Comparative Economic Development

2

Viewed through the lens of human development, the global village appears deeply divided between the streets of the haves and those of the have-nots.

—*United Nations Development Program,* Human Development Report, 2006

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, writing in the* Quarterly Journal of Economics, *2002*

The most striking feature of the global economy is 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] Real income per capita is $48,430 in the United States, $2,930 in India, and $280 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 78 in the United States, 65 in India, and just 46 in the DRC. The prevalence of undernourishment is less than 2.5% in the United States but 22% in India and 75% in the DRC. Whereas almost all women are literate in the United States, just 51% are in India and 56% 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 ten 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 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

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, 210 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**.)

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 gross national income per capita of less than $976 in 2008.

Middle-income countries In the World Bank classification, countries with a GNI per capita between $976 and $11,906 in 2008.

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 2008 of $975 or less; lower-middle-income countries have incomes between $976 and $3,855; upper-middle-income countries have incomes between $3,856 and $11,906; and high-income countries have incomes of $11,907 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 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. Even a few of the high-income OECD member countries, notably Portugal and Greece, have been viewed as developing countries at least until recently. 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 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 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 Program (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.

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.

Another widely used classification is that of the **least developed countries**, a United Nations designation that as of 2010 included 49 countries, 33 of them in Africa, 15 in Asia, plus Haiti. For inclusion, a country has to meet each of three

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

TABLE 2.1 Classification of Economies by Region and Income, 2010

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

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		Puerto Rico‡	PRI	
Italy	ITA		Cayman Islands	CYM		Qatar	QAT	
Japan	JPN		Channel Islands	CHI		San Marino	SMR	
Korea, Rep. (South)	KOR		Croatia	HRV		Saudi Arabia	SAU	
Luxembourg	LUX		Cyprus	CYP		Singapore‡	SGP	
Netherlands	NLD		Estonia	EST		Slovenia	SVN	
New Zealand	NZL		Equatorial Guinea*	GNQ		Taiwan, China	TWN	
Norway	NOR		Faeroe Islands	FRO		Trinidad and Tobago‡	TTO	
Portugal	PRT		French Polynesia‡	PYF		United Arab Emirates	ARE	
Slovak Republic	SVK		Greenland	GRL				

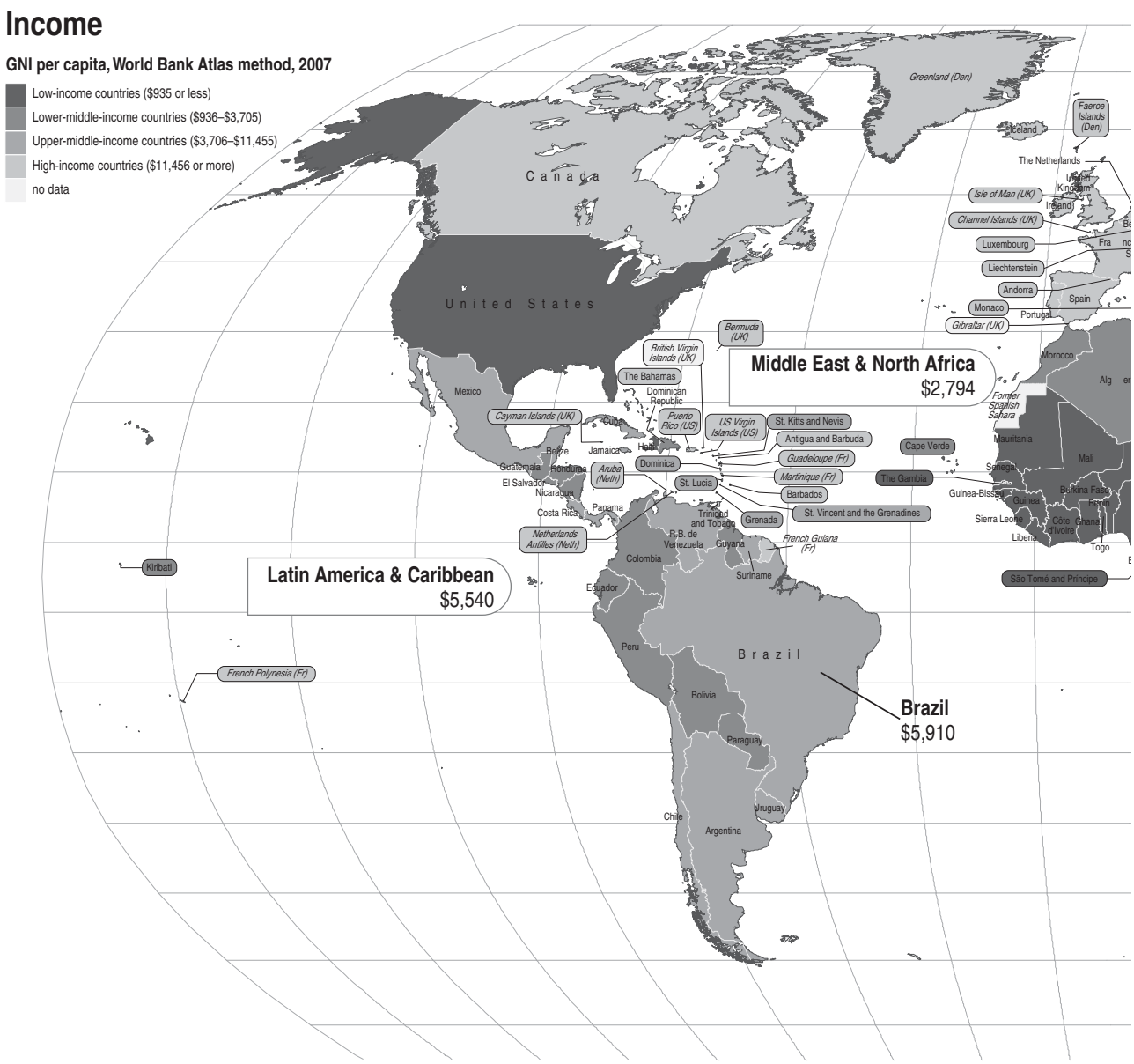
* least developed countries
† landlocked developing countries
‡ small island developing states

Source: Data from World Bank, *World Development Indicators*, 2010 (Washington, D.C.: World Bank, 2010) and WDI online; United Nations; and http://www.iso.org.

criteria: low income, low human capital, and high economic vulnerability. Other special UN classifications include landlocked developing countries (of which there are 30, half 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 emerging and which as yet to emerge.

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.

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



Source: Data from *Atlas of Global Development*, 2nd ed., pp. 10–11. © Collins Bartholomew Ltd., 2010.
Note: This map reflects income data for 2007. The data in the text refer to 2008; thus there are some modest differences.

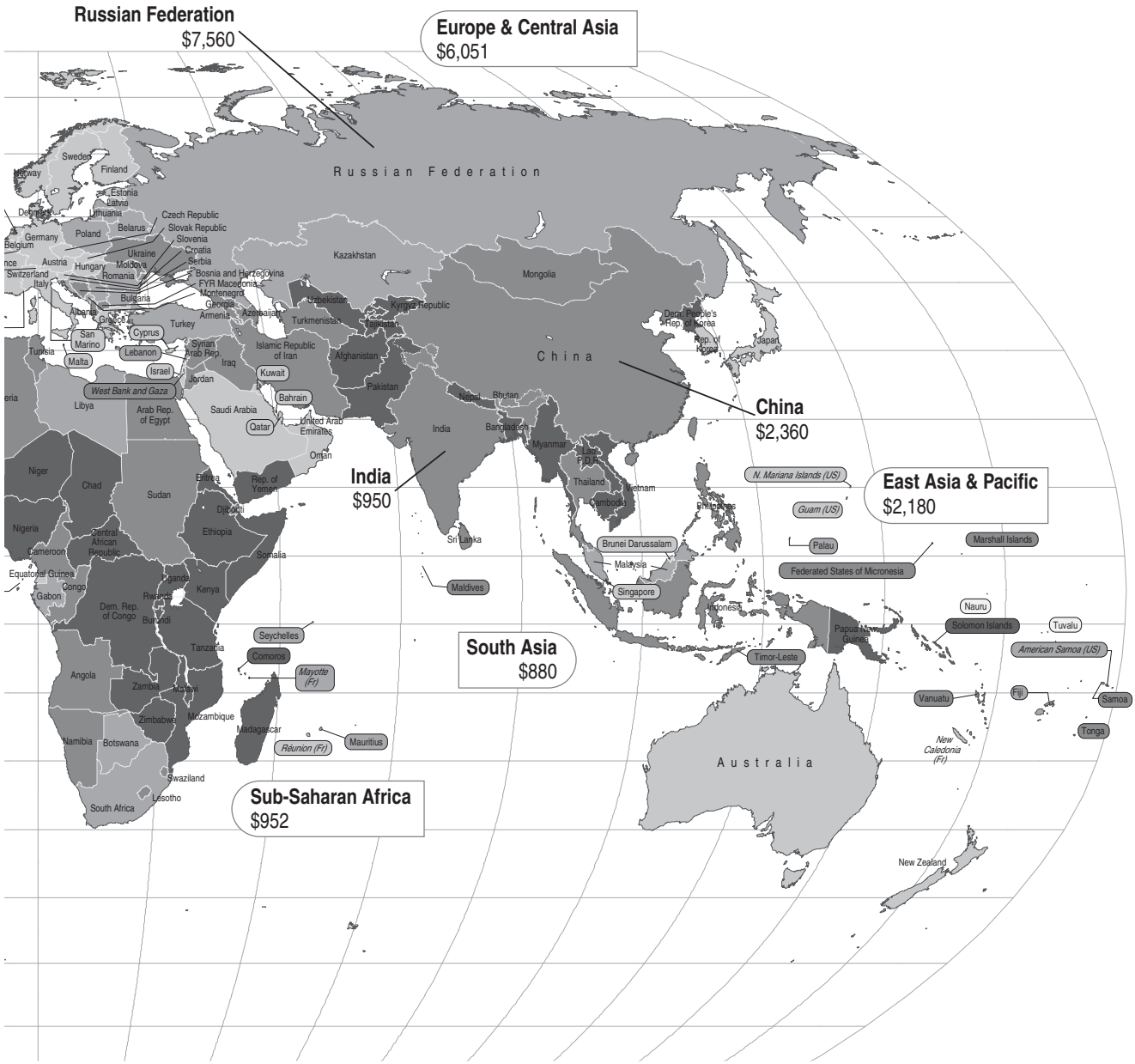
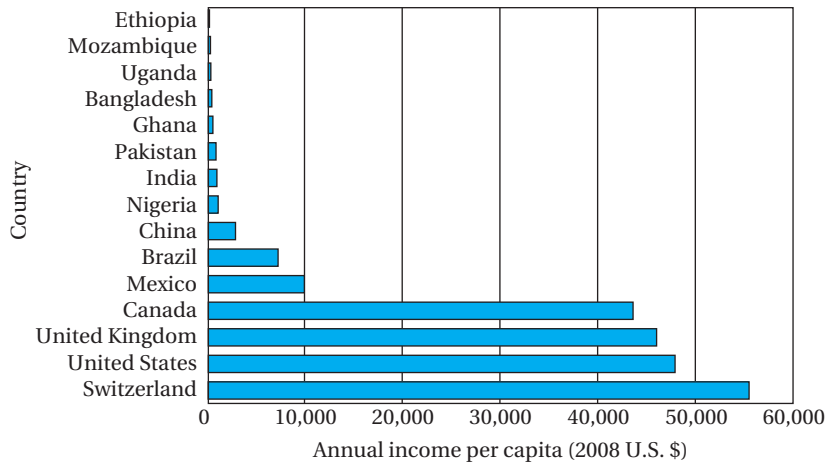

Russian Federation
$7,560
Europe & Central Asia
$6,051
China
$2,360
East Asia & Pacific
$2,180
India
$950
South Asia
$880
Sub-Saharan Africa
$952
Russian Federation
China
Australia
Sweden
Finland
Estonia
Latvia
Lithuania
Czech Republic
Slovak Republic
Slovenia
Croatia
Serbia
Bosnia and Herzegovina
FYR Macedonia
Montenegro
Germany
Poland
Belarus
Ukraine
Moldova
Hungary
Romania
Austria
Switzerland
Italy
Bulgaria
Albania
Greece
Georgia
Armenia
Azerbaijan
Turkey
Cyprus
San Marino
Malta
Tunisia
Lebanon
Syrian Arab Rep.
Iraq
Israel
Jordan
West Bank and Gaza
Libya
Arab Rep. of Egypt
Kuwait
Bahrain
Saudi Arabia
Qatar
United Arab Emirates
Oman
Kazakhstan
Uzbekistan
Turkmenistan
Kyrgyz Republic
Tajikistan
Mongolia
Dem. People's Rep. of Korea
Rep. of Korea
Japan
Islamic Republic of Iran
Afghanistan
Pakistan
India
Nepal
Bhutan
Bangladesh
Myanmar
Sri Lanka
Maldives
Lao P.D.R.
Thailand
Vietnam
Cambodia
Philippines
Brunei Darussalam
Malaysia
Singapore
Indonesia
Timor-Leste
Papua New Guinea
N. Mariana Islands (US)
Guam (US)
Palau
Federated States of Micronesia
Marshall Islands
Nauru
Solomon Islands
Tuvalu
American Samoa (US)
Samoa
Tonga
Fiji
Vanuatu
New Caledonia (Fr)
New Zealand
Niger
Chad
Sudan
Eritrea
Rep. of Yemen
Djibouti
Ethiopia
Somalia
Nigeria
Cameroon
Central African Republic
Equatorial Guinea
Gabon
Congo
Dem. Rep. of Congo
Uganda
Kenya
Rwanda
Burundi
Seychelles
Comoros
Mayotte (Fr)
Tanzania
Angola
Zambia
Malawi
Mozambique
Zimbabwe
Namibia
Botswana
Swaziland
Lesotho
South Africa
Madagascar
Réunion (Fr)
Mauritius

FIGURE 2.2 Income Per Capita in Selected Countries (2008)



Source: Data from World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010), tab. 1.1.

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 nonresidents.

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.

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 2008, the total national income of all the nations of the world was valued at more than U.S. $58 trillion, of which over $42 trillion originated in the economically developed high-income regions and less than $16 trillion was generated in the less developed nations, despite their representing about five-sixths of the world's population.

In 2008 Norway had 312 times the per capita income of Ethiopia and 84 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 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 2008 GNI per capita was only 6% of that of the United States using the exchange-rate conversion but rises to 13% when estimated by the PPP method of conversion. Income gaps between rich and poor nations thus tend to be less when PPP is used.

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.

Table 2.2 provides a comparison of exchange-rate and PPP GNI per capita for 26 countries, eight each from Africa, Asia, and Latin America, plus the United Kingdom and United States. Measured in PPP dollars, the gap between the United States and Burundi would be 127 to 1 instead of the 342-to-1 gap using official foreign-exchange rates.

Table 2.3 broadens these comparisons to include regions and income groupings, as well as six illustrative country examples at ascending income levels, along with basic health and education indicators. In the first column of Table 2.3, incomes are measured at market or official exchange rates and suggest that income of a person in the United States is 320 times that of a person in the Democratic Republic of Congo. But again, this is literally 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 173 times that of the DRC—still a level of inequality that stretches the imagination. Overall, the average real income per capita in high-income countries is more than 28 times that in low-income countries and 7 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 (life expectancy, the rate of undernourishment, the under-5 mortality rate, and the crude birth rate), and education (male and female adult literacy). 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

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, 2008

	GNI Per Capita (U.S. $)	
Country	Exchange Rate	Purchasing Power Parity
Argentina	7,190	13,990
Bangladesh	520	1,450
Brazil	7,300	10,070
Burundi	140	380
Cameroon	1,150	2,170
Chile	9,370	13,240
China	2,940	6,010
Costa Rica	6,060	10,950
Ghana	630	1,320
Guatemala	2,680	4,690
India	1,040	2,930
Indonesia	1,880	3,590
Kenya	730	1,550
Malawi	280	810
Malaysia	7,250	13,730
Mexico	9,990	14,340
Nicaragua	1,080	2,620
Sierra Leone	320	770
South Korea	21,530	27,840
Sri Lanka	1,780	4,460
Thailand	3,670	7,760
Uganda	420	1,140
United Kingdom	46,040	36,240
United States	47,930	48,430
Venezuela	9,230	12,840
Zambia	950	1,230

Source: Data from World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010) tab. 1.1.

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 six 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 six illustrative countries: the DRC, India, Egypt, Brazil, Malaysia, and the United States.

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. India's real income is nearly ten times that of the DRC. Its overall life expectancy is 16 years longer. While about three-quarters are undernourished in the DRC, 22% are undernourished in India. Of every 1,000 live births, 199 of these children will die before their fifth birthday in the

TABLE 2.3 Commonality and Diversity: Some Basic Indicators

Country or Group	2008 Income Per Capita (U.S. $)	2008 PPP Per Capita (U.S. $)	2008 Life Expectancy (years)	Prevalence of Undernourishment[a] (%)	2007 Under-5 Mortality per 1,000 Live Births	2008 Crude Birth Rate	Adult Literacy[b]	
							Male	Female
Income Group								
Low	523	1,354	59	30	118	32	76	63
Lower middle	2,073	4,589	68	15	64	20	87	73
Upper middle	7,852	12,208	71	6	23	17	95	92
High	39,687	37,665	80	5	7	12		
Country								
Dem. Rep. Congo (LIC)	150	280	48	75	199	45	78	56
India (LMC)	1,040	2,930	64	22	69	23	75	51
Egypt (LMC)	1,800	5,470	70	<5	25	25	75	58
Brazil (UMC)	7,300	10,070	72	6	22	16	90	90
Malaysia (UMC)	7,250	13,730	74	<5	6	20	99	94
United States (high-income)	47,930	48,430	78	<5	8	14		
Region								
East Asia and the Pacific	2,644	10,461	72	12	29	14	96	90
Latin America and the Caribbean	6,768	10,312	73	9	23	19	92	91
Middle East and North Africa	3,237	7,343	71	7	34	24	82	65
South Asia	963	2,695	64	22	76	24	73	50
Sub-Saharan Africa	1,077	1,949	52	28	144	38	74	57
Europe and Central Asia	7,350	11,953	70	6	22	14	99	97

Source: Data from World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010), multiple tables.

[a]Most recent year between 2004 and 2006.

[b]Most recent year between 2005 and 2008.

DRC, compared with 69 in India. And the birth rate is about twice as high in the DRC as in India. In one area, the DRC seems to fare better: It reports higher levels of both male and female literacy than India does. If India appears to do better overall, both still face enormous development challenges as seen by comparing these statistics even to Malaysia.

2.3 Holistic Measures of Living Levels and Capabilities

The Traditional Human Development Index

The most widely used measure of the comparative status of socioeconomic development is presented by the United Nations Development Program (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

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.

informative **Human Development Index (HDI)**. The HDI attempts to rank all countries on a scale of 0 (lowest human development) to 1 (highest human development) based on three goals or end products of development: *longevity* as measured by life expectancy at birth, *knowledge* as measured by a weighted average of adult literacy (two-thirds) and gross school enrollment ratio (one-third), and *standard of living* as measured by real per capita gross 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. Using these three measures of development and applying a formula to data for 177 countries, the HDI ranks countries into four groups: low human development (0.0 to 0.499), medium human development (0.50 to 0.799), high human development (0.80 to 0.90), and very high human development (0.90 to 1.0).

Calculation of the traditional HDI underwent a number of changes since its inception. (The new 2010 version of the HDI is introduced in the next section.) In particular, in the past a relatively complicated formula was used to convert PPP income into "adjusted" income (meaning income adjusted for diminishing marginal utility so that well-being increases with income but at a decreasing rate). More recently, adjusted income is found by simply taking the log of current income. Then, to find the income index, one subtracts the log of 100 from the log of current income, on the assumption that real per capita income can not possibly be less than $100 PPP.[7] The difference gives the amount by which the country has exceeded this "lower goalpost." To put this achievement in perspective, consider it in relation to the maximum that a developing country might reasonably aspire to over the coming generation. The UNDP takes this at $40,000 PPP. So we then divide by the difference between the log of $40,000 and the log of $100 to find the country's relative income achievement. This gives each country an index number that ranges between 0 and 1. For example, for the case of Bangladesh, whose 2007 PPP GDP per capita was estimated by the UNDP to be $1,241, the income index is calculated as follows:

$$\text{Income index} = \frac{[\log(1{,}241) - \log(100)]}{[\log(40{,}000) - \log(100)]} = 0.420 \qquad (2.1)$$

The effect of diminishing marginal utility is clear. An income of $1,241, which is just 3% of the maximum goalpost of $40,000, is already enough to reach more than two-fifths of the maximum value that the index can take. Note that a few countries have already exceeded the $40,000 PPP income target; in such cases, the UNDP assigned the maximum value of $40,000 PPP income, and so the country gets the maximum income index of 1.

To find the life expectancy (health proxy) index, the UNDP starts with a country's current life expectancy at birth and subtracts 25 years. The latter is the lower goalpost, the lowest that life expectancy could have been in any country over the previous generation. Then the UNDP divides the result by 85 years minus 25 years, or 60 years, which represents the range of life expectancies expected over the previous and next generations. That is, it is anticipated that 85 years is a maximum reasonable life expectancy for a country to try to achieve over the coming generation. For example, for the case of Bangladesh,

whose population life expectancy in 2007 was 65.7 years, the life expectancy index is calculated as follows:

$$\text{Life expectancy index} = \frac{65.7 - 25}{85 - 25} = 0.678 \tag{2.2}$$

Notice that no diminishing marginal utility of years of life are assumed; the same holds for the education index. The education index is made up of two parts, with two-thirds weight on literacy and one-third weight on school enrollment. Because gross school enrollments can exceed 100% (because of older students going back to school), this index is also capped at 100%. For the case of Bangladesh, adult literacy is estimated (rather uncertainly) at 53.5%, so

$$\text{Adult literacy index} = \frac{53.5 - 0}{100 - 0} = 0.535 \tag{2.3}$$

For the gross enrollment index, for Bangladesh it is estimated that 52.1% of its primary, secondary, and tertiary age population are enrolled in school, so the country receives the following value:

$$\text{Gross enrollment index} = \frac{52.1 - 0}{100 - 0} = 0.521 \tag{2.4}$$

Then, to get the overall education index, the adult literacy index is multiplied by two-thirds and the gross enrollment index is multiplied by one-third. This choice reflects the view that literacy is the fundamental characteristic of an educated person. In the case of Bangladesh, this gives us

$$\begin{aligned}\text{Education index} &= \frac{2}{3}(\text{adult literacy index}) + \frac{1}{3}(\text{gross enrollment index}) \\ &= \frac{2}{3}(0.535) + \frac{1}{3}(0.521) = 0.530\end{aligned} \tag{2.5}$$

In the final index, each of the three components receives equal, or one-third, weight. Thus

$$\text{HDI} = \frac{1}{3}(\text{income index}) + \frac{1}{3}(\text{life expectancy index}) + \frac{1}{3}(\text{education index}) \tag{2.6}$$

For the case of Bangladesh,

$$\text{HDI} = \frac{1}{3}(0.420) + \frac{1}{3}(0.678) + \frac{1}{3}(0.530) = 0.543 \tag{2.7}$$

One major advantage of the HDI is that it does reveal that a country can do much better than might be expected at a low level of income and that substantial income gains can still accomplish relatively little in human development.

Further, the HDI points up that disparities in income are greater than disparities in other indicators of development, at least health and education. Moreover, the HDI reminds us that by *development* we clearly mean broad human development, not just higher income. Many countries, such as some of the higher-income oil producers, have been said to have experienced "growth without development." Health and education are inputs into the national production

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.

function in their role as components of **human capital**, meaning productive investments embodied in persons. Improvements in health and education are also important development goals in their own right (see Chapter 8). We cannot easily argue that a nation of high-income individuals who are not well educated and suffer from significant health problems that lead to their living much shorter lives than others around the globe has achieved a higher level of development than a low-income country with high life expectancy and widespread literacy. A better indicator of development disparities and rankings might be found by including health and education variables in a weighted welfare measure rather than by simply looking at income levels, and the HDI offers one very useful way to do this.

There are other criticisms and possible drawbacks of the HDI. One is that gross enrollment in many cases overstates the amount of schooling because in many countries a student who begins primary school is counted as enrolled without considering whether the student drops out at some stage. Equal (one-third) weight is given to each of the three components, which clearly has some value judgment behind it, but it is difficult to determine what this is. Note that because the variables are measured in very different types of units, it is difficult even to say precisely what equal weights mean. Finally, there is no attention to the role of quality. For example, there is a big difference between an extra year of life as a healthy, well-functioning individual and an extra year with a sharply limited range of capabilities (such as being confined to bed). Moreover, the quality of schooling counts, not just the number of years of enrollment. Finally, it should be noted that while one could imagine better proxies for health and education, measures for these variables were chosen partly on the criterion that sufficient data must be available to include as many countries as possible.

Table 2.4 shows the 2009 Human Development Index (using 2007 data) for a sample of 24 developed and developing nations ranked from low to very high human development (column 3) along with their respective real GDP per capita (column 4) and a measure of the differential between the GDP per capita rank and the HDI rank (column 5). A positive number shows by how much a country's relative ranking rises when HDI is used instead of GDP per capita, and a negative number shows the opposite. Clearly, this is one of the critical issues for the HDI. If country rankings did not vary much when the HDI is used instead of GDP per capita, the latter would serve as a reliable proxy for socioeconomic development, and there would be no need to worry about such things as health and education indicators. We see from Table 2.4 that the country with the lowest HDI (0.340) in 2007 was Niger, and the one with the highest (0.971) was Norway.

It should be stressed that the HDI has a strong tendency to rise with per capita income, as wealthier countries can invest more in health and education, and this added human capital raises productivity. But what is so striking is that despite this expected pattern, there is still such great variation between income and broader measures of well-being as seen in Tables 2.4 and 2.5. For example, Senegal and Rwanda have essentially the same average HDI despite the fact that real income is 92% higher in Senegal. And Costa Rica has a higher HDI than Saudi Arabia, despite the fact that Saudi Arabia has more than double the real per capita income of Costa Rica. Many countries have an HDI significantly different from that predicted by their income. South Africa has an HDI of 0.683, but it ranks just 129th, 51 places lower than to be expected from

TABLE 2.4 2009 Human Development Index for 24 Selected Countries (2007 Data)

Country	Relative Ranking	Human Development Index (HDI)	GDP Per Capita (PPP, U.S. $)	GDP Rank minus HDI Rank
Low Human Development				
Niger	182	0.340	627	−6
Afghanistan	181	0.352	1,054	−17
Dem. Rep. Congo	176	0.389	298	5
Ethiopia	171	0.414	779	0
Rwanda	167	0.460	866	1
Côte d'Ivoire	163	0.484	1,690	−17
Malawi	160	0.493	761	12
Medium Human Development				
Bangladesh	146	0.543	1,241	9
Pakistan	141	0.572	2,496	−9
India	134	0.612	2,753	−6
South Africa	129	0.683	9,757	−51
Nicaragua	124	0.699	2,570	6
Gabon	103	0.755	15,167	−49
China	92	0.772	5,383	10
Iran	88	0.782	10,955	−17
Thailand	87	0.783	8,135	−5
High Human Development				
Saudi Arabia	59	0.843	22,935	−19
Costa Rica	54	0.854	10,842	19
Cuba	51	0.863	6,876	44
Chile	44	0.878	13,880	15
Very High Human Development				
United Kingdom	21	0.947	35,130	−1
United States	13	0.956	45,592	−4
Canada	4	0.966	35,812	14
Norway	1	0.971	53,433	4

Source: Data from United Nations Development Program, *Human Development Report, 2009*, tab. 1.

its middle-income ranking. But similarly ranked São Tomé and Príncipe (number 131) ranks 17 places higher than expected from its income level.

For the countries listed in Table 2.5 with GDP per capita near $1,000, the HDI ranges dramatically from 0.371 to 0.543. Correspondingly, literacy rates range from just 26% to 71%. Life expectancy ranges from only 44 to 61. Among countries with GDP per capita near $1,500, literacy ranges from 32% to 74% and enrollment from 37% to 60%, with corresponding variations in the HDI. For the countries in Table 2.5 with GDP per capita near $2,000, the HDI ranges, from 0.511 to 0.710. Life expectancy ranges from 48 to 68. The literacy rate ranges from 56% to 99%. For countries listed in Table 2.5 with GDP per capita near $4,000, the HDI index ranges from 0.654 to 0.768. Life expectancy ranges from 65 to 74, and literacy rates range strikingly from 56% in Morocco to essentially universal literacy in Tonga. These dramatic differences show that the Human Development Index project is worthwhile. Ranking countries only by income—or for that matter only by health or education—causes us to miss important differences in countries' development levels.

TABLE 2.5 2009 Human Development Index Variations for Similar Incomes (2007 Data)

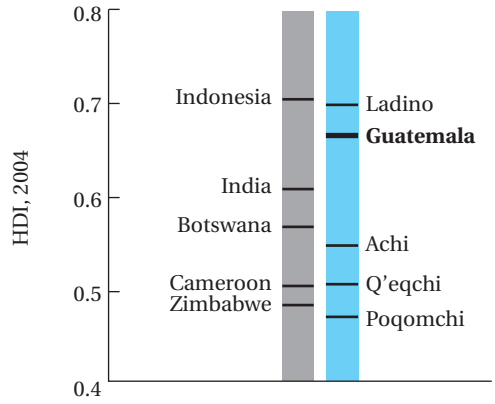
Country	GDP Per Capita (U.S. $)	HDI	HDI Rank	Life Expectancy (years)	Adult Literacy (%)	Combined Gross Enrollment Ratio
GDP Per Capita near PPP $1,000						
Madagascar	932	0.543	145	59.9	70.7	61.3
Haiti	1,140	0.532	149	61.0	62.1	52.1
Rwanda	866	0.460	167	49.7	64.9	52.2
Mali	1,083	0.371	178	48.1	26.2	46.9
Afghanistan	1,054	0.352	181	43.6	28.0	50.1
GDP Per Capita near PPP $1,500						
Kenya	1,542	0.541	147	53.6	73.6	59.6
Ghana	1,334	0.526	152	56.5	65.0	56.5
Côte d'Ivoire	1,690	0.484	163	56.8	48.7	37.5
Senegal	1,666	0.464	166	55.4	41.9	41.2
Chad	1,477	0.392	175	48.6	31.8	36.5
GDP Per Capita near PPP $2,000						
Kyrgyzstan	2,006	0.710	120	67.6	99.3	77.3
Laos	2,165	0.619	133	64.6	72.7	59.6
Cambodia	1,802	0.593	137	60.6	76.3	58.5
Sudan	2,086	0.531	150	57.9	60.9	39.9
Cameroon	2,128	0.523	153	50.9	67.9	52.3
Mauritania	1,927	0.520	154	56.6	55.8	50.6
Nigeria	1,969	0.511	158	47.7	72.0	53.0
GDP Per Capita near PPP $4,000						
Tonga	3,748	0.768	99	71.7	99.2	78.0
Sri Lanka	4,243	0.759	102	74.0	90.8	68.7
Honduras	3,796	0.732	112	72.0	83.6	74.8
Bolivia	4,206	0.729	113	65.4	90.7	86.0
Guatemala	4,562	0.704	122	70.1	73.2	70.5
Morocco	4,108	0.654	130	71.0	55.6	61.0

Source: Data from United Nations Development Program, *Human Development Report, 2009,* tab. 1.

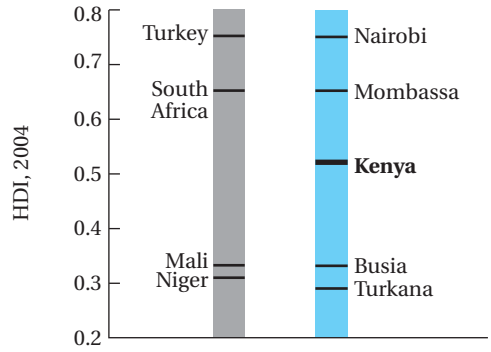
Average income is one thing, but sometimes even in a middle-income country, many people live in poverty. When the aggregate HDI for various countries was adjusted for income distribution, the relative rankings of many developing nations also changed significantly.[8] For example, Brazil had such a highly unequal distribution that its ranking slipped, while Sri Lanka saw its HDI ranking rise due to its more egalitarian distribution.

The HDI also ranges greatly for groups within countries. The impact of social exclusion can be seen vividly in Guatemala, where the Q'eqchi ethnic group had an HDI rank similar to Cameroon, and the Poqomchi ranked below Zimbabwe, as seen in Figure 2.3a. Regional differences across districts can be seen in Kenya, where the HDI of the capital area of Nairobi ranks as high as Turkey, but Kenya's Turkana district's HDI is lower than that of any country average, as shown in Figure 2.3b. Rural-urban differences are illustrated with the case of China, where as Figure 2.3c shows, urban Shanghai's HDI was nearly as high as that of Greece, while rural Gansu has an HDI on a par with

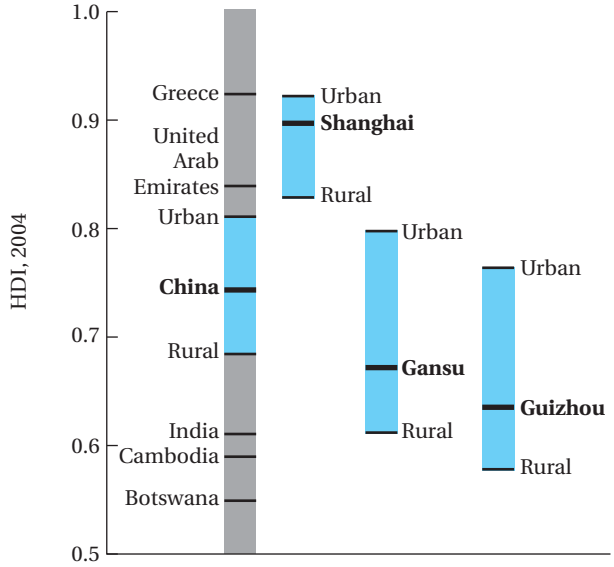
FIGURE 2.3 Human Development Disparities within Selected Countries



(a) Large ethnic differences in HDI in Guatemala



(b) Wide inequalities in human development between districts in Kenya



(c) Rural-urban differences intensify regional disparities in China

Source: From *Human Development Report, 2005,* figs. 10–12. Reprinted with permission from the United Nations Development Programme.

India, and the HDI of rural Guizhou is below that of Cambodia. An earlier UN study found similarly that in South Africa whites enjoy a high HDI level while that for blacks was much lower.[9]

Clearly, the United Nations Human Development Index has made a major contribution to improving our understanding of what constitutes development, which countries are succeeding (as reflected by rises in their HDI over time), and how different groups and regions within countries are faring. By

combining social and economic data, the HDI 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 HDI and its new version considered in the next section, when used in conjunction with traditional 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 HDI 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.[10]

The New Human Development Index

In November 2010, the UNDP introduced its New Human Development Index (NHDI), intended to address some of the criticisms of the HDI. The index is still based on standard of living, education, and health. But it has eight notable changes, each with strengths but also a few potential drawbacks.

What Is New in the New HDI

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 predefined 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 estimates for Zimbabwe in 2007 that, if the data and their interpretation hold up, represent a historic low for recorded income.[11]
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, as we examine next.

The component indexes of the NHDI are computed by the same method as for the HDI, such as seen for the case of life expectancy in Equation 2.2 (and, for the case of China in the NHDI, as in the first equation in Box 2.1). We start by taking the difference between the country's actual achievement and the minimum goalpost value and then divide the result by the difference between the overall maximum goalpost and minimum goalpost values. But in calculating

BOX 2.1 Computing the NHDI: The Case of China

Example: China

Indicator	Value
Life expectancy at birth (years)	73.5
Mean years of schooling (years)	7.5
Expected years of schooling (years)	11.4
GNI per capita (PPP U.S. $)	7,263

Note: Values are rounded.

Source: UNDP, *Human Development Report, 2010,* pp. 216–217.

$$\text{Life expectancy index} = \frac{73.5 - 20}{83.2 - 20} = 0.847$$

$$\text{Mean years of schooling index} = \frac{7.5 - 0}{13.2 - 0} = 0.568$$

$$\text{Expected years of schooling index} = \frac{11.4 - 0}{20.6 - 0} = 0.553$$

$$\text{Education index} = \frac{\sqrt{0.568 \times 0.553} - 0}{0.951 - 0} = 0.589$$

$$\text{Income index} = \frac{\ln(7{,}263) - \ln(163)}{\ln(108{,}211) - \ln(163)} = 0.584$$

$$\text{Human Development Index} = \sqrt[3]{0.847 \times 0.589 \times 0.584} = 0.663$$

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 the NHDI is very important. When using an arithmetic mean (adding up the component indexes and dividing by three) 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.[12]

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

$$\text{NHDI} = \text{H}^{1/3}\text{E}^{1/3}\text{I}^{1/3} \tag{2.8}$$

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 the case of China in Box 2.1.

Table 2.6 shows the 2010 values of the NHDI for a set of 31 countries. South Korea has achieved the status of a fully developed country, ranking between Japan and Switzerland. Countries such as Qatar, Guatemala, Côte d'Ivoire, Angola, and South Africa perform more poorly on the NHDI than would be predicted from their income level, while the reverse is true of South Korea, Chile, Bangladesh, Madagascar, and Ghana. No doubt, exploration of alternative indexes will continue; and the NHDI may be a transitional step in its ongoing improvement. 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.

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 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,