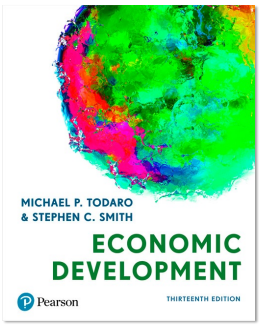
Economic Development

Thirteenth Edition



Chapter 2

Comparative economic development

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2.1 Defining the Developing World (note these are updated annually)

- The World Bank ranks countries on Gross National Income (GNI) per capita (updated 2022)
  - Low-Income Countries (LICs) < $1085
  - Lower-Middle Income Countries (LMCs)
    - $1085 < GDPpp < $4255 pp
  - Upper-Middle Income Countries (UMCs)
    - $4255 < GDPpp < $13205
  - High-income OECD countries > $13,205
  - Other high-income countries (non-OECD, eg Qatar)
  - (See Table 2.1 and Figure 2.1)

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

- Gross National Income (GNI)
- Gross Domestic Product (GDP)
- PPP method instead of exchange rates as conversion factors (see Table 2.2)

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

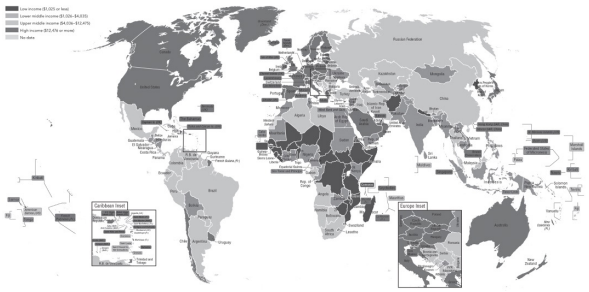

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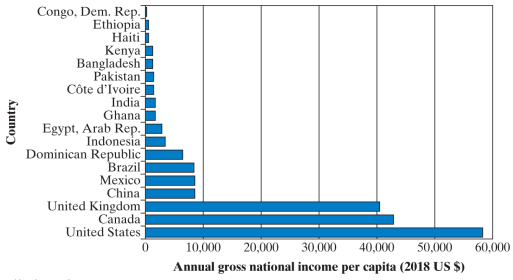
Figure 2.2
Income Comparisons for Selected Countries, 2017



Source: World Development Indicators

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- In 2017, high-income countries received nearly 2/3 of world income despite having 1/6 of the population

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Some Measurement Issues

- 1) Low-income countries usually have poor-quality stats
- 2) Methodological issues when doing calculations

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- 3) If in agriculture and do not sell (for own use)… not included, therefore production would be undervalued
  - Including estimates

4) Cost of pollution not deducted

Net economic welfare (NEW):

-attempt to deduct costs of pollution, crime, congestion, etc

Is this a problem *only* for developing countries?

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Exchange Rate Problems

- 5) Exchange rate (ER) issues arise since must convert GDP #s to US$:

a) ERs frequently distorted in developing countries

b) significant part of GDP made up of **non-traded** goods and services which are NOT traded internationally → makes no sense to talk about the int'l price

c) government intervention in ER determination

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- One way of partially adjusting for some of these problems is to use Purchasing Power Parity (PPP) ER—pick a set of prices prevailing in one of the countries and use that set of prices to value the goods and services being compared.
- PPP holds when the real exchange rate (RER)

RER = 1

$$RER = \frac{P_{dom} \times ER}{P_f}$$

Pdom=domestic price, Pf = foreign price

See mathematical problem for example

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	GNI per capita, Atlas method (current US$)	GNI per capita, PPP (current international $)
Bolivia	3,530.0	8,910.0
Bangladesh	1,940.0	5,190.0
Botswana	7,460.0	17,110.0
Brazil	9,130.0	14,850.0
Cambodia	1,480.0	4,180.0
Chile	15,010.0	24,140.0
China	10,410.0	16,740.0
Colombia	6,510.0	15,150.0
Congo, Dem. Rep.	520.0	1,110.0
Costa Rica	11,700.0	19,250.0
Cote d'Ivoire	2,290.0	3,290.0
Dominican Republic	6,090.0	14,280.0
Egypt, Arab Rep.	2,690.0	11,810.0
Ghana	2,220.0	5,510.0
Guatemala	4,630.0	8,850.0
Haiti	760.0	1,760.0
India	2,130.0	6,960.0
Indonesia	4,050.0	11,930.0
Kenya	1,750.0	4,420.0
Korea, Rep.	33,720.0	43,430.0
Mexico	9,430.0	19,810.0
Niger	560.0	1,250.0
Nigeria	2,030.0	5,170.0
Pakistan	1,530.0	5,210.0
Peru	6,740.0	12,760.0
Philippines	3,850.0	10,200.0
Senegal	1,450.0	2,440.0
Thailand	7,260.0	18,520.0
Uganda	780.0	2,210.0
Vietnam	2,540.0	7,760.0
Canada	46,370.0	50,810.0
United Kingdom	42,370.0	48,040.0
United States	46,760.0	65,880.0
Created from: World Development Indicators Time : 2019		

Notice how the two measurements can give significantly different numbers

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The Big Mac Index

- The Economist every year puts out a table listing the Big Mac Index.
- They take the price of a Big Mac in the US and that is the base. They then compare the price of the Big Mac in other countries. When converted by the ER, it should cost the same. If it doesn't there is an implied over- or undervaluation of that currency relative the to the dollar.
- https://www.economist.com/big-mac-index

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Why might PPP not hold using the Big Mac Index?

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Table 2.3
Commonality and Diversity: Some Basic Indicators of Health and Education

Country	Life expectancy at birth total (years) 2017	Mortality rate, under-5 (per 1,000 live births) 2018	Prevalence of undernourishment (% of population) 2016	Gross Enrolment Ratio: Secondary (% of secondary school-age population) 2012–2017	Population with at least some secondary education (% age 25 and other) 2006–2017
Bangladesh	72	30.2	15.2	69	45.5
Bolivia	71	26.8	17.3	86	58.2
Botswana	69	36.5	26.4	-	89.2
Brazil	75	14.4	2.5	100	60
Cambodia	69	28	17.2	-	21.3
Canada	82	5	2.5	113	100
Chile	80	7.2	2.9	100	80.6
China	76	8.6	8.7	95	77.4
Colombia	77	14.2	5.6	98	50.2
Congo, Dem. Rep.	60	88.1	-	46	50.7
Costa Rica	80	8.8	4.7	126	52.9
Côte d'Ivoire	57	80.9	19.6	46	26.1
Dominican Republic	74	28.8	9.9	77	56.6
Egypt, Arab Rep.	72	21.2	4.4	86	64.5
Ghana	63	47.9	5.9	60	62.1
Guatemala	74	26.2	15	64	37.8
Haiti	63	64.8	49	-	33.2
India	69	36.6	14.9	75	51.6
Indonesia	71	25	8.6	86	48.8
Kenya	66	41.1	27.4	-	34.6
Korea, Rep.	83	3.2	2.5	100	95.6
Mexico	75	12.7	3.7	97	59.3
Niger	62	83.7	14.1	24	6.6
Nigeria	54	119.9	11.5	56	-
Pakistan	67	69.3	20.6	46	37.3
Peru	76	14.3	9.7	98	62.2
Philippines	71	28.4	13.5	88	73.2
Senegal	67	43.6	12	48	17.1
Thailand	77	9.1	7.8	121	44.8
Uganda	63	46.4	39.7	-	31.7
United Kingdom	81	4.3	2.5	125	82.9
United States	79	6.5	2.5	97	93.3
Vietnam	75	20.7	9.4	-	69.4
Low income	63	68.1	68.1		
Lower middle income	68	49.1	49.1		
Upper middle income	76	12.6	12.6		
High income	81	5	5		

Source for health indicators: WDI. Source for education indicators: UNDP.

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2.3 Holistic Measures of Living Levels and Capabilities

- Income is one indicator, but needs to be supplement with others
- Health e.g. Life Expectancy
- Education
- The New Human Development Index (NHDI), or simply "HDI"
- Introduced by UNDP in November 2010
- NHDI as an attempt to create and use holistic measure of living levels; takes into account income, health, and education
- NHDI can be calculated for groups and regions in a country
  - HDI varies among groups within countries
  - HDI varies across regions in a country
  - HDI varies between rural and urban areas

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Why is the new New HDI considered an improvement over linear measures such as the Traditional HDI?

- Traditional HDI added the three components, divided by 3 (arithmetic mean)
- The New HDI takes the cube root of the product of the 3 component indexes
- The traditional HDI linear calculation assumed one component traded off against another ***as perfect substitutes***, a strong assumption
- The reformulation now allows for ***imperfect substitutability*** - widely considered a more plausible way to frame the tradeoffs

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Table 2.4
2018 Human Development Index and its Components for Selected Countries

Country	HDI Rank	Life Expectancy at Birth	Mean Years of Schooling	Expected Years of Schooling (of children)	GNI per Capita	HDI Value	GNI Per Capita Rank Minus HDI Rank
Canada	12	82.5	13.3	16.4	43,433	0.926	10
United States	13	79.5	13.4	16.5	54,941	0.924	−2
United Kingdom	14	81.7	12.9	17.4	39,116	0.922	13
South Korea	22	82.4	12.1	16.5	35,945	0.903	8
United Arab Emirates	34	77.4	10.8	13.6	67,805	0.863	−27
Chile	44	79.7	10.3	16.4	21,910	0.843	13
Russian Federation	49	71.2	12.0	15.5	24,233	0.816	3
Costa Rica	63	80.0	8.8	15.4	14,636	0.794	15
Turkey	64	76.0	8.0	15.2	24,804	0.791	−14
Cuba	73	79.9	11.8	14.0	7,524	0.777	43
Mexico	74	77.3	8.6	14.1	16,944	0.774	−6
Sri Lanka	76	75.5	10.9	13.9	11,326	0.770	19
Brazil	79	75.7	7.8	15.4	13,755	0.759	2
China	86	76.4	7.8	13.8	15,270	0.752	−9
Botswana	101	67.6	9.3	12.6	15,534	0.717	−26
Gabon	110	66.5	8.2	12.8	16,431	0.702	−40
South Africa	113	63.4	10.1	13.1	11,923	0.699	−23
Egypt	115	71.7	7.2	13.1	10,355	0.696	−15
Guatemala	127	73.7	6.5	10.8	7,278	0.650	−8
India	130	68.8	6.4	12.3	6,353	0.640	−5
Bangladesh	136	72.8	5.8	11.4	3,677	0.608	9
Ghana	140	63.0	7.1	11.6	4,096	0.592	3
Equitorial Guinea	141	57.9	5.5	9.3	19,513	0.591	−80
Kenya	142	67.3	6.5	12.1	2,961	0.590	16
Pakistan	150	66.6	5.2	8.6	5,311	0.562	−14
Papua New Guinea	153	65.7	4.6	10.0	3,403	0.544	−3
Madagascar	161	66.3	6.1	10.6	1,358	0.519	20
Côte d'Ivoire	170	54.1	5.2	9.0	3,481	0.492	−22
Burkina Faso	183	60.8	1.5	8.5	1,650	0.423	−7
Chad	186	53.2	2.3	8.0	1,750	0.404	−15
Niger	189	60.4	2.0	5.4	906	0.354	−2

Source: United Nations Development Program

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Table 2.5
HDI for Countries with Similar Income Levels

	HDI value (2015)	Life expectancy at birth	Expected years of schooling	Average years of schooling	Gross National Income (GNI) per capita	GNI per capita rank minus HDI rank
Country GDP Per Capita Near PPP $1000						
158-Madagascar	0.512	65.5	10.3	6.1	1,320	25
166-Togo	0.487	60.2	12.0	4.7	1,262	18
170-Malawi	0.476	63.9	10.8	4.4	1,073	16
183-Guinea	0.414	59.2	8.8	2.6	1,058	4
187-Niger	0.353	61.9	5.4	1.7	889	1
Country GDP Per Capita Near PPP $3500						
139-Bangladesh	0.579	72.0	10.2	5.2	3,341	8
139-Zambia	0.579	60.8	12.5	6.9	3,464	7
157-Mauritania	0.513	63.2	8.5	4.3	3,527	−12
160-Lesotho	0.497	50.1	10.7	6.1	3,319	−12
165-Sudan	0.490	63.7	7.2	3.5	3,846	−22
Country GDP Per Capita Near PPP $7500						
68-Cuba	0.775	79.6	13.9	11.8	7,455	48
84-Ukraine	0.743	71.1	15.3	11.3	8,189	28
103-Belize	0.706	70.1	12.8	10.5	7,375	14
117-El Salvador	0.680	73.3	13.2	6.5	7,732	−3
148-Eswatini (Swaziland)	0.541	48.9	11.4	6.8	7,522	−33
Country GDP Per Capita Near PPP $10,000						
73-Sri Lanka	0.766	75.0	14.0	10.9	10,789	21
86-Jorda	0.741	74.2	13.1	10.1	10,111	15
111-Egypt	0.691	71.3	13.1	7.1	10,064	−7
113-Indonesia	0.689	69.1	12.9	7.9	10,053	−8
125-Namibia	0.640	65.1	11.7	6.7	9,770	−18
Country GDP Per Capita Near PPP $20,000						
54-Uruguay	0.795	77.4	15.5	8.6	19,148	8
60-Panama	0.788	77.8	13.0	9.9	19,470	0
109-Gabon	0.697	64.9	12.6	8.1	19,044	−46
135-Equatorial Guinea	0.592	57.9	9.2	5.5	21,517	−79

Data Source: 2016 Human Development Report 2016, Table 1, Pages 198-201 (New York: United Nations Development Program), 2015 data.

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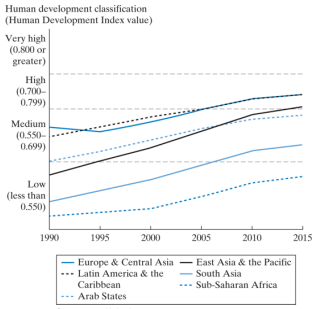
Figure 2.3
Improvements in Human Development Since 1990, by Region



Source: Human Development Report Office, UNDP – Human Development Report, 2016, p. 27

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Inequality adjusted HDI

- Imposes a penalty on the HDI that increases as inequality increases.

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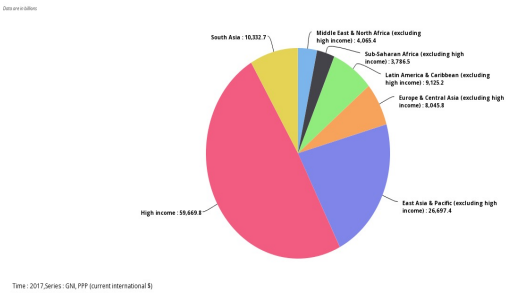
Shares of Global Income



Time : 2017,Series : GNI, PPP (current international $)
Source: World Development Indicators
Created on: 07/06/2020

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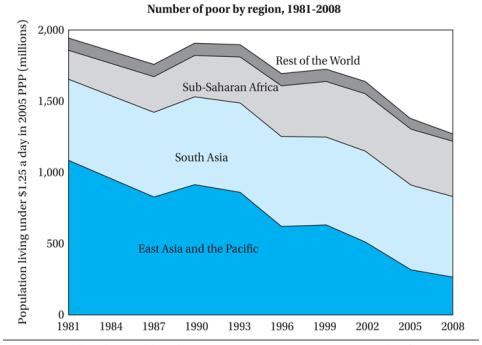

Source: World Bank, "World Bank sees progress against extreme poverty, but flags vulnerability," April 2012, http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTPOVRES/EXTPOVCALNET/0,,contentMDK:22716987~pagePK:64168435~theSitePK:5280443~isCURL:Y,00.html.

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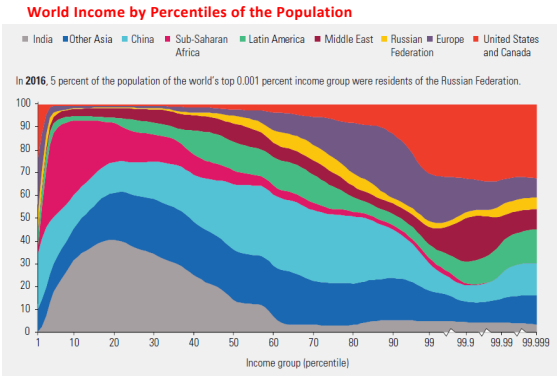

Sources: Human development report 2019

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Sample Iclicker (participation)

- To bring the incomes of those living on less that $1.25/day (approximately 1.4 billion people), up to $1.25/day, would require what percentage of the incomes of the world's wealthiest 10%?
- A) 2%
- B) 5%
- C) 10%
- D) 20%

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Comparing characteristics among developing countries

- **Ten points of comparison** - both among developing countries, and between developing and developed countries:
  - Lower levels of living and productivity
  - Lower levels of human capital
  - Higher levels of inequality and absolute poverty
  - Higher population growth rates relative to DCs (not necessarily faster)
  - Greater social fractionalization
  - Larger rural population - rapid migration to cities
  - Lower levels of industrialization and manufactured exports
  - Adverse geography
  - Underdeveloped financial and other markets
  - Colonial Legacies – quality of institutions

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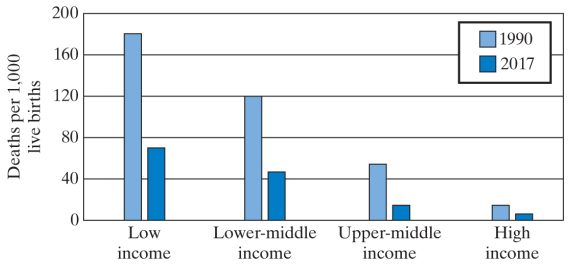
Figure 2.4
Under-5 Mortality Rates, 1990 and 2017



Source: World Development Indicators

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2.6 Are Living Standards Converging across Countries?

- A Great Divergence followed the Industrial Revolution
- Two reasons to think (re-)convergence likely
  1) Diminishing returns to capital (though as economies develop they often find ways to compensate)
  2) Diffusion of ideas across countries, so can skip trial and error and grow fast while catching up
- Latter elated to "advantages of backwardness" (Gerschenkron), or "the latecomer's advantage"

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Convergence?

- But - at least until this century - evidence of **unconditional national average income convergence** has been
- Continued evidence of divergence between middle and low income countries
- There is also evidence of "per capita income convergence," weighting changes in per capita income by population size
- (We consider "conditional" convergence - observed after accounting for other factors - in a general way in context of the Solow neoclassical growth model)

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Nature and Role of Economic Institutions

- Institutions provide "rules of the game" of economic life
  - Follows general framework of Nobel Laureate Douglass North

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But there is a Lack of:

- Also to consider factors like: economies of scale, externalities and poor regulation
- **WHICH OF THESE DO YOU THINK MIGHT HAVE THE MOST IMPACT?**

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The Nature and Role of Economic Institutions: Some Caveats and Nuances

- Most importantly: Good institutions may both cause development, and improve as a result of development
- In addition:
  - Many institutions are correlated
  - It is not clear which of these institutions matter most
  - Unclear how specific in form institutions must be to fulfill their main function
  - Progress may be made when only some institutions are of high quality; but further progress may require improving quality of additional institutions
  - The specifics of their relative importance, and the sequence of improving them, may well vary by country

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Appendixes: for reference only

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Note on National Income Definitions and Calculations

- The "Atlas" method for computing Gross National Income (GNI) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad
- Data are in current U.S. dollars converted using the World Bank Atlas method
- Gross national income, in purchasing power parity, is GNI converted to international dollars using PPP rates. An international dollar has the same purchasing power over GNI that a U.S. dollar has in the United States.
- Gross national income per capita is GNI divided by midyear population.
- Gross domestic product is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output.
- Growth is calculated from constant price GDP data in local currency.
- Gross domestic product per capita is GDP divided by midyear population.

*For further details see "Sources and Methods," in *World Development Indicators (WDI)*, 2017

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Concepts for Review

- Absolute poverty
- Brain drain
- Capital stock
- Convergence
- Crude birth rate
- Dependency burden
- Depreciation (of the capital stock)
- Diminishing Marginal Utility
- Divergence
- Economic Institutions
- Fractionalization
- Free trade
- Gross domestic product (GDP)
- Gross national income (GNI)
- Human capital
- Human Development Index (HDI)

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Concepts for Review (Continued)

- Imperfect market
- Incomplete information
- Infrastructure
- Least developed countries
- Low-income countries (LICs)
- Middle-income countries
- Newly industrializing countries (NICs)
- Purchasing power parity (PPP)
- Research and development (R&D)
- Resource endowment
- Terms of trade
- Value added
- World Bank

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