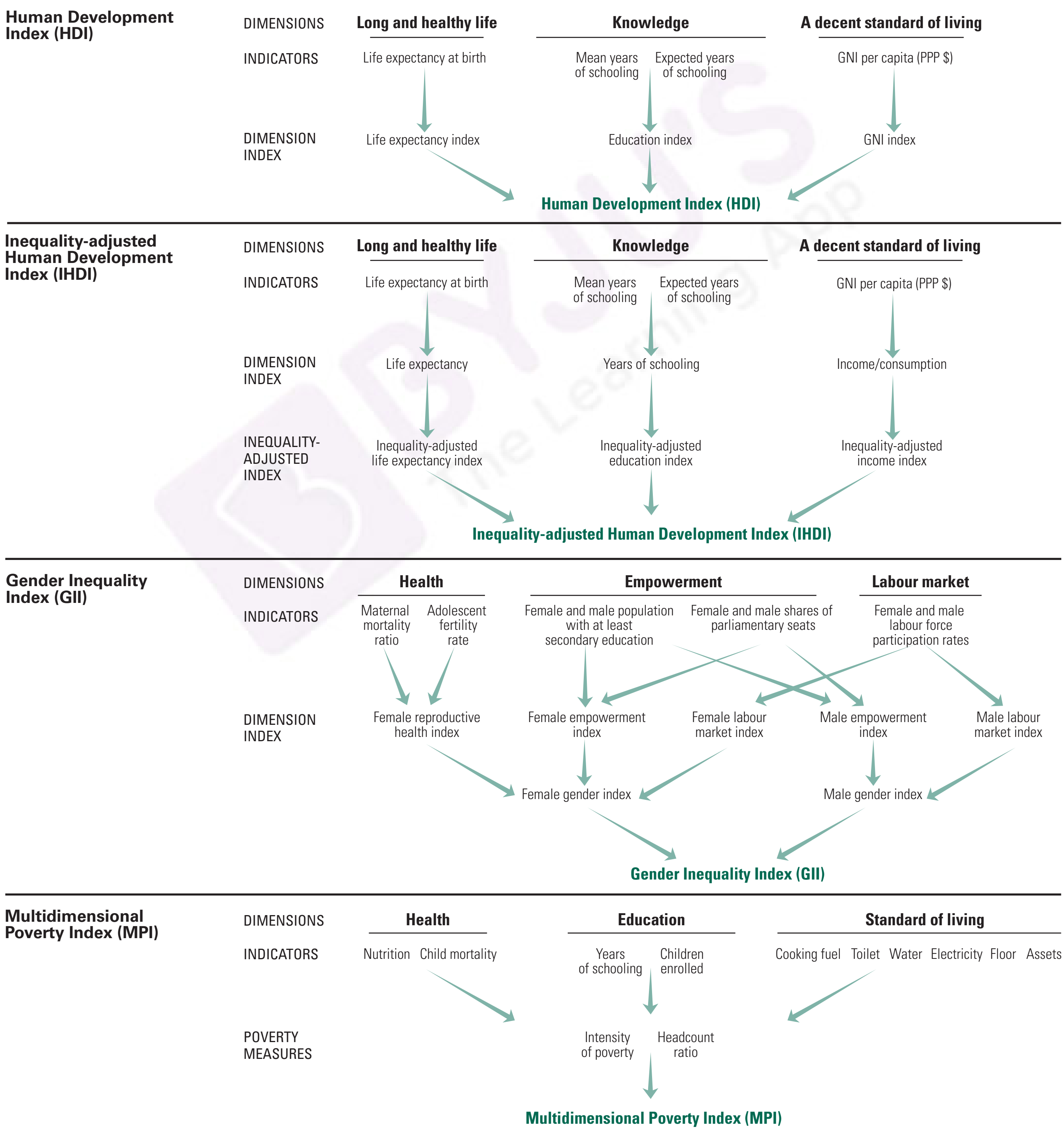
Calculating the human development indices—graphical presentation



Technical note 1. Calculating the Human Development Index

The Human Development Index (HDI) is a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices measuring achievements in each dimension. For a full elaboration of the method and its rationale, see Klugman, Rodriguez and Choi (2011). This technical note describes the steps to create the HDI, data sources and the methodology used to express income.

Steps to estimate the Human Development Index

There are two steps to calculating the HDI.

Step 1. Creating the dimension indices

Minimum and maximum values (goalposts) are set in order to transform the indicators into indices between 0 and 1. The maximums are the highest observed values in the time series (1980–2011). The minimum values can be appropriately conceived of as subsistence values. The minimum values are set at 20 years for life expectancy, at 0 years for both education variables and at $100 for per capita gross national income (GNI). The low value for income can be justified by the considerable amount of unmeasured subsistence and nonmarket production in economies close to the minimum, not captured in the official data.

Goalposts for the Human Development Index in this Report

Dimension	Observed maximum	Minimum
Life expectancy	83.4 (Japan, 2011)	20.0
Mean years of schooling	13.1 (Czech Republic, 2005)	0
Expected years of schooling	18.0 (capped at)	0
Combined education index	0.978 (New Zealand, 2010)	0
Per capita income (PPP $)	107,721 (Qatar, 2011)	100

Having defined the minimum and maximum values, the subindices are calculated as follows:

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}. \quad (1)$$

For education, equation 1 is applied to each of the two subcomponents, then a geometric mean of the resulting indices is created and finally, equation 1 is reapplied to the geometric mean of the indices using 0 as the minimum and the highest geometric mean of the resulting indices for the time period under consideration as the maximum. This is equivalent to applying equation 1 directly to the geometric mean of the two subcomponents.

Because each dimension index is a proxy for capabilities in the corresponding dimension, the transformation function from income to capabilities is likely to be concave (Anand and Sen 2000). Thus, for income the natural logarithm of the actual minimum and maximum values is used.

Step 2. Aggregating the subindices to produce the Human Development Index

The HDI is the geometric mean of the three dimension indices:

$$(I_{Life}{}^{1/3} \cdot I_{Education}{}^{1/3} \cdot I_{Income}{}^{1/3}). \quad (2)$$

Example: Viet Nam

Indicator	Value
Life expectancy at birth (years)	75.2
Mean years of schooling (years)	5.5
Expected years of schooling (years)	10.4
GNI per capita (PPP $)	2,805

Note: Values are rounded.

$$\text{Life expectancy index} = \frac{75.2 - 20}{83.4 - 20} = 0.870$$

$$\text{Mean years of schooling index} = \frac{5.5 - 0}{13.1 - 0} = 0.478$$

$$\text{Expected years of schooling index} = \frac{10.4 - 0}{18 - 0} = 0.576$$

$$\text{Education index} = \frac{\sqrt{0.478 \cdot 0.576} - 0}{0.978 - 0} = 0.503$$

$$\text{Income index} = \frac{\ln(2{,}805) - \ln(100)}{\ln(107{,}721) - \ln(100)} = 0.478$$

$$\text{Human Development Index} = \sqrt[3]{0.870 \cdot 0.503 \cdot 0.478} = 0.593$$

Data sources

- Life expectancy at birth: UNDESA (2011)
- Mean years of schooling: HDRO updates (http://hdr.undp.org/en/statistics/) based on UNESCO data on education attainment (http://stats.uis.unesco.org/unesco) using the methodology outlined in Barro and Lee (2010a)
- Expected years of schooling: UNESCO Institute for Statistics (2011)
- GNI per capita: World Bank (2011a), IMF (2011), UNSD (2011) and UNDESA (2011)

Methodology used to express income

GNI is traditionally expressed in current terms. To make GNI comparable across time, GNI is converted from current to constant terms by taking the value of nominal GNI per capita in purchasing power parity (PPP) terms for the base year (2005) and building a time series using the growth rate of real GNI per capita, as implied by the ratio of current GNI per capita in local currency terms to the GDP deflator.

Official PPPs are produced by the International Comparison Program (ICP), which periodically collects thousands of prices of matched goods and services in many countries. The last round of this exercise refers to 2005 and covers 146 countries. The World Bank produces estimates for years other than the ICP benchmark based on inflation relative to the United States. Because other international organizations—such as the World Bank and the International Monetary Fund (IMF)—quote the base year in terms of the ICP benchmark, the HDRO does the same.

To obtain the income value for 2011, IMF-projected GDP growth rates (based on constant terms) are applied to the most recent GNI values. The IMF-projected growth rates are calculated in local currency terms and constant prices rather than in PPP terms. This avoids mixing the effects of the PPP conversion with those of real growth of the economy.

Estimating missing values

For a small number of countries that were missing one out of four indicators, the HDRO filled the gap by estimating the missing value using cross-country regression models. The details of the models used are available at http://hdr.undp.org/en/statistics/understanding/issues/.

In this Report, the PPP conversion rates were estimated for three countries (Cuba, Occupied Palestinian Territory and Palau), expected years of schooling were estimated for five countries (Barbados, Haiti, Montenegro, Singapore and Turkmenistan) and mean years of schooling were estimated for eight countries (Antigua and Barbuda, Eritrea, Grenada, Kiribati, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Vanuatu). This brought the total number of countries in the HDI in 2011 up to 187, from 169 in 2010.

Technical note 2. Calculating the Inequality-adjusted Human Development Index

The Inequality-adjusted Human Development Index (IHDI) adjusts the Human Development Index (HDI) for inequality in the distribution of each dimension across the population. It is based on a distribution-sensitive class of composite indices proposed by Foster, Lopez-Calva, and Szekely (2005), which draws on the Atkinson (1970) family of inequality measures. It is computed as a geometric mean of geometric means, calculated across the population for each dimension separately (for details, see Alkire and Foster 2010).

The IHDI accounts for inequalities in HDI dimensions by "discounting" each dimension's average value according to its level of inequality. The IHDI equals the HDI when there is no inequality across people but falls further below the HDI as inequality rises. In this sense, the IHDI is the actual level of human development (taking into account inequality), while the HDI can be viewed as an index of the "potential" human development that could be achieved if there was no inequality. The "loss" in potential human development due to inequality is the difference between the HDI and the IHDI and can be expressed as a percentage.

Data sources

Since the HDI relies on country-level aggregates such as national accounts for income, the IHDI must draw on alternative sources of data to obtain insights into the distribution. The distributions have different units—life expectancy is distributed across a hypothetical cohort, while years of schooling and income are distributed across individuals.

Inequality in the distribution of HDI dimensions is estimated for:

- Life expectancy, using data from abridged life tables provided by UNDESA (2011). This distribution is grouped in age intervals (0–1, 1–5, 5–10, ... , 85+), with the mortality rates and average age at death specified for each interval.
- Mean years of schooling, using household survey data harmonized in international databases, including the Luxembourg Income Study, EUROSTAT's European Union Survey of Income and Living Conditions, the World Bank's International Income Distribution Database, the United Nations Children's Fund's Multiple Indicators Cluster Survey, ICF Macro's Demographic and Health Survey, the World Health Organization's World Health Survey and the United Nations University's World Income Inequality Database.
- Disposable household income or consumption per capita using the above listed databases and household surveys—or for a few countries, income imputed based on an asset index matching methodology using household survey asset indices (Harttgen and Vollmer 2011).

A full account of data sources used for estimating inequality in 2011 is given at http://hdr.undp.org/en/statistics/ihdi/.

Computing the Inequality-adjusted Human Development Index

There are three steps to computing the IHDI.

Step 1. Measuring inequality in the dimensions of the Human Development Index

The IHDI draws on the Atkinson (1970) family of inequality measures and sets the aversion parameter ε equal to 1.[1] In this case the inequality measure is $A = 1 - g/\mu$, where g is the geometric mean and μ is the arithmetic mean of the distribution. This can be written as:

$$A_x = 1 - \frac{\sqrt[n]{X_1 \ldots X_n}}{\bar{X}} \quad (1)$$

where $\{X_1 \ldots, X_n\}$ denotes the underlying distribution in the dimensions of interest. A_x is obtained for each variable (life expectancy, mean years of schooling and disposable income or consumption per capita).[2]

The geometric mean in equation 1 does not allow zero values. For mean years of schooling one year is added to all valid observations to compute the inequality. Income per capita outliers—extremely high incomes as well as negative and zero incomes—were dealt with by truncating the top 0.5 percentile of the distribution to reduce the influence of extremely high incomes and by replacing the negative and zero incomes with the minimum value of the bottom 0.5 percentile of the distribution of positive incomes. Sensitivity analysis of the IHDI is given in Kovacevic (2010).

Step 2. Adjusting the dimension indices for inequality

The mean achievement in an HDI dimension, $\bar{X}$, is adjusted for inequality as follows:

$$\bar{X} \cdot (1 - A_x) = \sqrt[n]{X_1 \ldots X_n} .$$

Thus the geometric mean represents the arithmetic mean reduced by the inequality in distribution.

The inequality-adjusted dimension indices are obtained from the HDI dimension indices, I_x, by multiplying them by $(1 - A_x)$, where A_x, defined by equation 1, is the corresponding Atkinson measure:

$$I^*_x = (1 - A_x) \cdot I_x .$$

The inequality-adjusted income index, I^*_{Income}, is based on the unlogged GNI index, I_{Income^*}. This enables the IHDI to account for the full effect of income inequality.

Step 3. Combining the dimension indices to calculate the Inequality-adjusted Human Development Index

The IHDI is the geometric mean of the three dimension indices adjusted for inequality. First, the IHDI that includes the unlogged income index ($IHDI^*$) is calculated:

$$IHDI^* = \sqrt[3]{I^*_{Life} \cdot I^*_{Education} \cdot I^*_{Income}} =$$

$$\sqrt[3]{(1 - A_{Life}) \cdot I_{Life} \cdot (1 - A_{Education}) \cdot I_{Education} \cdot (1 - A_{Income}) \cdot I_{Income^*}} .$$

The HDI based on unlogged income index (HDI^*) is then calculated:

$$HDI^* = \sqrt[3]{I_{Life} \cdot I_{Education} \cdot I_{Income^*}} .$$

The percentage loss to the HDI^* due to inequalities in each dimension is calculated as:

$$Loss = 1 - \frac{IHDI^*}{HDI^*} = 1 - \sqrt[3]{(1 - A_{Life}) \cdot (1 - A_{Education}) \cdot (1 - A_{Income})} .$$

Assuming that the percentage loss due to inequality in income distribution is the same for both average income and its logarithm, the IHDI is then calculated as:

$$IHDI = \left(\frac{IHDI^*}{HDI^*}\right) \cdot HDI = \sqrt[3]{(1 - A_{Life}) \cdot (1 - A_{Education}) \cdot (1 - A_{Income})} \cdot HDI .$$

Notes on methodology and caveats

The IHDI is based on an index that satisfies subgroup consistency. This ensures that improvements or deteriorations in the distribution of human development within a certain group of society (while human development remains constant in the other groups) will be reflected in changes in the overall measure of human development. This index is also path independent, which means that the order in which data are aggregated across individuals, or groups of individuals, and across dimensions yields the same result—so there is no need to rely on a particular sequence or a single data source. This allows estimation for a large number of countries.

The main disadvantage is that the IHDI is not association sensitive, so it does not capture overlapping inequalities. To make the measure association-sensitive, all the data for each individual must be available from a single survey source, which is not currently possible for a large number of countries.

Example: Peru

	Indicator	Dimension index	Inequality measure (A1)	Inequality-adjusted index
Life expectancy	74.0	0.852	0.148	(1–0.148) · 0.852 = 0.728
Mean years of schooling	8.7	0.662		
Expected years of schooling	12.9	0.717		
Education index		0.704	0.240	(1–0.240) · 0.704 = 0.535
Logarithm of gross national income	9.03	0.634		
Gross national income	8,389	0.077	0.300	(1–0.300) · 0.077 = 0.054

	Human Development Index	Inequality-adjusted Human Development Index	Loss %
HDI with unlogged income	$\sqrt[3]{0.852 \cdot 0.704 \cdot 0.077} = 0.359$	$\sqrt[3]{0.728 \cdot 0.535 \cdot 0.054} = 0.275$	1 – 0.275 / 0.359 = 0.232
HDI	$\sqrt[3]{0.852 \cdot 0.704 \cdot 0.634} = 0.725$	(0.275 / 0.359) · 0.725 = 0.557	

Note: Values are rounded.

Technical note 3. Calculating the Gender Inequality Index

The Gender Inequality Index (GII) reflects gender-based disadvantage in three dimensions—reproductive health, empowerment and the labour market—for as many countries as data of reasonable quality allow. The index shows the loss in potential human development due to inequality between female and male achievements in these dimensions. It varies between 0—when women and men fare equally—and 1, where one gender fares as poorly as possible in all measured dimensions.

It is computed using the association-sensitive inequality measure suggested by Seth (2009). The index is based on the general mean of general means of different orders—the first aggregation is by the geometric mean across dimensions; these means, calculated separately for women and men, are then aggregated using a harmonic mean across genders.

Data sources

- Maternal mortality ratio *(MMR):* WHO, UNICEF, UNFPA and World Bank (2010)
- Adolescent fertility rate *(AFR):* UNDESA (2011)
- Share of parliamentary seats held by each sex *(PR):* Interparliamentary Union's Parline database (2011)
- Attainment at secondary and higher education *(SE)* levels: HDRO (2011) updates of Barro and Lee (2010b) estimates based on UNESCO Institute for Statistics data on education attainment (http://stats.uis.unesco.org/unesco/)
- Labour market participation rate *(LFPR):* ILO (2011)

Computing the Gender Inequality Index

There are five steps to computing the GII.

Step 1. Treating zeros and extreme values

Because a geometric mean cannot have a zero value, a minimum value must be set for all component indicators. The minimum is set at 0.1 percent for adolescent fertility rate, share of parliamentary seats held by women, attainment at secondary and higher education levels, and labour market participation rate. Female parliamentary representation of countries reporting zero is coded as 0.1 percent because even in countries without female members of the national parliaments, women have some political influence.

Because higher maternal mortality suggests poorer maternal health, for the maternal mortality ratio the maximum value is truncated at 1,000 deaths per 100,000 births and the minimum value is truncated at 10. It is assumed that countries where maternal mortality ratios exceed 1,000 do not differ in their inability to create conditions and support for maternal health and that countries with 1–10 deaths per 100,000 births are performing at essentially the same level and that differences are random.

Sensitivity analysis of the GII is given in Gaye et al. (2010).

Step 2. Aggregating across dimensions within each gender group, using geometric means

Aggregating across dimensions for each gender group by the geometric mean makes the GII association sensitive (see Seth 2009).

For women and girls, the aggregation formula is

$$G_F = \sqrt[3]{\left(\frac{10}{MMR} \cdot \frac{1}{AFR}\right)^{½} \cdot (PR_F \cdot SE_F)^{½} \cdot LFPR_F},$$

and for men and boys the formula is

$$G_M = \sqrt[3]{1 \cdot (PR_M \cdot SE_M)^{½} \cdot LFPR_M}.$$

The rescaling by 0.1 of the maternal mortality ratio in the aggregation formula for women and girls is needed to account for the truncation of the maternal mortality ratio minimum at 10. This is a new adjustment introduced in *Human Development Report 2011.*[3]

Step 3. Aggregating across gender groups, using a harmonic mean

The female and male indices are aggregated by the harmonic mean to create the equally distributed gender index

$$HARM\,(G_F, G_M) = \left[\frac{(G_F)^{-1} + (G_M)^{-1}}{2}\right]^{-1}.$$

Using the harmonic mean of geometric means within groups captures the inequality between women and men and adjusts for association between dimensions.

Step 4. Calculating the geometric mean of the arithmetic means for each indicator

The reference standard for computing inequality is obtained by aggregating female and male indices using equal weights (thus treating the genders equally) and then aggregating the indices across dimensions:

$$G_{\bar{F},\bar{M}} = \sqrt[3]{\overline{Health} \cdot \overline{Empowerment} \cdot \overline{LFPR}}$$

where $\overline{Health} = \left(\sqrt{\frac{10}{MMR} \cdot \frac{1}{AFR}} + 1\right)/2,$

$$\overline{Empowerment} = \left(\sqrt{PR_F \cdot SE_F} + \sqrt{PR_M \cdot SE_M}\right)/2, \text{ and}$$

$$\overline{LFPR} = \frac{LFPR_F + LFPR_M}{2}.$$

$\overline{Health}$ should not be interpreted as an average of corresponding female and male indices but as half the distance from the norms established for the reproductive health indicators—fewer maternal deaths and fewer adolescent pregnancies.

Step 5. Calculating the Gender Inequality Index

Comparing the equally distributed gender index to the reference standard yields the GII,

$$1 - \frac{HARM\,(G_F, G_M)}{G_{\bar{F},\bar{M}}}.$$

Example: Lesotho

	Health		Empowerment		Labour market
	Maternal mortality ratio	Adolescent fertility rate	Parliamentary representation	Attainment at secondary and higher education	Labour market participation rate
Female	530	73.5	0.229	0.243	0.719
Male	na	na	0.771	0.203	0.787
$\frac{F+M}{2}$	$\frac{\sqrt{\left(\frac{10}{530}\right)\cdot\left(\frac{1}{73.5}\right)}+1}{2} = 0.508$		$\frac{\sqrt{0.229 \cdot 0.243} + \sqrt{0.771 \cdot 0.203}}{2} = 0.316$		$\frac{0.719 + 0.787}{2} = 0.743$

na is not applicable.

Using the above formulas, it is straightforward to obtain:

$$G_F \quad 0.134 = \sqrt[3]{\sqrt{\frac{10}{530} \cdot \frac{1}{73.5}} \quad \sqrt{0.229 \cdot 0.243} \cdot 0.719}$$

$$G_M \quad 0.675 = \sqrt[3]{1 \cdot \sqrt{0.771 \cdot 0.203} \cdot 0.787}$$

$$G_{\bar{F},\bar{M}} \quad 0.492 = \sqrt[3]{0.508 \cdot 0.316 \cdot 0.743}$$

$$HARM\,(G_F, G_M) \quad 0.230 = \left[\frac{1}{2}\left(\frac{1}{0.134} + \frac{1}{0.675}\right)\right]^{-1}$$

GII $\quad 1 - (0.230/0.492) = 0.532.$

Technical note 4. Calculating the Multidimensional Poverty Index

The Multidimensional Poverty Index (MPI) identifies multiple deprivations at the individual level in education, health and standard of living. It uses micro data from household surveys, and—unlike the Inequality-adjusted Human Development Index—all the indicators needed to construct the measure must come from the same survey. More details can be found in Alkire and Santos (2010).

Methodology

Each person is assigned a deprivation score according to his or her household's deprivations in each of the 10 component indicators. The maximum score is 100 percent, with each dimension equally weighted (thus the maximum score in each dimension is 33.3 percent). The education and health dimensions have two indicators each, so each component is worth 5⁄3 (or 16.7 percent). The standard of living dimension has six indicators, so each component is worth 5⁄9 (or 5.6 percent).

The thresholds are as follows:

- Education: having no household member who has completed five years of schooling and having at least one school-age child (up to grade 8) who is not attending school.
- Health: having at least one household member who is malnourished and having had one or more children die.
- Standard of living: not having electricity, not having access to clean drinking water, not having access to adequate sanitation, using "dirty" cooking fuel (dung, wood or charcoal), having a home with a dirt floor, and owning no car, truck

or similar motorized vehicle while owning at most one of these assets: bicycle, motorcycle, radio, refrigerator, telephone or television.

To identify the multidimensionally poor, the deprivation scores for each household are summed to obtain the household deprivation, *c*. A cut-off of 33.3 percent, which is the equivalent of one-third of the weighted indicators, is used to distinguish between the poor and nonpoor. If *c* is 33.3 percent or greater, that household (and everyone in it) is multidimensionally poor. Households with a deprivation score greater than or equal to 20 percent but less than 33.3 percent are vulnerable to or at risk of becoming multidimensionally poor. Households with a deprivation score of 50 percent or higher are severely multidimensionally poor.

The MPI value is the product of two measures: the multidimensional headcount ratio and the intensity (or breadth) of poverty.

The headcount ratio, *H,* is the proportion of the population who are multidimensionally poor:

$$H = \frac{q}{n}$$

where q is the number of people who are multidimensionally poor and n is the total population.

The intensity of poverty, *A,* reflects the proportion of the weighted component indicators in which, on average, poor people are deprived. For poor households only, the deprivation scores are summed and divided by the total number of poor persons:

$$A = \frac{\sum_1^q c}{q},$$

where c is the deprivation score that the poor experience.

Weighted count of deprivations in household 1:

$$\left(1 \cdot \frac{5}{3}\right) + \left(1 \cdot \frac{5}{9}\right) = 2.22,$$

which is equal to a deprivation score of 2.22/10 = 0.222, or 22.2 percent.

Example using hypothetical data

	Household				
Indicators	**1**	**2**	**3**	**4**	**Weights**
Household size	4	7	5	4	
Education					
No one has completed five years of schooling	0	1	0	1	5/3 or 16.7%
At least one school-age child not enrolled in school	0	1	0	0	5/3 or 16.7%
Health					
At least one member is malnourished	0	0	1	0	5/3 or 16.7%
One or more children have died	1	1	0	1	5/3 or 16.7%
Living conditions					
No electricity	0	1	1	1	5/9 or 5.6%
No access to clean drinking water	0	0	1	0	5/9 or 5.6%
No access to adequate sanitation	0	1	1	0	5/9 or 5.6%
House has dirt floor	0	0	0	0	5/9 or 5.6%
Household uses "dirty" cooking fuel (dung, firewood or charcoal)	1	1	1	1	5/9 or 5.6%
Household has no car and owns at most one of: bicycle, motorcycle, radio, refrigerator, telephone or television	0	1	0	1	5/9 or 5.6%
Results					
Household deprivation score, *c* (sum of each deprivation multiplied by its weight)	22.2%	72.2%	38.9%	50.0%	
Is the household poor ($c > 33.3\%$)?	No	Yes	Yes	Yes	

Note: 1 indicates deprivation in the indicator; 0 indicates nondeprivation.

Headcount ratio (H) =

$$\left(\frac{7+5+4}{4+7+5+4}\right) = 0.800$$

(80 percent of people live in poor households)

Intensity of poverty (A) =

$$\frac{(7.22/10 \cdot 7) + (3.89/10 \cdot 5) + (5.00/10 \cdot 4)}{(7+5+4)} = 0.5625$$

(the average poor person is deprived in 56 percent of the weighted indicators).

$$\text{MPI} = H \cdot A = 0.450$$

NOTES

1 The inequality aversion parameter affects the degree to which lower achievements are emphasized and higher achievements are de-emphasized.

2 A_x is estimated from survey data using the survey weights,

$$\hat{A}_x = 1 - \frac{X_1^{w_1} \ldots X_n^{w_n}}{\sum_1^n w_i X_i}, \quad \text{where} \quad \sum_1^n w_i = 1.$$

However, for simplicity and without loss of generality, equation 1 is referred to as the Atkinson measure.

3 The GII trends calculated at five-year intervals for 1995–2011 using consistent data and methodology are available at http://hdr.undp.org/en/statistics/gii.

Regions

Arab States (20 countries or areas)
Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

East Asia and the Pacific (24 countries)
Cambodia, China, Fiji, Indonesia, Kiribati, Democratic People's Rep. of Korea, Lao People's Democratic Republic, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Myanmar, Nauru, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Viet Nam

Europe and Central Asia[1] (30 countries)
Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Montenegro, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, Uzbekistan

Latin America and the Caribbean (33 countries)
Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela

South Asia (9 countries)
Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan, Sri Lanka

Sub-Saharan Africa (45 countries)
Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe

Note: Countries included in aggregates for Least Developed Countries and Small Island Developing States follow UN classifications, which are available at http://www.unohrlls.org/. HDRO does not include Bahrain, Barbados or Singapore in the aggregates for Small Island Developing States.

1. The former socialist countries of Europe and Central Asia that have undergone a political and economic transformation since 1989–1991 as well as Cyprus and Turkey.

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