality and poverty and strategies to address these problems, is examined in depth in Chapter 5; because of their central importance in development, poverty reduction strategies are examined throughout the text.

Higher Population Growth Rates

Global population has skyrocketed since the beginning of the industrial era, from just under 1 billion in 1800 to 1.65 billion in 1900 and to over 6 billion by 2000. World population topped 7 billion by 2012. Rapid population growth began in Europe and other now developed countries. But in recent decades, most population growth has been centered in the developing world. Compared with the developed countries, which often have birth rates near or even below replacement (zero population growth) levels, the low-income developing countries have very high birth rates. More than five-sixths of all the people in the world now live in developing countries; and some 97% of net population growth (births minus deaths) in 2012 took place in developing regions.

But population dynamics varies widely among developing countries. Populations of some developing countries, particularly in Africa, continue to grow rapidly. From 1990 to 2008, population in the low-income countries grew at 2.2% per year, compared to 1.3% in the middle-income countries (the high-income countries grew at 0.7% per year, reflecting both births and immigration).²³

Middle-income developing countries show greater variance, with some having achieved lower birth rates closer to those prevailing in rich countries. The birth rate is about three times as high in the low-income countries as in the high-income countries. In sub-Saharan Africa, the annual birth rate is 39 per 1,000—four times the rate in high-income countries. Intermediate but still relatively high birth rates are found in South Asia (24), the Middle East and North Africa (24), and Latin America and the Caribbean (19). East Asia and the Pacific have a moderate birth rate of 14 per 1,000, partly the result of birth control policies in China. The very wide range of **crude birth rates** around the world is illustrated in Table 2.7. As of 2010, the average rate of population growth was about 1.4% in the developing countries.

A major implication of high birth rates is that the active labor force has to support proportionally almost twice as many children as it does in richer countries. By contrast, the proportion of people over the age of 65 is much

Crude birth rate The number of children born alive each year per 1,000 population.

TABLE 2.7 Crude Birth Rates Around the World, 2012

| | |
|-------|---|
| 45+ | Chad, Dem. Rep. of Congo, Mali, Niger, Uganda, Zambia |
| 40–44 | Afghanistan, Angola, Benin, Burkina Faso, Liberia, Malawi, Mozambique, Nigeria, Somalia, South Sudan, Tanzania |
| 35–39 | Central African Republic, Côte d'Ivoire, Eritrea, Iraq, Jordan, Kenya, Madagascar, Senegal, Sierra Leone, Yemen |
| 30–34 | Ethiopia, Ghana, Papua New Guinea, Sudan, Timor-Leste, Vanatu, Zimbabwe |
| 25–29 | Algeria, Bolivia, Cambodia, Egypt, Guatemala, Haiti, Honduras, Kyrgyzstan, Pakistan, Philippines, Samoa, Tonga |
| 20–24 | Dominican Republic, El Salvador, India, Libya, Mexico, Peru, Saudi Arabia, South Africa, Venezuela |
| 15–19 | Argentina, Brazil, Colombia, Costa Rica, Indonesia, Jamaica, Sri Lanka, Turkey, Vietnam |
| 10–14 | Australia, Canada, China, France, Russia, United Kingdom, United States |
| <10 | Austria, Croatia, Germany, Hungary, Italy, Japan, South Korea, Serbia, Portugal, Taiwan |

Source: Population Reference Bureau, *Population Data Sheet*, 2012.

Dependency burden The proportion of the total population aged 0 to 15 and 65+, which is considered economically unproductive and therefore not counted in the labor force.

greater in the developed nations. Both older people and children are often referred to as an economic **dependency burden** in the sense that they must be supported financially by the country's labor force (usually defined as citizens between the ages of 15 and 64). In low-income countries, there are 66 children under 15 for each 100 working-age (15–65) adults, while in middle-income countries, there are 41 and in high-income countries just 26. In contrast, low-income countries have just 6 people over 65 per 100 working-age adults, compared with 10 in middle-income countries and 23 in high-income countries. Thus, the total dependency ratio is 72 per 100 in low-income countries and 49 per 100 in high-income countries.²⁴ But in rich countries, older citizens are supported by their lifetime savings and by public and private pensions. In contrast, in developing countries, public support for children is very limited. So dependency has a further magnified impact in developing countries.

We may conclude, therefore, that not only are developing countries characterized by higher rates of population growth, but they must also contend with greater dependency burdens than rich nations, though with a wide gulf between low- and middle-income developing countries. The circumstances and conditions under which population growth becomes a deterrent to economic development is a critical issue and is examined in Chapter 6.

Greater Social Fractionalization

Fractionalization Significant ethnic, linguistic, and other social divisions within a country.

Low-income countries often have ethnic, linguistic, and other forms of social divisions, sometimes known as **fractionalization**. This is sometimes associated with civil strife and even violent conflict, which can lead developing societies to divert considerable energies to working for political accommodations if not national consolidation. It is one of a variety of governance challenges many developing nations face. There is some evidence that many of the factors associated with poor economic growth performance in sub-Saharan Africa, such as low schooling, political instability, underdeveloped financial systems, and insufficient infrastructure, can be statistically explained by high ethnic fragmentation.²⁵

The greater the ethnic, linguistic, and religious diversity of a country, the more likely it is that there will be internal strife and political instability. Some of the most successful development experiences—South Korea, Taiwan, Singapore, and Hong Kong—have occurred in culturally homogeneous societies.

But today, more than 40% of the world's nations have more than five significant ethnic populations. In most cases, one or more of these groups face serious problems of discrimination, social exclusion, or other systematic disadvantages. Over half of the world's developing countries have experienced some form of interethnic conflict. Ethnic and religious conflicts leading to widespread death and destruction have taken place in countries as diverse as Afghanistan, Rwanda, Mozambique, Guatemala, Mexico, Sri Lanka, Iraq, India, Kyrgyzstan, Azerbaijan, Somalia, Ethiopia, Liberia, Sierra Leone, Angola, Myanmar, Sudan, the former Yugoslavia, Indonesia, and the DRC.

Conflict can derail what had otherwise been relatively positive development progress, as in Côte d'Ivoire since 2002 (see Chapter 14 and the case study for Chapter 5). There is, however, a heartening trend since the late 1990s toward more successful resolution of conflicts and fewer new conflicts.

If development is about improving human lives and providing a widening range of choice to all peoples, racial, ethnic, caste, or religious discrimination is pernicious. For example, throughout Latin America, indigenous populations have significantly lagged behind other groups on almost every measure of economic and social progress. Whether in Bolivia, Brazil, Peru, Mexico, Guatemala, or Venezuela, indigenous groups have benefited little from overall economic growth. Being indigenous makes it much more likely that an individual will be less educated, in poorer health, and in a lower socioeconomic stratum than other citizens.²⁶ This is particularly true for indigenous women. Moreover, descendants of African slaves brought forcefully to the western hemisphere continue to suffer discrimination in countries such as Brazil.

Ethnic and religious diversity need not necessarily lead to inequality, turmoil, or instability, and unqualified statements about their impact cannot be made. There have been numerous instances of successful economic and social integration of minority or indigenous ethnic populations in countries as diverse as Malaysia and Mauritius. And in the United States, diversity is often cited as a source of creativity and innovation. The broader point is that the ethnic and religious composition of a developing nation and whether or not that diversity leads to conflict or cooperation can be important determinants of the success or failure of development efforts.²⁷

Larger Rural Populations but Rapid Rural-to-Urban Migration

One of the hallmarks of economic development is a shift from agriculture to manufacturing and services. In developing countries, a much higher share of the population lives in rural areas, and correspondingly fewer in urban areas, as seen in Table 2.8. Although modernizing in many regions, rural areas are poorer and tend to suffer from missing markets, limited information, and social stratification. A massive population shift is also under way as hundreds of millions of people are moving from rural to urban areas, fueling rapid urbanization, with its own attendant problems. The world as a whole has just crossed the 50% threshold: For the first time in history, more people live in cities than

TABLE 2.8 The Urban Population in Developed Countries and Developing Regions

| Region | Population (millions, 2009) | Urban Share (%) |
|---------------------------------|-----------------------------|-----------------|
| World | 6,810 | 50 |
| More developed countries | 1,232 | 75 |
| Less developed countries | 5,578 | 44 |
| Sub-Saharan Africa | 836 | 35 |
| Northern Africa | 205 | 50 |
| Latin America and the Caribbean | 580 | 77 |
| Western Asia | 231 | 64 |
| South-central Asia | 1,726 | 31 |
| Southeast Asia | 597 | 43 |
| East Asia | 1,564 | 51 |
| Eastern Europe | 295 | 69 |

Source: Population Reference Bureau, 2009 World Data Sheet.

in rural areas. But sub-Saharan Africa and most of Asia remain predominantly rural. Migration and agriculture issues are examined in Chapters 7 and 9.

Lower Levels of Industrialization and Manufactured Exports

One of the most widely used terminologies for the original Group of Seven (G7) countries²⁸ and other advanced economies such as smaller European countries and Australia is the “industrial countries.” Industrialization is associated with high productivity and incomes and has been a hallmark of modernization and national economic power. It is no accident that most developing-country governments have made industrialization a high national priority, with a number of prominent success stories in Asia.

Table 2.9 shows the relationship between employment and share of GDP in agriculture, industry, and services in selected developing and developed countries, in the 2004 to 2008 period. Generally, developing countries have a far higher share of employment in agriculture than developed countries. Moreover, in developed countries, agriculture represents a very small share of both employment and output—about 1% to 2% in Canada, the United States and United Kingdom—although productivity is not below the average for these economies as a whole. This is in sharp contrast to a majority of developing nations, which have relatively low productivity in agriculture in comparison

TABLE 2.9 Share of the Population Employed in the Agricultural, Industrial, and Service Sectors in Selected Countries, 2004–2008 (%)

| | Agriculture | | | Industry | | | Services | | |
|----------------------------|-------------|---------|---------------------|----------|---------|---------------------|----------|---------|---------------------|
| | Males | Females | Share of GDP (2008) | Males | Females | Share of GDP (2008) | Males | Females | Share of GDP (2008) |
| Africa | | | | | | | | | |
| Egypt | 28 | 43 | 13 | 26 | 6 | 38 | 46 | 51 | 49 |
| Ethiopia | 12 | 6 | 44 | 27 | 17 | 13 | 61 | 77 | 42 |
| Madagascar | 82 | 83 | 25 | 5 | 2 | 17 | 13 | 16 | 57 |
| Mauritius | 10 | 8 | 4 | 36 | 26 | 29 | 54 | 66 | 67 |
| South Africa | 11 | 7 | 3 | 35 | 14 | 34 | 54 | 80 | 63 |
| Asia | | | | | | | | | |
| Bangladesh | 42 | 68 | 19 | 15 | 13 | 29 | 43 | 19 | 52 |
| Indonesia | 41 | 41 | 14 | 21 | 15 | 48 | 38 | 44 | 37 |
| Malaysia | 18 | 10 | 10 | 32 | 23 | 48 | 51 | 67 | 42 |
| Pakistan | 36 | 72 | 20 | 23 | 13 | 27 | 41 | 15 | 53 |
| Philippines | 44 | 24 | 15 | 18 | 11 | 32 | 39 | 65 | 53 |
| South Korea | 7 | 8 | 3 | 33 | 16 | 37 | 60 | 74 | 60 |
| Thailand | 43 | 40 | 12 | 22 | 19 | 44 | 35 | 41 | 44 |
| Vietnam | 56 | 60 | 22 | 21 | 14 | 40 | 23 | 26 | 38 |
| Latin America | | | | | | | | | |
| Colombia | 27 | 6 | 9 | 22 | 16 | 36 | 51 | 78 | 55 |
| Costa Rica | 18 | 5 | 7 | 28 | 13 | 29 | 54 | 82 | 64 |
| Mexico | 19 | 4 | 4 | 31 | 18 | 37 | 50 | 77 | 59 |
| Nicaragua | 42 | 8 | 19 | 20 | 18 | 30 | 38 | 73 | 51 |
| Developed Countries | | | | | | | | | |
| United Kingdom | 2 | 1 | 1 | 32 | 9 | 24 | 66 | 90 | 76 |
| United States | 2 | 1 | 1 | 30 | 9 | 22 | 68 | 90 | 77 |

Note: Ethiopia agricultural employment reflects limited coverage.

Source: World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010), tabs. 2.3 and 4.2.

to other sectors of their own economies—particularly industry. Madagascar is a dramatic example: while about 82% of both men and women worked in agriculture, it represented only a quarter of total output. In Indonesia, 41% of both men and women worked in agriculture, but it represented just 14% of output. The proportion of women who work in the agricultural sector varies greatly across the developing world. Generally, in Latin America a significantly higher proportion of men work in agriculture than women; but in numerous countries in Africa and Asia, a larger proportion of women work in agriculture.

Table 2.10 reveals the structural transformation of employment that has been occurring in developing countries. Where available, the table shows employment shares in both 1990–1992 and 2008–2011 periods. There have been substantial declines over this two-decade period in the share in employment in agriculture in most developing countries for which comparable data is available. For example, in Indonesia the proportion of men who work in agriculture fell from 54% to 37%; and the proportion of women who work in agriculture fell from 57% to 35%. Partial exceptions include Pakistan and Honduras, for which the share of women’s agricultural employment rose by approximately as much as that of men fell.

At the same time, the share of employment in industry in many developed countries is smaller now than in some developing countries, particularly among women, as developed countries continue their secular trend to switch to from industry to service sector employment. However, many developed-country industrial jobs require high skills and pay high wages.

Relatively few countries managed a substantial gain of the fraction in manufacturing in this period; Indonesia, Turkey, and Mexico showed modest gains, particularly for men. (Other evidence indicates that a large fraction of global manufacturing jobs were gained in one country—China—during this period; but comparable data for China were unavailable for comparison.) The share of industrial employment in Africa remains low for both men and women in most countries.

Along with lower industrialization, developing nations tended to have a higher dependence on primary exports. Most developing countries have diversified away from agricultural and mineral exports to some degree. The middle-income countries are rapidly catching up with the developed world in the share of manufactured goods in their exports, even if these goods are typically less advanced in their skill and technology content. However, the low-income countries, particularly those in Africa, remain highly dependent on a relatively small number of agricultural and mineral exports. Africa will need to continue its efforts to diversify its exports. We examine this topic in Chapter 12.

Adverse Geography

Many analysts argue that geography must play some role in problems of agriculture, public health, and comparative development more generally. Land-locked economies, common in Africa, often have lower incomes than coastal economies.²⁹ As can be observed on the map on the inside cover, developing countries are primarily tropical or subtropical, and this has meant that they suffer more from tropical pests and parasites, endemic diseases such as malaria, water resource constraints, and extremes of heat. A great concern

TABLE 2.10 Share of the Population Employed in the Agricultural, Industrial, and Service Sectors in Selected Countries, 1990–92 and 2008–2011 (%)

| | Agriculture | | | | Industry | | | | Services | | | | Region |
|--------------------|----------------------|---------|------------------------|---------|----------------------|---------|------------------------|---------|----------------------|---------|------------------------|---------|---------------|
| | Males | | Females | | Males | | Females | | Males | | Females | | |
| | % of Male Employment | | % of Female Employment | | % of Male Employment | | % of Female Employment | | % of Male Employment | | % of Female Employment | | |
| | 1990–92 | 2008–11 | 1990–92 | 2008–11 | 1990–92 | 2008–11 | 1990–92 | 2008–11 | 1990–92 | 2008–11 | 1990–92 | 2008–11 | |
| Cameroon | .. | 49 | .. | 58 | .. | 13 | .. | 12 | .. | 38 | .. | 30 | Africa |
| Egypt, Arab Rep. | 35 | 28 | 52 | 46 | 25 | 27 | 10 | 6 | 41 | 44 | 37 | 49 | Africa |
| Liberia | .. | 50 | .. | 48 | .. | 14 | .. | 5 | .. | 37 | .. | 47 | Africa |
| Mauritius | 15 | 9 | 13 | 7 | 36 | 32 | 48 | 21 | 48 | 59 | 39 | 73 | Africa |
| Namibia | 45 | 23 | 52 | 8 | 21 | 24 | 8 | 9 | 34 | 53 | 40 | 83 | Africa |
| Indonesia | 54 | 37 | 57 | 35 | 15 | 24 | 13 | 15 | 31 | 40 | 31 | 50 | Asia |
| Malaysia | 23 | 16 | 20 | 9 | 31 | 31 | 32 | 21 | 46 | 53 | 48 | 71 | Asia |
| Pakistan | 45 | 37 | 69 | 75 | 20 | 22 | 15 | 12 | 35 | 41 | 16 | 13 | Asia |
| Philippines | 53 | 41 | 32 | 23 | 17 | 18 | 14 | 10 | 29 | 41 | 55 | 68 | Asia |
| Thailand | 60 | 41 | 62 | 37 | 18 | 23 | 13 | 18 | 22 | 37 | 25 | 45 | Asia |
| Turkey | 33 | 18 | 72 | 39 | 26 | 31 | 11 | 15 | 41 | 51 | 17 | 45 | Asia |
| Chile | 24 | 14 | 6 | 5 | 32 | 31 | 15 | 10 | 45 | 55 | 79 | 85 | Latin America |
| Costa Rica | 32 | 20 | 5 | 4 | 27 | 25 | 25 | 11 | 41 | 55 | 69 | 84 | Latin America |
| Dominican Republic | 26 | 19 | 3 | 2 | 23 | 21 | 21 | 7 | 52 | 47 | 76 | 60 | Latin America |
| Honduras | 53 | 50 | 6 | 12 | 18 | 19 | 25 | 21 | 29 | 31 | 69 | 67 | Latin America |
| Mexico | 34 | 19 | 11 | 4 | 25 | 30 | 19 | 18 | 41 | 51 | 70 | 78 | Latin America |
| Canada | 6 | 3 | 2 | 1 | 31 | 32 | 11 | 10 | 64 | 65 | 87 | 89 | Developed |
| Japan | 6 | 4 | 7 | 4 | 40 | 33 | 27 | 15 | 54 | 62 | 65 | 80 | Developed |
| United Kingdom | 3 | 2 | 1 | 1 | 41 | 29 | 16 | 8 | 55 | 69 | 82 | 91 | Developed |
| United States | 4 | 2 | 1 | 1 | 34 | 25 | 14 | 7 | 62 | 72 | 85 | 92 | Developed |

Note: Country selection reflects that only a limited number of countries are covered or have data over time. Data represent most recent in timeframe if average for the period is not available.

Source: World Bank, *World Development Indicators, 2013* (Washington, D.C.: World Bank, 2013), tab. 2.3.

going forward is that global warming is projected to have its greatest negative impact on Africa and South Asia (see Chapter 10).³⁰

The extreme case of favorable physical **resource endowment** is the oil-rich Persian Gulf states. At the other extreme are countries like Chad, Yemen, Haiti, and Bangladesh, where endowments of raw materials and minerals and even fertile land are relatively minimal. However, as the case of the DRC shows vividly, high mineral wealth is no guarantee of development success. Conflict over the profits from these industries has often led to a focus on the distribution of wealth rather than its creation and to social strife, undemocratic governance, high inequality, and even armed conflict, in what is called the “curse of natural resources.”

Clearly, geography is not destiny; high-income Singapore lies almost directly on the equator, and parts of southern India have exhibited enormous economic dynamism in recent years. Prior to colonization, some tropical and subtropical regions had higher incomes per capita than Europe. However, the presence of common and often adverse geographic features in comparison to temperate zone countries means it is beneficial to study tropical and subtropical developing countries together for some purposes. Redoubled efforts are now under way to extend the benefits of the green revolution and tropical disease control to sub-Saharan Africa. In section 2.7 of this chapter, we add further perspectives on the possible indirect roles of geography in comparative development.

Underdeveloped Markets

Imperfect markets and incomplete information are far more prevalent in developing countries, with the result that domestic markets, notably but not only financial markets, have worked less efficiently, as examined in Chapters 4, 11, and 15. In many developing countries, legal and institutional foundations for markets are extremely weak.

Some aspects of market underdevelopment are that they often lack (1) a legal system that enforces contracts and validates property rights; (2) a stable and trustworthy currency; (3) an **infrastructure** of roads and utilities that results in low transport and communication costs so as to facilitate interregional trade; (4) a well-developed and efficiently regulated system of banking and insurance, with broad access and with formal credit markets that select projects and allocate loanable funds on the basis of relative economic profitability and enforce rules of repayment; (5) substantial market information for consumers and producers about prices, quantities, and qualities of products and resources as well as the creditworthiness of potential borrowers; and (6) social norms that facilitate successful long-term business relationships. These six factors, along with the existence of economies of scale in major sectors of the economy, thin markets for many products due to limited demand and few sellers, widespread externalities (costs or benefits that accrue to companies or individuals not doing the producing or consuming) in production and consumption, and poorly regulated common property resources (e.g., fisheries, grazing lands, water holes) mean that markets are often highly imperfect. Moreover, information is limited and costly to obtain, thereby often causing goods, finances, and resources to be misallocated. And we have come to understand that small externalities can interact in ways that add up to very large distortions in an economy and present the real possibility of an

Resource endowment A nation's supply of usable factors of production, including mineral deposits, raw materials, and labor.

Infrastructure Facilities that enable economic activity and markets, such as transportation, communication and distribution networks, utilities, water, sewer, and energy supply systems.

Imperfect market A market in which the theoretical assumptions of perfect competition are violated by the existence of, for example, a small number of buyers and sellers, barriers to entry, and incomplete information.

Incomplete information The absence of information that producers and consumers need to make efficient decisions resulting in underperforming markets.

Property rights The acknowledged right to use and benefit from a tangible (e.g., land) or intangible (e.g., intellectual) entity that may include owning, using, deriving income from, selling, and disposing.

underdevelopment trap (see Chapter 4). The extent to which these **imperfect markets** and **incomplete information** systems justify a more active role for government (which is also subject to similar problems of incomplete and imperfect information) is an issue that we will be dealing with in later chapters. But their existence remains a common characteristic of many developing nations and an important contributing factor to their state of underdevelopment.³¹

Lingering Colonial Impacts and Unequal International Relations

Colonial Legacy Most developing countries were once colonies of Europe or otherwise dominated by European or other foreign powers, and institutions created during the colonial period often had pernicious effects on development that in many cases have persisted to the present day. Despite important variations that proved consequential, colonial era institutions often favored extractors of wealth rather than creators of wealth, harming development then and now. Both domestically and internationally, developing countries have more often lacked institutions and formal organizations of the type that have benefited the developed world: Domestically, on average, **property rights** have been less secure, constraints on elites have been weak, and a smaller segment of society has been able to gain access to and take advantage of economic opportunities.³² Problems with governance and public administration (see Chapter 11), as well as poorly performing markets, often stem from poor institutions.

Decolonization was one of the most important historical and geopolitical events of the post–World War II era. More than 80 former European colonies have joined the United Nations. But several decades after independence, the effects of the colonial era linger for many developing nations, particularly the least developed ones.

Colonial history matters not only or even primarily because of stolen resources but also because the colonial powers determined whether the legal and other institutions in their colonies would encourage investments by (and in) the broad population or would instead facilitate exploitation of human and other resources for the benefit of the colonizing elite and create or reinforce extreme inequality. Development-facilitating or development-inhibiting institutions tend to have a very long life span. For example, when the conquered colonial lands were wealthier, there was more to steal. In these cases, colonial powers favored extractive (or “kleptocratic”) institutions at the expense of ones that encouraged productive effort. When settlers came in large numbers to live permanently, incomes ultimately were relatively high, but the indigenous populations were largely annihilated by disease or conflict, and descendants of those who survived were exploited and blocked from advancement. A growing body of evidence demonstrates that practices such as forced labor had pernicious effects on human development even centuries after they were discontinued (see Box 2.3).

In a related point of great importance, European colonization often created or reinforced differing degrees of inequality, often correlated with ethnicity, which have also proved remarkably stable over the centuries. In some respects, postcolonial elites in many developing countries largely took over the exploitative role formerly played by the colonial powers. High inequality sometimes emerged as a result of slavery in regions where comparative advantage in crops

**BOX 2.3 FINDINGS** The Persistent Effects of Colonial Forced Labor on Poverty and Development

In a 2010 study, Melissa Dell used historical district-level data to examine the long-run impacts of the *mita* forced labor system in Peru and Bolivia, which “required over 200 indigenous communities to send one-seventh of their adult male population to work in the Potosi silver and Huancavelica mercury mines between 1573 and 1812.” Forced labor can severely harm subjected communities. But Dell finds even today—two centuries later—districts covered by the *mita* system have lower household consumption and higher probability of stunting in children.

Can development economists conclude with confidence that a colonial system ending two centuries ago is the *cause* of worse performance in the districts it affected? In principle, such correlations could be due to observed or unobserved factors other than the *mita*. For example, households in *mita* districts may have been less well off to begin with. To address this question, Dell employed an important tool used by development economists to establish causal effects, known as regression discontinuity design (RDD).

RDD has many uses, including evaluation of development programs. In evaluating a program, if each individual is associated with an “assignment variable,” z , and a “treatment” is assigned to individuals with a value of z less than or equal to a cutoff level z_0 , then the impact of the treatment on an outcome variable, y , can be identified by comparing observations of those who started just below the threshold z_0 with those who started just above it. For this group, any difference in the outcome variable between people on each side of the discontinuity would be caused by the treatment. The assignment z can represent many types of threshold variables, including income, birth date, test scores, or a geographic boundary. And it turns out that a very wide range of impacts can be considered as a treatment—whatever impacts only people who are on one side of a threshold, provided that all relevant influences other than treatment vary smoothly across the threshold. Economists have learned that RDD estimates have statistically reliable properties that in

some circumstances can make these studies virtually as informative as a randomized trial.

One basic assumption of RDD is that individuals just below and just above the cutoff are otherwise similar and have the same potential outcomes in the absence of the treatment. This assumption means that individuals cannot “sort themselves” to be just under the cutoff (or over the cutoff, if that is the incentive). For example, people cannot pretend to be poorer in order to get into a poverty program. Otherwise, the estimated effect can be compounded with the characteristics of those people who respond by sorting themselves (e.g., people with higher cognitive skills).

Dell’s RDD strategy was to use longitude-latitude, or simply distance to mines, as the assignment variable to predict the *mita* coverage. The effect of the *mita* system on social or economic outcomes can be estimated by comparing districts with and without the *mita* system among those close to the *mita* coverage boundary. These districts were considered likely to be similar in all respects except for the *mita*; and indeed, Dell found that prior to the *mita* system, factors such as tax rates, steepness of terrain, and ethnic distribution were similar across the boundaries that she studies. Using this strategy, Dell concluded that the “*mita* effect” lowers household consumption by approximately 25% and that it increases child stunting “by around 6 percentage points.” These are really striking findings: Two centuries have passed since the *mita* boundary line carried any legal meaning whatsoever.

Dell then asked, “Why would the *mita* affect economic prosperity nearly 200 years after its abolition?” While “there exist many potential channels,” Dell proposed, “the *mita*’s influence has persisted through its impacts on land tenure and public good provision.” Outside the *mita* district boundaries, the Spanish *hacienda* system emerged—it was a feudal system, not a market in which labor was free. While the measured impact of the *mita* likely would have been even worse in comparison with “secure, enfranchised

smallholders,” Dell contrasted the two actual historical experiences in this region. Some exploitive conditions are worse than land inequality. Dell pointed out that the land tenure system in non-*mita* districts was more stable compared to *mita* districts, where there was no system of enforceable peasant titling even after the *mita* ended. For example, Dell cites a judicial procedure used in *mita* districts to seize land from peasants by falsely claiming their land was abandoned.

Large landowners also had a profit incentive and the political influence to get more roads built in their districts. Dell argued that in this region of Peru, “large landowners—while they did not aim to promote economic prosperity for the masses—did shield individuals from exploitation by a highly extractive state and did ensure public goods.”

Source: Melissa Dell. “The Persistent Effects of Peru’s Mining Mita.” *Econometrica* 78(2010): 1863–1903.

such as sugarcane could be profitably produced on slave plantations. It also emerged where a large, settled indigenous population could be coerced into labor. This history had long-term consequences, particularly in Latin America.³³ Where inequality was extreme, the result was less movement toward democratic institutions, less investment in public goods, and less widespread investment in human capital (education, skills, and health). These are among the ways in which extreme inequality is harmful to development and so is also an important long-term determinant of comparative development. We return to these themes later in this chapter.

The European colonial powers also had a dramatic and long-lasting impact on the economies and political and institutional structures of their African and Asian colonies by their introduction of three powerful and tradition-shattering ideas: private property, personal taxation, and the requirement that taxes be paid in money rather than in kind. These innovations were introduced in ways that facilitated elite rule rather than broad-based opportunity. The worst impact of colonization was probably felt in Africa, especially if one also considers the earlier slave trade. Whereas in former colonies such as India local people played a role in colonial governance, in Africa most governance was administered by expatriates. Other well-documented impacts included lasting damage to social trust.³⁴

In Latin America, a longer history of political independence plus a more shared colonial heritage (Spanish and Portuguese) has meant that in spite of geographic and demographic diversity, the countries possess relatively similar economic, social, and cultural institutions and face similar problems, albeit with particular hardships for indigenous peoples and descendants of slaves. Latin American countries have long been middle-income but rarely have advanced to high-income status—reflecting a situation now known as the “middle-income trap.” In Asia, different colonial heritages and the diverse cultural traditions of the people have combined to create different institutional and social patterns in countries such as India (British), the Philippines (Spanish and American), Vietnam (French), Indonesia (Dutch), Korea (Japanese), and China (not formally colonized but dominated by a variety of foreign powers).³⁵ To a widely varying degree, newly independent nations continued to experience foreign domination by former colonial powers and the United States, and in a number of countries by the Soviet Union, particularly during the Cold War

period. The diversity of colonial experiences is one of the important factors that help explain the wide spectrum of development outcomes in today's world.

External Dependence Relatedly, developing countries have also been less well organized and influential in international relations, with sometimes adverse consequences for development. For example, agreements within the World Trade Organization (WTO) and its predecessors concerning matters such as agricultural subsidies in rich countries that harm developing-country farmers and one-sided regulation of intellectual property rights have often been relatively unfavorable to the developing world. The "Doha Development Round" of trade negotiations that began in 2001 was supposed to rectify some of these imbalances, but talks have been essentially stalled since 2008 (see Chapter 12). During debt crises in the 1980s and 1990s, the interests of international banks often prevailed over those of desperately indebted nations (discussed in Chapter 13). More generally, developing nations have weaker bargaining positions than developed nations in international economic relations. Developing nations often also voice great concern over various forms of cultural dependence, from news and entertainment to business practices, lifestyles, and social values. The potential importance of these concerns should not be underestimated, either in their direct effects on development in its broader meanings or indirect impacts on the speed or character of national development.

Developing nations are also dependent on the developed world for environmental preservation, on which hopes for sustainable development depend. Of greatest concern, global warming is projected to harm developing regions more than developed ones; yet both accumulated and current greenhouse gas emissions still largely originate in the high-income countries, despite the role of developing-country deforestation and growing emissions from lower-middle-income countries such as China and India. Thus the developing world endures what may be called *environmental dependence*, in which it must rely on the developed world to cease aggravating the problem and to develop solutions, including mitigation at home and assistance in developing countries. This topic is explored further in Chapter 10.

2.5 How Low-Income Countries Today Differ from Developed Countries in Their Earlier Stages

The position of developing countries today is in many important ways significantly different from that of the currently developed countries when they embarked on their era of modern economic growth. We can identify eight significant differences in initial conditions that require a special analysis of the growth prospects and requirements of modern economic development:

1. Physical and human resource endowments
2. Per capita incomes and levels of GDP in relation to the rest of the world
3. Climate
4. Population size, distribution, and growth

5. Historical role of international migration
6. International trade benefits
7. Basic scientific and technological research and development capabilities
8. Efficacy of domestic institutions

We will discuss each of these conditions with a view toward formulating requirements and priorities for generating and sustaining economic growth in developing countries.

Physical and Human Resource Endowments

Contemporary developing countries are often less well endowed with natural resources than the currently developed nations were at the time when the latter nations began their modern growth. Some developing nations are blessed with abundant supplies of petroleum, minerals, and raw materials for which world demand is growing; most less developed countries, however—especially in Asia, where more than half of the world's population resides—are poorly endowed with natural resources. Moreover, in parts of Africa, where natural resources are more plentiful, and geologists anticipate that there is far more yet to be discovered, heavy investments of capital are needed to exploit them, which until very recently has been strongly inhibited by domestic conflict and perhaps Western attitudes. A new wave of investments from China and other “nontraditional investors” has begun to change the picture, though critics are raising concerns about the process and foreign appropriation of gains.

The difference in skilled human resource endowments is even more pronounced. The ability of a country to exploit its natural resources and to initiate and sustain long-term economic growth is dependent on, among other things, the ingenuity and the managerial and technical skills of its people and its access to critical market and product information at minimal cost.³⁶ Paul Romer argues that today's developing nations “are poor because their citizens do not have access to the ideas that are used in industrial nations to generate economic value.”³⁷ For Romer, the technology gap between rich and poor nations can be divided into two components, a physical object gap, involving factories, roads, and modern machinery, and an idea gap, including knowledge about marketing, distribution, inventory control, transactions processing, and worker motivation. This idea gap, and what Thomas Homer-Dixon calls the ingenuity gap (the ability to apply innovative ideas to solve practical social and technical problems), between rich and poor nations lies at the core of the development divide. There were no comparative human resource gaps for the now developed countries on the eve of their industrialization.

Relative Levels of Per Capita Income and GDP

The people living in low-income countries have, on average, a lower level of real per capita income than their developed-country counterparts had in the nineteenth century. First of all, nearly 40% of the population of developing

countries is attempting to subsist at bare minimum levels. Obviously, the average standard of living in, say, early-nineteenth-century England was nothing to envy or boast about, but it was not as economically debilitating or precarious as it is today for a large fraction of people in the 40 or so least developed countries, the people now often referred to as the “bottom billion.”

Second, at the beginning of their modern growth era, today’s developed nations were economically in advance of the rest of the world. They could therefore take advantage of their relatively strong financial position to widen the income gaps between themselves and less fortunate countries in a long period of income divergence. By contrast, today’s developing countries began their growth process at the low end of the international per capita income scale.

Climatic Differences

Almost all developing countries are situated in tropical or subtropical climatic zones. It has been observed that the economically most successful countries are located in the temperate zone. Although social inequality and institutional factors are widely believed to be of greater importance, the dichotomy is more than coincidence. Colonialists apparently created unhelpful “extractive” institutions where they found it uncomfortable to settle. But also, the extremes of heat and humidity in most poor countries contribute to deteriorating soil quality and the rapid depreciation of many natural goods. They also contribute to the low productivity of certain crops, the weakened regenerative growth of forests, and the poor health of animals. Extremes of heat and humidity not only cause discomfort to workers but can also weaken their health, reduce their desire to engage in strenuous physical work, and generally lower their levels of productivity and efficiency. As you will see in Chapter 8, malaria and other serious parasitic diseases are often concentrated in tropical areas. There is evidence that tropical geography does pose significant problems for economic development and that special attention in development assistance must be given to these problems, such as a concerted international effort to develop a malaria vaccine.³⁸

Population Size, Distribution, and Growth

In Chapter 6, we will examine in detail some of the development problems and issues associated with rapid population growth. At this point, it is sufficient to note that population size, density, and growth constitute another important difference between less developed and developed countries. Before and during their early growth years, Western nations experienced a very slow rise in population growth. As industrialization proceeded, population growth rates increased primarily as a result of falling death rates but also because of slowly rising birth rates. However, at no time did European and North American countries have natural population growth rates in excess of 2% per annum, and they generally averaged much less.

By contrast, the populations of many developing countries have been increasing at annual rates in excess of 2.5% in recent decades, and some are still rising that fast today. Moreover, the concentration of these large and

growing populations in a few areas means that many developing countries have considerably higher person-to-land ratios than the European countries did in their early growth years. Finally, in terms of comparative absolute size, no country that embarked on a long-term period of successful economic growth approached the present-day population size of India, Egypt, Pakistan, Indonesia, Nigeria, or Brazil. Nor were their rates of natural increase anything like that of present-day Kenya, the Philippines, Bangladesh, Malawi, or Guatemala. In fact, many observers doubt whether the Industrial Revolution and the high long-term growth rates of contemporary developed countries could have been achieved or proceeded so fast and with so few setbacks and disturbances, especially for the very poor, had their populations been expanding so rapidly.

The Historical Role of International Migration

In the nineteenth and early twentieth centuries, a major outlet for rural populations was international migration, which was both widespread and large-scale. More than 60 million people migrated to the Americas between 1850 and 1914, a time when world population averaged less than a quarter of its current levels. In countries such as Italy, Germany, and Ireland, periods of famine or pressure on the land often combined with limited economic opportunities in urban industry to push unskilled rural workers toward the labor-scarce nations of North America and Australia. In Brinley Thomas's famous description, the "three outstanding contributions of European labor to the American economy—1,187,000 Irish and 919,000 Germans between 1847 and 1855, 418,000 Scandinavians and 1,045,000 Germans between 1880 and 1885, and 1,754,000 Italians between 1898 and 1907—had the character of evacuations."³⁹

Whereas the main thrust of international emigration up to World War I was both distant and permanent, the period since World War II witnessed a resurgence of international migration within Europe itself, which is essentially over short distances and to a large degree temporary. However, the economic forces giving rise to this migration are basically the same; that is, during the 1960s, surplus rural workers from southern Italy, Greece, and Turkey flocked into areas of labor shortages, most notably western Germany and Switzerland. Similar trends have been observed following the expansion of the European Union. The fact that this later migration from regions of surplus labor in southern and southeastern Europe was initially of both a permanent and a nonpermanent nature provided a valuable dual benefit to the relatively poor areas from which these unskilled workers migrated. The home governments were relieved of the costs of providing for people who in all probability would remain unemployed, and because a large percentage of the workers' earnings were sent home, these governments received a valuable and not insignificant source of foreign exchange.⁴⁰

Historically, at least in the case of Africa, migrant labor both within and between countries was rather common and did provide some relief for locally depressed areas. Until recently, considerable benefits accrued and numerous potential problems were avoided by the fact that thousands of unskilled laborers in Burkina Faso were able to find temporary work in neighboring Côte d'Ivoire.

The same was true for Egyptians, Pakistanis, and Indians in Kuwait and Saudi Arabia; Tunisians, Moroccans, and Algerians in southern Europe; Colombians in Venezuela; and Haitians in the Dominican Republic. However, there is far less scope for reducing the pressures of growing populations in developing countries today through massive international emigration, largely due to the very restrictive nature of immigration laws in modern developed countries.

Despite these restrictions, well over 50 million people from the developing world have managed to migrate to the developed world since 1960. The pace of migration from developing to developed countries—particularly to the United States, Canada, and Australia—has picked up since the mid-1980s to between 2 and 3 million people per year. And the numbers of undocumented or illegal migrants have increased dramatically since 1980. Some people in recipient industrialized nations feel that these migrants are taking jobs away from poor, unskilled citizen workers. Moreover, illegal migrants and their families are often believed to be taking unfair advantage of free local health, educational, and social services, causing upward pressure on local taxes to support these services—despite emerging evidence that legalizing immigration actually provides a net positive effect on reducing deficits as well as to overall economic activity.⁴¹ As a result, major debates are now under way in both the United States and Europe regarding the treatment of illegal migrants. Many citizens want severe restrictions on the number of immigrants that are permitted to enter or reside in developed countries.⁴² The anti-immigration law passed in Arizona in 2010 reinforced the deterrent effect of the Mexico-U.S. border fence and also led many legal immigrants to feel vulnerable; a vociferous political debate surrounded proposed immigration reform legislation in the United States in 2013. In Europe, anti-immigrant parties have scored major gains, as in the Netherlands and Sweden in 2010.

The irony of international migration today, however, is not merely that this traditional outlet for surplus people has effectively been closed off but that many of the people who migrate from poor to richer lands are the very ones that developing countries can least afford to lose: the highly educated and skilled. Since the great majority of these migrants move on a permanent basis, this perverse **brain drain** not only represents a loss of valuable human resources but could also prove to be a serious constraint on the future economic progress of developing nations. For example, between 1960 and 1990, more than a million high-level professional and technical workers from the developing countries migrated to the United States, Canada, and the United Kingdom. By the late 1980s, Africa had lost nearly one-third of its skilled workers, with up to 60,000 middle- and high-level managers migrating to Europe and North America between 1985 and 1990. Sudan, for example, lost 17% of its doctors and dentists, 20% of its university teachers, 30% of its engineers, and 45% of its surveyors. The Philippines lost 12% of its professional workers to the United States, and 60% of Ghanaian doctors came to practice abroad.⁴³ India has been concerned that it may be unable to meet its burgeoning requirements for information technology workers in its growing high-tech enclaves if emigration to the United States, Canada, and the United Kingdom continues at its current pace.⁴⁴ Globally, remittances from illegal and legal migrants have been topping \$100 million annually in this century and approached \$200 billion in 2006.⁴⁵ Migration, when it is permitted, reduces poverty for migrants

Brain drain The emigration of highly educated and skilled professionals and technicians from the developing countries to the developed world.

and their families, and most of the poverty-reducing benefits of migration for those remaining in the origin countries come through remittances.⁴⁶ This is an extremely important resource (see Chapter 14).

Paradoxically, a *potential* benefit is that the mere possibility of skilled emigration may encourage many more workers to acquire information technology or other skills than are ultimately able to leave, leading to a net *increase* in labor force skills. At least in theory, the result could actually be a “brain gain.”⁴⁷ The fundamental point remains, however, that the possibility of international migration of unskilled workers on a scale proportional to that of the nineteenth and early twentieth centuries no longer exists to provide an equivalent safety valve for the unskilled contemporary populations of Africa, Asia, and Latin America.

The Growth Stimulus of International Trade

Free trade Trade in which goods can be imported and exported without any barriers in the forms of tariffs, quotas, or other restrictions.

International **free trade** has been called the “engine of growth” that propelled the development of today’s economically advanced nations during the nineteenth and early twentieth centuries. Rapidly expanding export markets provided an additional stimulus to growing local demands that led to the establishment of large-scale manufacturing industries. Together with a relatively stable political structure and flexible social institutions, these increased export earnings enabled the developing countries of the nineteenth century to borrow funds in the international capital market at very low interest rates. This capital accumulation in turn stimulated further production, made increased imports possible, and led to a more diversified industrial structure. In the nineteenth century, European and North American countries were able to participate in this dynamic growth of international exchange largely on the basis of relatively free trade, free capital movements, and the unfettered international migration of unskilled surplus labor.

Terms of trade The ratio of a country’s average export price to its average import price.

In the twentieth century, the situation for many developing countries was very different. With the exception of a few very successful Asian countries, the non-oil-exporting (and even some oil-exporting) developing countries faced formidable difficulties in trying to generate rapid economic growth on the basis of world trade. For much of the past century, many developing countries experienced a deteriorating trade position. Their exports expanded, but usually not as fast as the exports of developed nations. Their **terms of trade** (the price they receive for their exports relative to the price they have to pay for imports) declined over several decades. Export volume therefore had to grow faster just to earn the same amount of foreign currency as in previous years. Moreover, it is unclear whether the commodity price boom of the early twenty-first century, which reversed only a portion of the long-term price declines, and fueled by the spectacular growth in China, can be maintained. Commodity prices are also subject to large, potentially destabilizing price fluctuations (see Chapter 13).

Where developing countries are successful at becoming lower-cost producers of competitive products with the developed countries (e.g., textiles, clothing, shoes, some light manufactures), the latter have often resorted to various forms of tariff and nontariff barriers to trade, including “voluntary” import quotas, excessive sanitary requirements, intellectual property claims,

antidumping “investigations,” and special licensing arrangements. But in recent years, an increasing number of developing countries, particularly China and others in East and Southeast Asia, have benefited from expanded manufactures exports to developed countries. We will discuss the economics of international trade and finance in the development context in detail in Part Three.

Basic Scientific and Technological Research and Development Capabilities

Basic scientific research and technological development have played a crucial role in the modern economic growth experience of contemporary developed countries. Their high rates of growth have been sustained by the interplay between mass applications of many new technological innovations based on a rapid advancement in the stock of scientific knowledge and further additions to that stock of knowledge made possible by growing surplus wealth. And even today, the process of scientific and technological advance in all its stages, from basic research to product development, is heavily concentrated in the rich nations, despite the emergence of China and India as destinations for **research and development (R&D)** activities of multinational corporations. Moreover, research funds are spent on solving the economic and technological problems of concern to rich countries in accordance with their own economic priorities and resource endowments.⁴⁸

In the important area of scientific and technological research, low-income developing nations in particular are in an extremely disadvantageous position vis-à-vis the developed nations. In contrast, when the latter countries were embarking on their early growth process, they were scientifically and technologically greatly in advance of the rest of the world. They could consequently focus on staying ahead by designing and developing new technology at a pace dictated by their long-term economic growth requirements.

Research and development (R&D) Scientific investigation with a view toward improving the existing quality of human life, products, profits, factors of production, or knowledge.

Efficacy of Domestic Institutions

Another difference between most developing countries and most developed countries at the time of their early stages of economic development lies in the efficacy of domestic economic, political, and social institutions. By the time of their early industrialization, many developed countries, notably the United Kingdom, the United States, and Canada, had economic rules in place that provided relatively broad access to opportunity for individuals with entrepreneurial drive. Earlier in the chapter, we noted that high inequality and poor institutions facilitating extraction rather than providing incentives for productivity were often established by colonial powers. Today such extraction may be carried out by powerful local interests as well as foreign ones. But it is very difficult to change institutions rapidly. As Douglass North stresses, even if the formal rules “may be changed overnight, the informal rules usually change only ever so gradually.”⁴⁹ We will return to the question of economic institutions later in the chapter.

The developed countries also typically enjoyed relatively stronger political stability and more flexible social institutions with broader access to mobility. States typically emerged more organically over a longer period of time in the

developed regions, and consolidation as nation-states generally occurred before the industrial era. In contrast, particularly in Africa, national boundaries were more arbitrarily dictated by colonial powers. The “failed state,” and states in danger of becoming so, is a phenomenon of the postcolonial period, with roots in imperial and colonial practices. Although many developing nations have roots in ancient civilizations, a long hiatus often existed between autonomous regimes.

2.6 Are Living Standards of Developing and Developed Nations Converging?

At the dawn of the industrial era, average real living standards in the richest countries were no more than three times as great as those of the poorest. Today, the ratio approaches 100 to 1. So as noted by Lant Pritchett, there is no doubt that today’s developed countries have enjoyed far higher rates of economic growth averaged over two centuries than today’s developing countries, a process known as **divergence**. Theories of economic growth are discussed in Chapter 3. But in comparing development performance among developing nations and between developed and developing countries, it is appropriate to consider whether, with strenuous economic development efforts being made throughout the developing world, living standards of developing and developed nations are exhibiting **convergence**.

Divergence A tendency for per capita income (or output) to grow faster in higher-income countries than in lower-income countries so that the income gap widens across countries over time (as was seen in the two centuries after industrialization began).

Convergence The tendency for per capita income (or output) to grow faster in lower-income countries than in higher-income countries so that lower-income countries are “catching up” over time. When countries are hypothesized to converge not in all cases but *other things being equal* (particularly savings rates, labor force growth, and production technologies), then the term *conditional convergence* is used.

If the growth experience of developing and developed countries were similar, there are two important reasons to expect that developing countries would be “catching up” by growing faster on average than developed countries. The first reason is due to technology transfer. Today’s developing countries do not have to “reinvent the wheel”; for example, they do not have to use vacuum tubes before they can use semiconductors. Even if royalties must be paid, it is cheaper to replicate technology than to undertake original R&D, partly because one does not have to pay for mistakes and dead ends along the way. This should enable developing countries to “leapfrog” over some of the earlier stages of technological development, moving immediately to high-productivity techniques of production. As a result, they should be able to grow much faster than today’s developed countries are growing now or were able to grow in the past, when they had to invent the technology as they went along and proceed step by step through the historical stages of innovation. (This is known as an “advantage of backwardness,” a term coined by economic historian Alexander Gerschenkron.) In fact, if we confine our attention to cases of successful development, the later a country begins its modern economic growth, the shorter the time needed to double output per worker. For example, Britain doubled its output per person in the first 60 years of its industrial development, and the United States did so in 45 years. South Korea once doubled per capita output in less than 12 years, and China has done so in less than 9 years.

The second reason to expect convergence if conditions are similar is based on factor accumulation. Today’s developed countries have high levels of physical and human capital; in a production function analysis, this would explain their high levels of output per person. But in traditional neoclassical analysis,

the marginal product of capital and the profitability of investments would be lower in developed countries where capital intensity is higher, provided that the law of diminishing returns applied. That is, the impact of additional capital on output would be expected to be smaller in a developed country that already had a lot of capital in relation to the size of its workforce than in a developing country where capital was scarce. As a result, we would expect higher investment rates in developing countries, either through domestic sources or through attracting foreign investment (see Chapter 14). With higher investment rates, capital would grow more quickly in developing countries until approximately equal levels of capital and (other things being equal) output per worker were achieved.⁵⁰

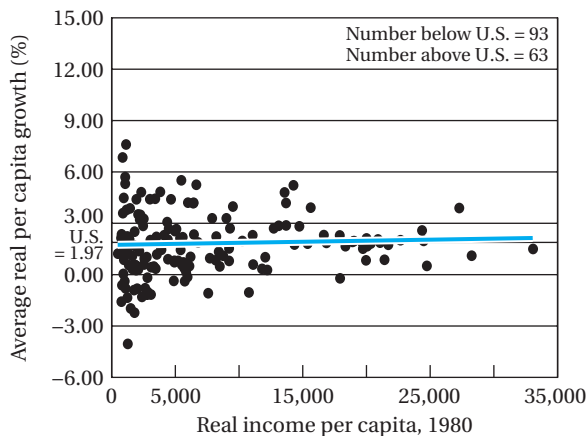
Given one or both of these conditions, technology transfer and more rapid capital accumulation, incomes would tend toward convergence in the long run as the faster-growing developing countries would be catching up with the slower-growing developed countries. Even if incomes did not eventually turn out to be identical, they would at least tend to converge *conditional on* (i.e., after also taking account of any systematic differences in) key variables such as population growth rates and savings rates (this argument is formalized in the neoclassical growth model examined in Chapter 3 and Appendix 3.2). Given the huge differences in capital and technology across countries, if growth conditions were similar, we should see tendencies for convergence in the data.

Whether there is now convergence in the world economy depends on two levels of how the question is framed: whether across average country incomes or across individuals (considering the world as if it were one country); and whether focusing on relative gaps or absolute gaps.

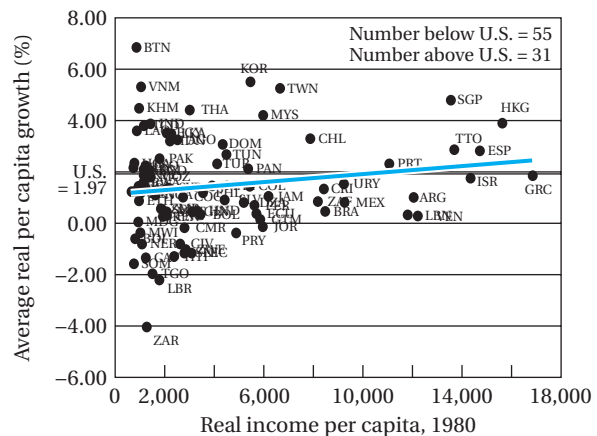
Relative Country Convergence The most widely used approach is simply to examine whether poorer countries are growing faster than richer countries. As long as this is happening, poor countries would be on a path to eventually “catch up” to the income levels of rich countries. In the meantime, the *relative* gap in incomes would be shrinking, as the income of richer countries would become a smaller multiple of income of poorer countries (or looked at from the other perspective, incomes of poor countries would become an increasingly large fraction of income of rich countries). This can be seen on a country-by-country basis. Although China’s average income was just 3% that of the United States in 1980, it was estimated to have reached 14% of U.S. income by 2007. But in the same period, the income of the DRC fell from about 5% of U.S. levels to just 1%. But globally, evidence for relative convergence is weak, even for the most recent decades.

Figure 2.7a illustrates the typical findings of this literature. On the x -axis, income data are plotted from the initial year, in this case 1980; while on the y -axis, the average growth rate of real per capita income is plotted, in this case, over the subsequent 27 years to 2007. If there were unconditional convergence, there would be a tendency for the points plotted to show a clear negative relationship, with the initially lower-income countries growing faster. But as seen in Figure 2.7a there is no apparent tendency toward convergence across countries. In fact, even in this recent period, about 60% of countries grew more slowly than the United States. Looking just at the developing countries, as in Figure 2.7b, it is clear that divergence is occurring: middle-income countries are

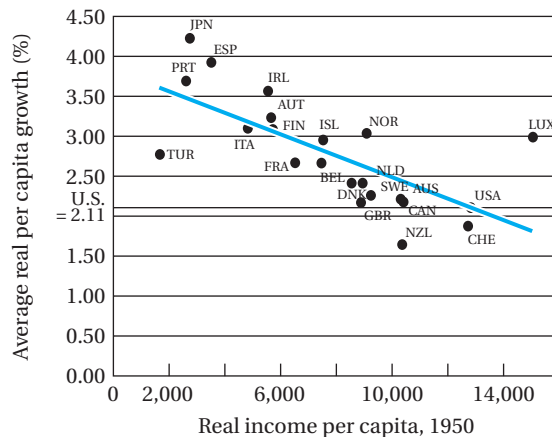
FIGURE 2.7 Relative Country Convergence: World, Developing Countries, and OECD



(a) Per capita growth 1980–2007 for 157 countries



(b) Per capita growth 1980–2007 for 86 developing countries



(c) Per capita growth 1950–2007 for 22 OECD countries

Source: Data from Center for International Comparisons, University of Pennsylvania, accessed at http://pwt.econ.upenn.edu/php_site/pwt63/pwt63_form.php.

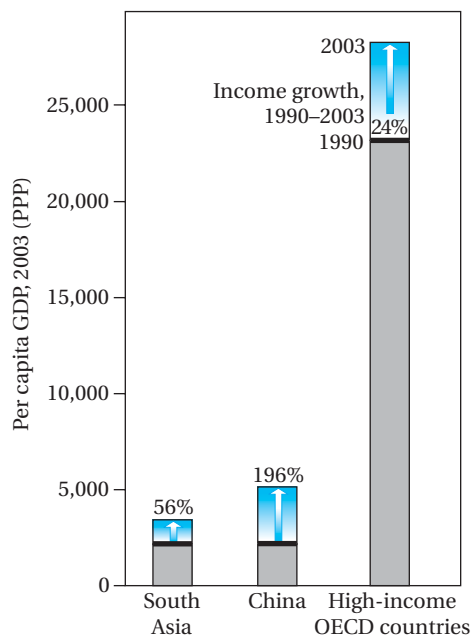
growing faster than low-income countries, so there is a growing gap among developing countries. Many nations, especially among the 49 least developed countries, remain in relative stagnation. Poor developing countries have not been catching up as a group.⁵¹

In Figure 2.7c, growth of high-income OECD countries is examined separately for 1950–2007. The picture here is one of convergence, and we need to interpret it carefully. One explanation is that all of these countries have similar features, including a relatively early start at modern economic growth. This makes the countries more able to borrow technology from each other, as well as trade with and invest in each other's economies. We might conjecture that if developing countries closely followed the institutions and policies of these OECD economies, they might converge as well. However, as noted earlier, there are many institutional and other differences between low- and

high-income economies today, some of which may be very difficult to change; we explore these further in the next section. Moreover, a poor country cannot force a rich country to lower its trade barriers. In any case, one must draw conclusions from the results with great caution because of *selection bias*. That is, among today's rich countries, some were relatively rich in the past and some were relatively poor; in order for them all to be rich countries today, the poor countries *had* to have grown faster than the rich ones, simply as a matter of logic. Confining attention just to the rich countries thus commits the statistical error of selection bias.⁵² Nevertheless, the strong evidence for convergence among the OECD countries, together with the failure at least until very recently to find compelling evidence for longer-term convergence for the world as a whole, particularly divergence for the least developed countries, is likely one reflection of the difference in growth conditions between now developed and developing countries.

Absolute Country Convergence With the recent rapid growth in China, and the acceleration of growth in South Asia as well, these regions are currently on a path of relative country convergence. For example, in the 1990–2003 period, while income grew 24% in high-income OECD countries, it grew 56% in South Asia and 196% in China. But due to their relatively low starting income levels, despite higher growth, income gains were still smaller in absolute amount than in the OECD, as illustrated in Figure 2.8. That is, even when the average income of a developing country is becoming a larger fraction of developed

FIGURE 2.8 Growth Convergence versus Absolute Income Convergence

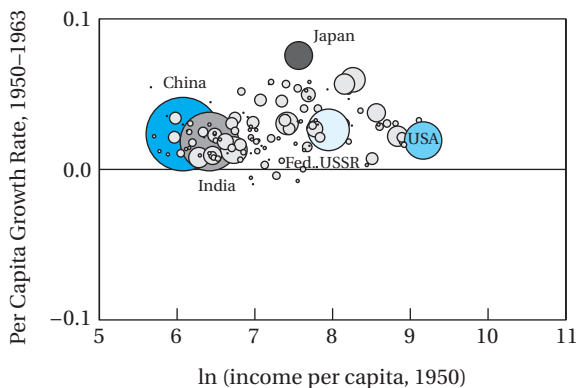


Source: From *Human Development Report, 2005*, p. 37. Reprinted with permission from the United Nations Development Programme.

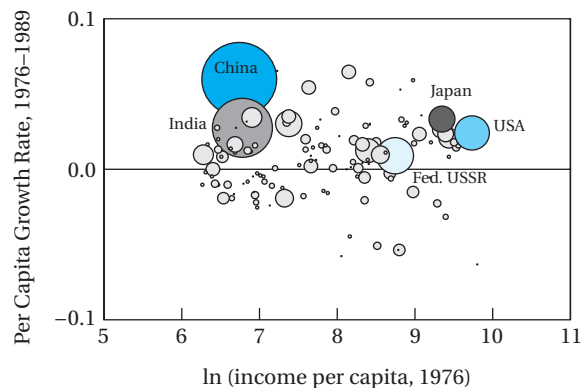
country average incomes, the difference in incomes can still continue to widen for some time before they finally begin to shrink. A process of absolute country convergence is a stronger standard than (and appears only with a lag after) a process of relative country convergence.⁵³

Population-Weighted Relative Country Convergence The high growth rate in China and India is particularly important, because more than one-third of the world's people live in these two countries. This approach frames the question so as to weight the importance of a country's per capita income growth rate proportionately to the size of its population. A typical study of this type is depicted in Figure 2.9a–d. Instead of points representing the data for each country, bubble sizes are used to depict the relative size of countries'

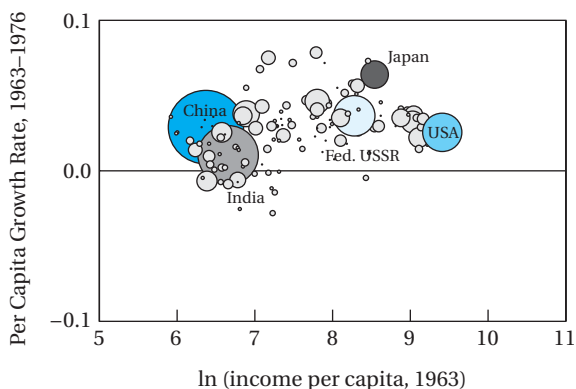
FIGURE 2.9 Country Size, Initial Income Level, and Economic Growth



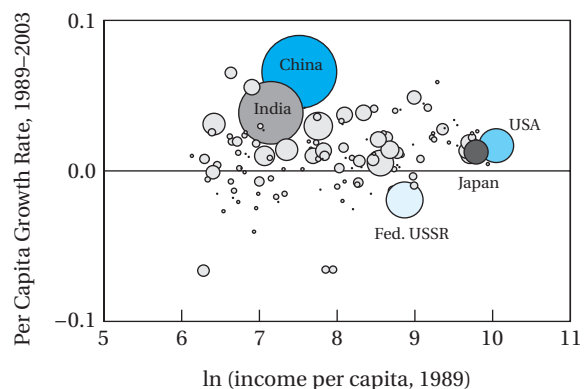
(a) Country size, initial income, and economic growth, 1950–1963, bubble size proportional to population in 1950



(c) Country size, initial income, and economic growth, 1976–1989, bubble size proportional to population in 1976



(b) Country size, initial income, and economic growth, 1963–1976, bubble size proportional to population in 1963



(d) Country size, initial income, and economic growth, 1989–2003, bubble size proportional to population in 1989

Source: Steven Brakmana and Charles van Marrewijk, "It's a big world after all: On the economic impact of location and distance," *Cambridge Journal of Regions, Economy and Society* 1 (2008): 411–437. Reprinted by permission of Oxford University Press.

populations. To get a sense of how the acceleration of growth in China and India, along with a few other countries, have changed the picture, the data are broken up into four time periods. Figures 2.9a and 2.9b reflect that there was relative per capita *divergence* from 1950 through 1976, but Figure 2.9d reflects relative per capita convergence since 1989 (and less unambiguously but plausibly from 1977 to 1989 as well—see Figure 2.9c). If current trends continue (a “big if” given widespread predictions for a slowing of their growth rates), then China, India, and Brazil will account for nearly 40% of global output by 2050, compared with about 10% in 1950.⁵⁴ Although it is true that conditions have remained stagnant or even deteriorated in many of the least developed countries, because of their smaller population sizes with the population-weighted approach, this divergence effect is more than compensated for by growth in countries with large populations. Note that all such trends may be subject to change. For example, the population growth rates of the 49 least developed countries and other low-income countries are much higher than those of the middle- and upper-income countries; so their population-weights are increasing over time. African countries may see a furtherance of their recent trend to faster growth magnifying the new trend to global convergence; or they and other developing regions may see a growth slowdown, with commodity prices falling again and continuing governance problems; and the global economy could return to a period of divergence. These trends will be watched closely.

World-as-One-Country Convergence An alternative approach to the study of convergence is to think of the world as if it were one country. In the first such study, Branko Milanovic stitched together household data sets from around the world and concluded that global inequality rose significantly in the period 1988 to 1993.⁵⁵ Studies of this kind are difficult to carry out. The most important difference from population-weighted country convergence is that a world-as-one-country convergence study can take into account changes in inequality *within* countries as well as between them. In particular, the widening gulf between incomes in rural and urban China had a major effect on the finding of global divergence using this method. But most researchers and policymakers frame development as a process that occurs on the national level, something rather different from global inequality; and country convergence studies remain the standard.

Sectoral Convergence Despite evidence that economies are not converging unconditionally, there can be cross-national convergence of economic sectors, which in turn may signal the potential for future convergence. In particular, Dani Rodrik found evidence that there has been convergence in manufacturing, with implications that the failure to find overall convergence across countries is due to the small share and slow growth of manufacturing employment in low-income countries.⁵⁶

2.7 Long-Run Causes of Comparative Development

What explains the extreme variations in development achievement to date among developing and developed countries? The next two chapters examine theories of economic growth and development processes and policy challenges;

here we present a schematic framework for appreciating the major long-run causes of comparative development⁵⁷ that have been argued in some of the most influential research literature of this century.⁵⁸ (Bear in mind that research on this important subject is still at a relatively early stage; scholars have legitimate disagreements about emphasis and substance, and new findings are being reported regularly.)

First, in the very long run, few economists doubt that physical geography, including climate, has had an important impact on economic history. *Geography* was once truly exogenous, even if human activity can now alter it, for better or worse. But the economic role played by geography, such as tropical climate, today is less clear. Some research suggests that when other factors, notably inequality and institutions, are taken into account, physical geography adds little to our understanding of current development levels. However, some evidence is mixed. For example, there is some evidence of an independent impact of malaria and indications that in some circumstances, landlocked status may be an impediment to economic growth; indeed, a direct link is argued by some economists,⁵⁹ so this possible effect is reflected in **Arrow 1** connecting geography to *income and human development* on the left side of Figure 2.10. Recently, the debate on comparative economic development has been widened further with some evidence that an intermediate degree of genetic diversity (heterozygosity) of human populations is most conducive to long-run economic development.⁶⁰

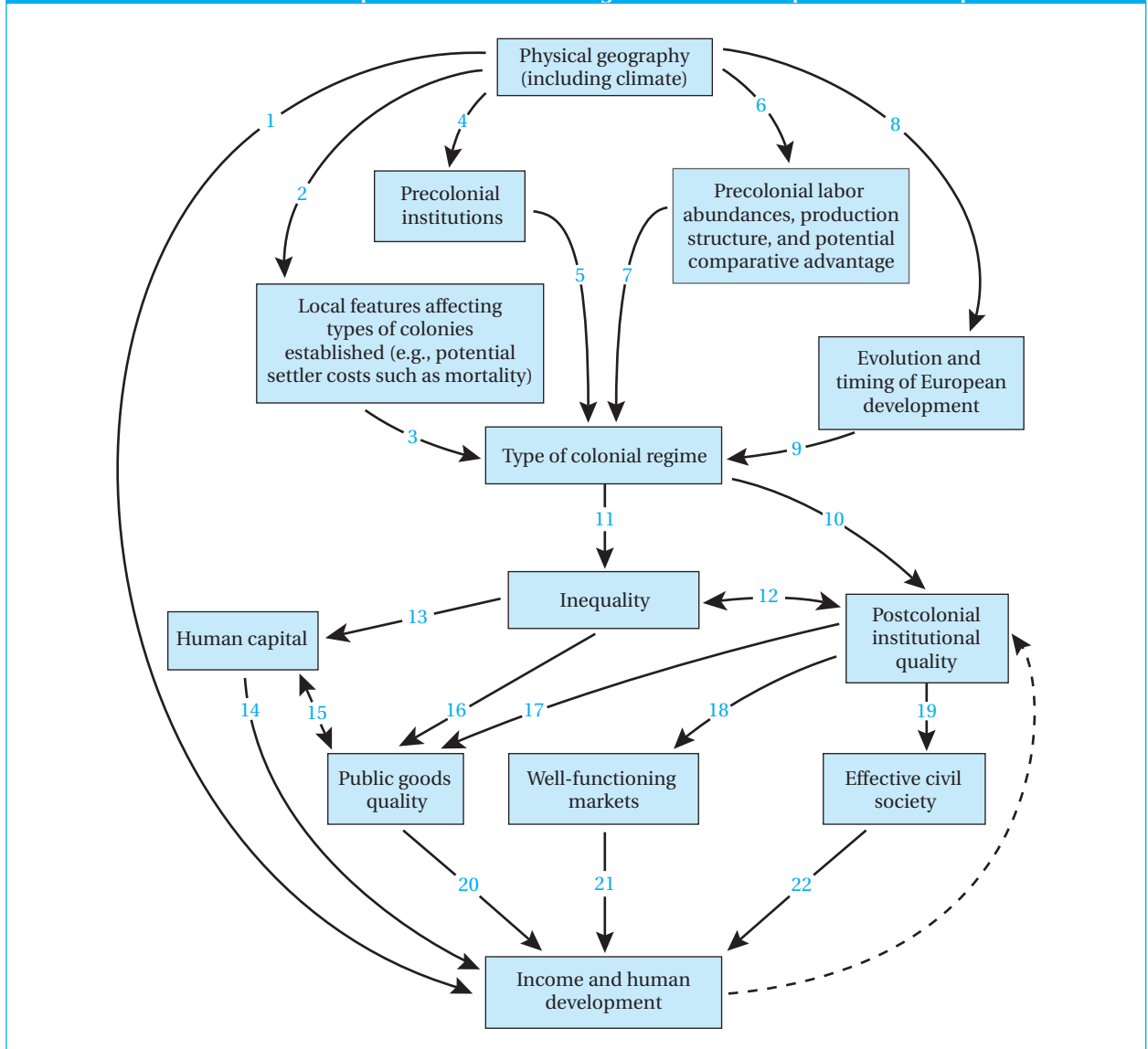
Economic Institutions

“Humanly devised” constraints that shape interactions (or “rules of the game”) in an economy, including formal rules embodied in constitutions, laws, contracts, and market regulations, plus informal rules reflected in norms of behavior and conduct, values, customs, and generally accepted ways of doing things.

Economic institutions, which play an important role in comparative development, are defined by Nobel laureate Douglass North as the “rules of the game” of economic life. As such, institutions provide the underpinning of a market economy by establishing the rules of property rights and contract enforcement; improving coordination;⁶¹ restricting coercive, fraudulent, and anticompetitive behavior; providing access to opportunities for a broad population; constraining the power of elites; and managing conflict more generally. Moreover, institutions include social insurance (which also serves to legitimize market competition) and the provision of predictable macroeconomic stability.⁶² Countries with higher incomes can afford better institutions, so it is challenging to identify the impact of institutions on income. But recently, development economists have made influential contributions toward achieving this research goal.

As noted earlier, most developing countries were once colonies. Geography affected the types of colonies established (**Arrow 2**), with one of the now best known geographic features being settler mortality rates, whose impact⁶³ was examined in work by Daron Acemoglu, Simon Johnson, and James Robinson. In this argument, when potential settlers faced higher mortality rates (or perhaps other high costs), they more often ruled at arm’s length and avoided large, long-term settlement. Their interest could be summarized as “steal fast and get out” or “get locals to steal for you.” Unfavorable institutions were therefore established, favoring extraction over production incentives. But where mortality was low, populations were not dense, and exploitation of resources required substantial efforts by colonists, institutions broadly encouraging investments, notably constraints on executives and protection from expropriation, were established (sometimes as a result of agitation from settlers who had the bargaining power to demand better treatment). These effects are reflected by **Arrow 3**. Acemoglu and colleagues present evidence that after

FIGURE 2.10 Schematic Representation of Leading Theories of Comparative Development



accounting for institutional differences, geographic variables (e.g., closeness to the equator) have little influence on incomes today.⁶⁴ Their statistical estimates imply large effects of institutions on per capita income.

The influence of geography on *precolonial institutions* is captured by **Arrow 4**. Precolonial institutions also mattered to the extent that they had influence on the *type of colonial regime* established. This possible effect is reflected by **Arrow 5**.

Precolonial comparative advantage and evolving *labor abundances* in the Americas and their relation to the institutions established have been examined in the pioneering work of Stanley Engerman and Kenneth Sokoloff.⁶⁵ When

climate was suitable for a *production structure* featuring plantation agriculture (particularly sugarcane in the early history), slavery and other types of mass exploitation of indigenous labor were introduced. In other areas, when indigenous peoples survived contact in sufficient numbers and mineral wealth was available, vast land grants that included claims to labor were established (by Spain). Although resulting from different comparative advantage (sugarcane and minerals), economic and political inequality were high and remained high in all of these economies (even among freemen), which had long-lasting negative effects on development. These links are reflected by **Arrow 6** and **Arrow 7**. Early inequities were perpetuated with limits on the nonelite population's access to land, education, finance, property protection, and voting rights, as well as labor markets. This inhibited opportunities to take advantage of industrialization when they emerged in the nineteenth century, a period when broad participation in commercial activity had high social returns.

The contrast with North American potential *production structure* is striking. Its comparative (emerging) advantage in grain lacked at the time the scale economies of tropical agriculture and of mineral extraction seen elsewhere in the Americas. Scarce labor with abundant land inhibited the concentration of power (despite efforts of colonizers to do so). The need to attract more settlers and encourage them to engage the colonial economy led to the evolution of more egalitarian institutions in the North American colonies. North Americans enjoyed greater egalitarianism in access to all of the factors so restricted elsewhere. This environment facilitated broad-based innovation, entrepreneurship, and investment and gave the United States and Canada a decisive advantage despite their starting out as much poorer societies, which they used to economically surpass societies whose populations were mostly illiterate, disenfranchised, and lacking collateral.⁶⁶ (We will examine further aspects of Engerman and Sokoloff's analysis shortly.)

When local populations were larger and denser and social organization was more advanced, it was easier for colonists to take over existing social structures to gain tribute. In such cases, resulting institutional arrangements would tend to favor mechanisms of extraction of existing wealth over the creation of new wealth, often leading to declines in the relative fortunes of these regions. This is pointed up by Acemoglu, Johnson, and Robinson, whose influential research on this historical "reversal of fortune"⁶⁷ is also reflected by **Arrow 5**. These authors stress that if geography were fundamental to development prospects, the most prosperous areas prior to colonization should continue to be relatively prosperous today. But the most prosperous formerly colonized areas today tend to have been least prosperous in the past. Past population density and past urbanization, which are positively correlated with past income, are *negatively* correlated with current income, these authors show.⁶⁸ There is evidence that Europeans set up more *extractive institutions* (ones designed to extract more surplus from colonized populations) in prosperous areas and that these institutions have often persisted to the contemporary period.⁶⁹

Geography undoubtedly influenced early economic history in Europe.⁷⁰ This is reflected by **Arrow 8**, leading to *evolution and timing of European development*. Early development in Europe gave it advantages over most other regions—advantages that were used to colonize much of the world. But the

types of colonial regimes implemented varied considerably, depending on conditions prevailing at the time of colonization both in the different parts of the world colonized and within the colonizer's home country. The timing of European development influenced the *type of colonial regime* established, reflected by **Arrow 9**. For example, it has been argued that for various reasons, earlier colonization generally involved more plunder and less active production than later colonization, although both occurred at the expense of the indigenous populations.⁷¹

Precolonial comparative advantage may also have interacted with the timing of European development in influencing institutions in that settlers in later-colonized temperate zones arrived with more knowledge and more advanced technology. In particular, Europeans brought better agricultural techniques to the later-settled areas such as North America. As noted by David Fielding and Sebastian Torres, by the eighteenth century, population growth in Europe and technical change had produced a large supply of people with temperate-zone agricultural skills in products such as wheat and dairy. They were able to gain higher incomes using these skills in temperate colonies and former colonies (the so-called neo-Europes).⁷² Thus, precolonial (potential) comparative advantage again mattered. This link is reflected in the flow through **Arrow 6** and **Arrow 7**. The possible role played by specific skills also points up the importance of human capital investments for development, reflected by **Arrow 14**.

Thus, the types of colonial regimes established, while always designed for the benefit of the colonizers, were influenced by local and European supply and demand factors. The type of regime had enormous influence on *postcolonial institutional quality*, reflected by **Arrow 10**. For example, the depraved rule of Belgium's King Leopold II over the Congo (today's Democratic Republic of Congo) was arguably an ultimate cause of the oppressive Mobutu reign after independence. Of course, not all influences of colonialism were necessarily bad. Along with enslavement, subjugation, exploitation, loss of cultural heritage, and repression, colonists also brought modern scientific methods in fields such as medicine and agriculture. Note that this can be no apologia for colonialism, because these advances could have been gained without the societies' becoming colonized, as in Japan. Still, there is some evidence that countries and territories that spent a longer time as colonies (at least in the case of islands) have higher incomes than those that experienced shorter colonial periods, with this effect greater for entities colonized later (perhaps because earlier colonial activity had more pernicious effects than later ones). Even so, there are strong caveats to this finding.⁷³

Besides creating specific institutions, European colonization created or reinforced differing degrees of *inequality* (often correlated with ethnicity), ultimately leading to diminished prospects for growth and development, notably in Latin America and the Caribbean. This is reflected by **Arrow 11**. High inequality often emerged as a result of slavery in regions where crops could be "efficiently" produced on slave plantations. They also emerged where a large, settled indigenous population could be coerced into labor. Such histories had long-term consequences, particularly in Latin America. As Engerman and Sokoloff have argued, the degree of inequality itself can shape the evolution of institutions as well as specific policies. Where inequality was extreme, there was less investment in *human capital* (**Arrow 13**) and other public goods

(**Arrow 16**) and, as reflected by the bidirectional **Arrow 12**, a tendency of *less* movement toward democratic institutions (which could also have facilitated movement to other constructive institutions).⁷⁴

Thus, extreme inequality is likely to be a long-term factor in explaining comparative development. This is raised in the striking historical contrast between the states of North America and the states of Central and South America. There was greater egalitarianism in North America, though the inhuman treatment of Native Americans and of slaves in the southern colonies (later the United States) reflects the fact that this is not because the English settlers were inherently “nicer masters” than the Spanish. Still, much of the North American experience contrasts strongly with the extreme inequality of Central and South America and the Caribbean.⁷⁵ Engerman and Sokoloff argued that high inequality in Latin America led to low *human capital* investments, again in contrast to North America;⁷⁶ this mechanism is again reflected by **Arrow 13**. Elites in Latin America then loosened their control only when their returns to increased immigration, and thus to creating more attractive conditions for immigrants, were high. Besides creating specific institutions, then, European colonization created or reinforced different degrees of inequality, often correlated with ethnicity. This history had long-term consequences, particularly in Latin America. In the direction from inequality to *postcolonial institutional quality*, **Arrow 12** reflects what has been termed the social conflict theory of institutions. Box 2.4 presents findings that inequality does negatively affect per capita income much in the way predicted by Engerman and Sokoloff.

Cultural factors may also matter in influencing the degree of emphasis on education, postcolonial institutional quality, and the effectiveness of civil society, though the precise roles of culture are not clearly established in relation to the economic factors surveyed in this section and so are not included in the diagram. In addition, institutional quality affects the amount and quality of investments in education and health, via the mediating impact of inequality. In countries with higher levels of education, institutions tend to be more democratic, with more constraints on elites. The causality between education and institutions could run in either direction, or both could be caused jointly by still other factors. Some scholars argue that some countries with bad institutions run by dictators have implemented good policies, including educational investments, and subsequently, after reaping the benefits in terms of growth, those countries have changed their institutions.⁷⁷ They argue that human capital is at least as fundamental a source of long-run development as institutions. In the diagram, this would suggest adding an arrow from human capital back to postcolonial institutional quality; this is intuitively plausible, although additional evidence for this link will be needed for it to become more fully established.⁷⁸ Clearly, however, in some cases extractive colonial institutions left a legacy that resulted in poor health and education decades after independence; an example from India is examined in Box 2.5.

For the relatively small number of developing countries never colonized, such as Thailand, *type of colonial regime* can be reinterpreted in the diagram as institutional quality at an early stage of development (or as cultural influences not shown)—but note that the evidence for causality patterns is not as convincing in these cases. However, the diversity of development experiences of never-colonized countries caution us not to place complete emphasis on the choices of colonizers; preexisting social capital may matter at least as much.⁷⁹



BOX 2.4 FINDINGS Instruments to Test Theories of Comparative Development: Inequality

In a 2007 study, William Easterly used cross-country data to examine the Engerman and Sokoloff hypothesis. His research confirmed that “agricultural endowments predict inequality and inequality predicts development.” Specifically, Easterly finds that inequality negatively affects per capita income; it also negatively affects institutional quality and schooling, which are “mechanisms by which higher inequality lowers per capita income.” That the negative relationship between income and inequality is present in the data is clear—but how do development economists take the step to prediction and assignment of causality when measurement error and many confounding factors are present, such as the possible link that underdevelopment itself is a cause of inequality?

Sometimes development economists run field experiments—but obviously, we cannot randomly assign countries various levels of inequality to see what happens! In the many cases when field experiments are impossible, development economists frequently try to understand causality by searching for an instrumental variable (or “instrument”); in fact, many researchers in development economics invest a lot of their time in this search. This is a topic covered in classes in econometrics. But the basic idea is that to identify the effect of a potential causal variable c (such as inequality) on a development outcome variable d (such as income or educational attainment), the hunt is on for an elusive instrumental variable e that affects d only through e 's effect on c . So an instrument has no independent

effect on the outcome variable of interest. You saw earlier that Acemoglu, Johnson, and Robinson used settler mortality as an instrument for early institutions. Easterly uses “the abundance of land suitable for growing wheat relative to that suitable for growing sugarcane” as an instrument for inequality. Using this strategy, Easterly concludes that high inequality of the Engerman and Sokoloff variety is independently “a large and statistically significant barrier to prosperity, good quality institutions, and high schooling.” Schooling and institutional quality are precisely the mechanisms proposed by Engerman and Sokoloff by which higher inequality leads to lower incomes. Like a leprechaun, a good instrumental variable is hard to get hold of but when caught can give the researcher's equivalent of a pot of gold. Though active debate on inequality and development continues, the interplay between the careful institutional analysis and economic history scholarship of Engerman and Sokoloff and the study of causality with larger data sets as used by Easterly gives a window into how the field of development economics continues to make progress.

Sources: William Easterly, “Inequality does cause underdevelopment,” *Journal of Development Economics* 84 (2007): 755–776; Joshua D. Angrist and Jorn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion* (Princeton, N.J.: Princeton University Press, 2008). For an important critique of the use and interpretation of instrumental variables (and also of randomization) in development economics research see Angus Deaton, “Instruments, randomization, and learning about development,” *Journal of Economic Literature*, 48, no. 2 (2010): 424–455.

Never-colonized countries also show a dramatic range in performance; Ethiopia and Afghanistan remain very poor, Thailand is in the lower-middle range, Turkey is in the upper-middle range, and Japan is among the very wealthiest countries; China, starting among the poorest countries 30 years ago, is now rapidly ascending the income tables. The quality of institutions (and inequality) undoubtedly mattered in noncolonized societies; it is just harder to conclude that institutions led to income rather than only vice versa.

Clearly, human capital has a direct impact on *income and on human development* more broadly, as reflected by **Arrow 14**. The depth and breadth of education in the population will help determine the effectiveness of government as a force for development, reflected by **Arrow 15**. This is due not only



BOX 2.5 FINDINGS Legacy of Colonial Land Tenure and Governance Systems

Substantial evidence on the importance of institutions is provided in a study of the impact of land revenue institutions established by the British Raj in India conducted by Abhijit Banerjee and Lakshmi Iyer. Because areas where land revenue collection was taken over by the British between 1820 and 1856 (but not before or after) were much more likely to have a non-landlord system, the authors used being conquered in this period as an instrument for having a non-landlord system. They also used other statistical tests that showed the results were robust. They found that historical differences in property rights institutions led to sustained differences in economic outcomes, in that the regions in which property rights to land were given to landlords have had significantly lower agricultural investments and productivity in the postindependence period than regions in which property rights were given to cultivators. The authors concluded that the divergence occurred because historical differences in institutions led to different policy choices. Tellingly, the regions in which landlords

received the proprietary rights also had significantly lower investments in health and education in the postcolonial period.

In subsequent research, Lakshmi Iyer compared economic outcomes across areas in India that experienced direct versus indirect British colonial rule, controlling for the apparent colonial preference to annex higher-quality lands using another instrumental variable strategy. She found evidence that colonial governance quality had persistent effects on postcolonial outcomes; areas under direct rule received significantly less access to schools, health centers, and roads in the postcolonial period, with higher levels of poverty and infant mortality.

Sources: Abhijit Banerjee and Lakshmi Iyer, "History, institutions, and economic performance: The legacy of colonial land tenure systems in India," *American Economic Review* 95 (2005): 1190–1213; and Lakshmi Iyer, "Direct versus indirect colonial rule in India: Long-term consequences," *Review of Economics and Statistics* 92 (2010): 693–713. Preparation of this box also benefited from a manuscript, Lakshmi Iyer, "The long-run consequences of colonial institutions," draft, Harvard Business School, 2013.

to a better-qualified civil service but also to the understanding of citizens of poor government performance and the knowledge of how to work for a better outcome and capacity to organize.⁸⁰ Of course, education could also independently affect the organization and functioning of markets per se (arrow omitted), but the literature to date has primarily viewed the productive impact of human capital on market outcomes as a direct one, reflected by **Arrow 14**. These impacts are explored further in Chapter 8.

The type and quality of global integration (particularly trade) have been stressed as a boon to long-run growth and development in many World Bank reports. Trade may be beneficial in that it provides various kinds of access to technology.⁸¹ And some economists argue that greater openness to trade beneficially affects the subsequent evolution of institutions. On the other hand, critics argue that the wrong kind of integration or the failure to complement integration with appropriate policies could be harmful to development. In fact, evidence suggests that once institutions are accounted for, trade itself explains very little, so for simplicity, integration is left out of the diagram.⁸²

Postcolonial institutional quality has a strong impact on the effectiveness of the private, public, and citizen (or civil society) sectors. Democratic governance, rule of law, and constraints on elites will encourage more and better

quality public goods, reflected by **Arrow 17**. Better property rights protections and contract enforcement for ordinary citizens and broad access to economic opportunities will spur private investments, reflected by **Arrow 18**. And institutions will affect the ability of civil society to organize and act effectively as a force independent of state and market, reflected by **Arrow 19**. Clearly, the activities of the three sectors will each have an influence on productivity and incomes, and on human development more generally, as reflected by **Arrows 20, 21, and 22**, respectively.⁸³ These factors are explored further in Chapter 11.

It is not yet entirely clear which economic institutions are most important in facilitating development or the degree to which strength in one institution can compensate for weakness in another.⁸⁴ Clearly, there are multiple paths to economic development (see, e.g., the case study of China at the end of Chapter 4). But a key finding of recent research is that forces that protect narrow elites in ways that limit access of the broader population to opportunities for advancement are major obstacles to successful economic development. If institutions are highly resistant to attempts at reform, this helps clarify why development is so challenging.

Nevertheless, in most countries with poor institutions, there is still much that can be done to improve human welfare and to encourage the development of better institutions. Indeed, economic institutions do change over time, even though political institutions such as voting rules sometimes change without altering the real distribution of power or without leading to genuine reform of economic institutions. Although the evidence of the impact of democracy on growth in the short to medium term is not strong (see Chapter 11), in the long run democratic governance and genuine development do go hand in hand, and the steady spread of more genuinely democratic institutions in the developing world is a very encouraging sign.⁸⁵ As Dani Rodrik has noted, "Participatory and decentralized political systems are the most effective ones we have for processing and aggregating local knowledge. We can think of democracy as a meta-institution for building other good institutions."⁸⁶ In addition, development strategies that lead to greater human capital, improve access to new technologies, produce better-quality public goods, improve market functioning, address deep-rooted problems of poverty, improve access to finance, prevent environmental degradation, and foster a vibrant civil society all promote development.

2.8 Concluding Observations

History matters. We have learned that conditions prevailing in a developing nation when European colonialism began had a large impact on the subsequent history of inequality and institutional development in the nation in ways that either facilitated or thwarted participation in modern economic growth after the Industrial Revolution arrived in the late eighteenth century. And poor institutions have generally proved very resistant to efforts at reform. But the new perspectives do not imply that development is impossible! Instead, they serve to clarify the nature of the great challenges facing many developing nations. The phenomenon of underdevelopment is best viewed in both a national and an international context. Problems of poverty, inequality, low productivity, population growth, unemployment, primary-product export

dependence, and international vulnerability have both domestic and global origins and potential solutions.

It should be remembered that most developing nations have succeeded in raising incomes significantly. And most developing countries have had notable successes in lowering infant mortality, improving educational access, and narrowing gender disparities.⁸⁷ By pursuing appropriate economic and social policies both at home and abroad and with effective assistance from developed nations, even the least developed countries do indeed have the means to realize their development aspirations. Parts Two and Three will discuss the ways in which these hopes and objectives can be attained.

But concomitant and complementary human capital, technological, social, and institutional changes must take place if long-term economic growth is to be realized. Such transformations must occur not only within individual developing countries but also in the international economy. In other words, unless there is some major structural, attitudinal, and institutional reform in the world economy, one that accommodates the rising aspirations and rewards the outstanding performances of individual developing nations, particularly the least developed countries, internal economic and social transformation within the developing world may be insufficient.⁸⁸

There may be some “advantages of backwardness” in development, such as the ability to use existing, proven technologies rather than having to reinvent the wheel and even leapfrogging over older technology standards that developed countries have become locked into. One can also learn valuable lessons from economic policies that have been tried in various countries around the world. These advantages are especially helpful if an economy can successfully manage to get sustained modern economic growth under way, as, for example, in Taiwan, South Korea, China, and a few other cases. However, for most very poor countries, backwardness comes with severe disadvantages, many of which have been compounded by legacies of colonialism, slavery, and Cold War dictatorships. In either case, countries will generally have to do more than simply emulate policies followed by today’s developed countries while they were in their early stages of development.

Despite the obvious diversity of these countries, and growing gaps between middle- and low-income countries, most developing nations share a set of common and well-defined goals. These include a reduction in poverty, inequality, and unemployment; the provision of basic education, health, housing, and food to every citizen; the broadening of economic and social opportunities; and the forging of a cohesive nation-state. Related to these economic, social, and political goals are the common problems shared in varying degrees by most developing countries: chronic absolute poverty, high levels of unemployment and underemployment, wide disparities in the distribution of income, low levels of agricultural productivity, sizable imbalances between urban and rural levels of living and economic opportunities, discontent on the part of the segments of the population not benefiting from economic growth, serious and worsening environmental decay, antiquated and inappropriate educational and health systems, and substantial dependence on foreign technologies, institutions, and value systems. It is therefore also possible and useful to talk about the similarities of critical development problems and to analyze these problems in a broad developing world perspective.

Economic and social development will often be impossible without corresponding changes in the social, political, legal, and economic institutions of a nation, such as land tenure systems, forms of governance, educational structures, labor market relationships, property rights, contract law, civic freedoms, the distribution and control of physical and financial assets, laws of taxation and inheritance, and provision of credit. But fundamentally, every developing country confronts its own constraints on feasible policy options and other special circumstances, and each will have to find its own path to effective economic and social institutions. Examples offered by developed countries' earlier experiences and current institutions, as well as those of other countries in the developing world, provide important insights for policy formulation. Economic institutions of Europe and North America are in most cases closer to efficient than those of many developing countries, although all countries have room for further institutional innovations. But developing countries cannot assume without additional investigation that patterning their policies and institutions on those of developed countries will always provide the fastest route to successful economic development; transitional institutions are likely to be the most effective route to rapid economic growth for at least some developing countries (see the case study of China at the end of Chapter 4).

In sum, this chapter has pointed up some important similarities across most developing countries, in contrast to contemporary and historical characteristics of developed countries. It has also shown that developing nations are very heterogeneous, differing in many critical respects. Looming large in explaining the root causes in the levels of incomes and human development are the higher inequality, weaker institutions, and lower levels of education and health. But even starting with these weaknesses, there is much that developing countries can undertake through appropriate policy strategies and at least incremental improvements in institutions to speed economic and social progress.

Indeed, the experience of the past 50 years shows that while development is not inevitable and poverty traps are quite real, it is possible to escape from poverty and initiate sustainable development. Before examining specific policies for doing so, in the next chapters we will set the context further by examining important theories and models of development and underdevelopment. In Chapter 3, we examine classic theories that remain influential and useful in many respects, and in Chapter 4, we consider models of coordination failures and other constraints and conceptual strategies for escaping from them.