The Human Development Index (HDI)

The first Human Development Report introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI. The breakthrough for the HDI was the creation of a single statistic which was to serve as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1.

FIGURE 1.1 Components of the Human Development Index

The HDI—three dimensions and four indicators
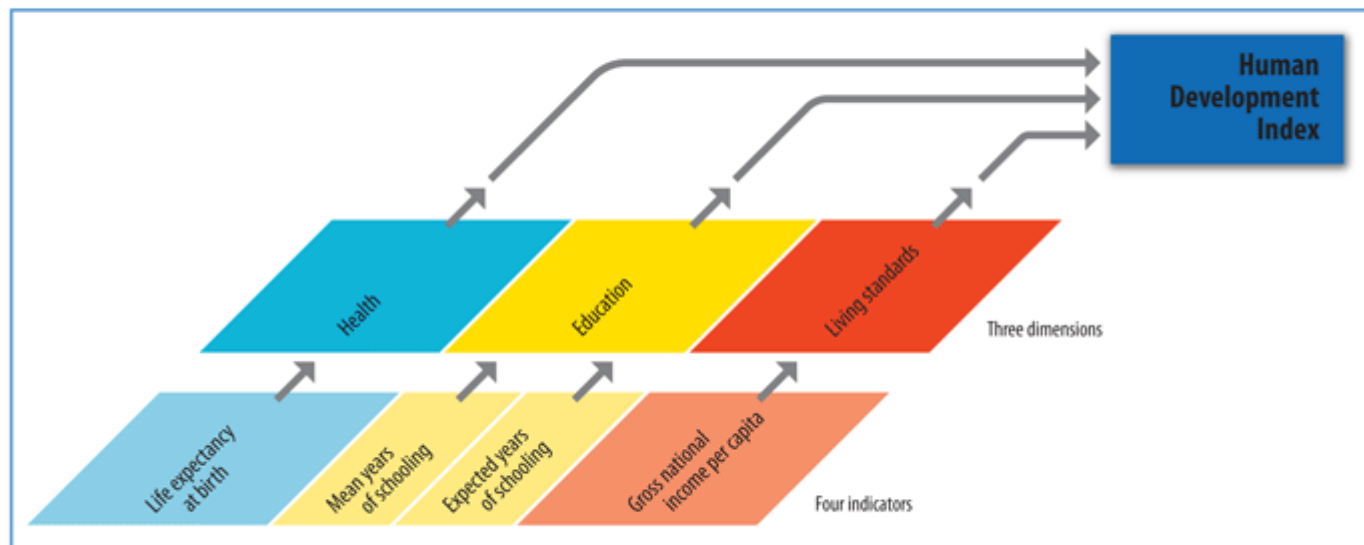
Note: The indicators presented in this figure follow the new methodology, as defined in box 1.2.

Source: HDRO.

The education component of the HDI is now measured by mean of years of schooling for adults aged 25 years and expected years of schooling for children of school going age. Mean years of schooling is estimated based on duration of schooling at each level of education (for details see Barro and Lee, 2010). Expected years of schooling estimates are based on enrolment by age at all levels of education and population of official school age for each level of education. The indicators are normalized using a minimum value of zero and maximum values are set to the actual observed maximum values of the indicators from the countries in the time series, that is, 1980–2010. The education index is the geometric of two indices.

The life expectancy at birth component of the HDI is calculated using a minimum value of 20 years and maximum value of 83.2 years. These are the observed maximum value of the indicators from the countries in the time series, 1980–2010. Thus, the longevity component for a country where life expectancy birth is 55 years would be 0.554.

For the wealth component, the goalpost for minimum income is $163 (PPP) and the maximum is $108,211 (PPP), both observed minimum observed during the same time series.

The decent standard of living component is measured by GNI per capita (PPP US$) instead of GDP per capita (PPP US$) The HDI uses the logarithm of income, to reflect the diminishing importance of income

with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. Refer to the Human Development Report 2010 🅰 Technical notes [388 KB] for more details.

The HDI facilitates instructive comparisons of the experiences within and between different countries.

Frequently Asked Questions (FAQs) about the Human Development Index (HDI)

- **What is the HDI?**

The Human Development Index (HDI) is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, knowledge, and income. It was first developed by the late Pakistani economist Mahbub ul Haq with the collaboration of the Nobel laureate Amartya Sen and other leading development thinkers for the first Human Development Report in 1990. It was introduced as an alternative to conventional measures of national development, such as level of income and the rate of economic growth.

- **What does the HDI tell us?**

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with such different human development outcomes. For example, the Bahamas and New Zealand have similar levels of income per person, but life expectancy and expected years of schooling differ greatly between the two countries, resulting in New Zealand having a much higher HDI value than the Bahamas. These striking contrasts can directly stimulate debate about government policy priorities.

- **The original HDI methodology has been revised somewhat for this 20th anniversary edition of the Human Development Report. How is it different?**

As in past Human Development Reports, the HDI remains a composite index that measures progress in the three basic dimensions—health, knowledge and income. Under the previous HDI formula, health was measured by life expectancy at birth; education or "knowledge" by a combination of the adult literacy rate and school enrolment rates (for primary through university years); and income or standard of living by GDP per capita adjusted for purchasing-power parity (PPP US$).

Health is still measured by life expectancy at birth. But the 2010 HDI measures achievement in knowledge by combining the expected years of schooling for a school-age child in a country today with the mean years of prior schooling for adults aged 25 and older. The income measurement, meanwhile, has changed from purchasing-power-adjusted per capita Gross Domestic Product (GDP) to purchasing-power-adjusted per capita Gross National Income (GNI); GNI includes remittances and foreign assistance income, for example, providing a more accurate economic picture of many developing countries.

- **Why change the indicators for measuring education and income?**

The indicators were changed for several reasons. For example, adult literacy used in the old HDI (which is simply a binary variable – literate or illiterate, with no gradations) is an insufficient measure for getting a complete picture of knowledge achievements. By including average years of schooling and expected years of schooling, one can better capture the level of education and recent changes.

Gross Domestic Product (GDP) is the monetary value of goods and services produced in a country irrespective of how much is retained in the country. Gross National Income (GNI) expresses the income accrued to residents of a country, including international flows such as remittances and aid, and excluding income generated in the country but repatriated abroad. Thus, GNI is a more accurate measure of a country's economic welfare. As shown in the Report, large differences could exist between the income of a country's residents, measured by GNI or GDP.

- **Why is the geometric mean better suited for the HDI than the arithmetic mean?**

Unlike the old HDI, the new HDI based on the geometric mean takes into account differences in achievement across dimensions. Poor performance in any dimension is now directly reflected in the new HDI, which captures how well a country's performance is across the three dimensions. There is no longer perfect substitutability across the dimensions. That is to say, a low achievement in one dimension is not anymore linearly compensated for by high achievement in another dimension. The geometric mean reduces the level of substitutability between dimensions and at the same time ensures that a 1 percent decline in say life expectancy at birth has the same impact on the HDI as a 1 percent decline in education or income. Thus, as a basis for comparisons of achievements, this method is also more respectful of the intrinsic differences across the dimensions than a simple average.

- **Are the HDI dimensions weighted equally?**

The new HDI assigns equal weight to all three dimension indices; the two education sub-indices are also weighted equally. This is different from the previous HDI, which weighted them differentially. The choice of weights is based on the normative judgement that all three dimensions are equally important. Research papers that provide a statistical justification for this approach include Noorkbakhsh (1998) and Decanq and Lugo (2009)[1]. The new HDI has more equal ranges of variation of dimension indices than the previous one, implying that the effective weighting is more equal than it was before.

- **The United States is number 4 in the 2010 HDI; in previous HDIs it was not in the top 10. Why the change?**

Lifting the cap on income for the United States plays only a minor role in the change. There are seven countries with a higher income that are ranked lower than the US (Liechtenstein, Luxembourg, Singapore, United Arab Emirates, Brunei Darussalam, Qatar, and Kuwait). Even if the income was capped at $51,300 (equivalent to PPP$40,000 in 1998, expressed in $PPP2008 dollars), the USA would stay at the 4 position. Use of the mean years of schooling instead of literacy made a huge difference, however. The mean years of schooling in the United States is 0.2 years behind the top ranking Norway, whereas literacy was set to 99 per cent, but 25 high developed countries had the literacy of 99 per cent too, so the literacy couldn't

discriminate between them. In general, the geometric mean favours a well-rounded performance on all three dimensions, which worked against some of the US competitors (Sweden, Germany, and Ireland).