

United Nations Development Programme



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FAQ

Inequality-adjusted Human Development Index

What is the purpose of the Inequality-adjusted HDI? (IHDI)?

The HDI represents a national average of human development achievements in the three basic dimensions making up the HDI: health, education and income. Like all averages, it conceals disparities in human development across the population within the same country. Two countries with different distributions of achievements can have the same average HDI value. The IHDI takes into account not only the average achievements of a country on health, education and income, but also how those achievements are distributed among its citizens by “discounting” each dimension’s average value according to its level of inequality.

What are the results of the IHDI regarding HDI achievements globally and regionally?

The average world loss in HDI due to inequality is about 22.9 %—ranging from 5.5% (Finland) to 44.0% (Angola). People in sub-Saharan Africa suffer the largest losses due to inequality in all three dimensions, followed by South Asia and the Arab States and Latin America and the Caribbean. Sub-Saharan Africa suffers the highest inequality in health (36.6%), while South Asia has the highest inequality in education (41.6%). The region of Arab States also has the highest inequality in education (38%), Latin America and the Caribbean suffers the largest inequality in income (36.3%).

Which countries and regions are the least equal and which are most equal?

Generally countries in the low human development group also tend to have higher inequality and thus larger losses in human development due to inequality, while countries in the very high group experience the least inequality in human development. The East Asia and the Pacific Region performs well on the IHDI, particularly in access to healthcare and education, and former socialist countries in Europe and Central Asia have relatively egalitarian distributions across all three dimensions.

Does the IHDI show if inequality is getting better or worse?

Although this is the fourth year that the IHDI has been calculated, we didn't recalculate IHDI for the previous years mostly because of lack of a good time series of inequality in education and income for a majority of countries.

How is the IHDI computed?

The approach 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 the geometric mean of dimension indices adjusted for inequality. The inequality in each dimension is estimated by the Atkinson inequality measure, which is based on the assumption that a society has a certain level of aversion to inequality. (For details see [Alkire and Foster](#) (2010).

What are the sources of data used for calculating the IHDI?

The IHDI relies on data on income/consumption and years of schooling from major publicly available databases, which contain national household surveys harmonized to common international standards: Eurostat's EU Survey on Income and Living Conditions, Luxembourg Income Study, World Bank's International Income Distribution Database, United Nations Children's Fund's Multiple Indicators Cluster Survey, US Agency for International Development's Demographic and Health Survey, World Health Organization's World Health Survey, and United Nations University's World Income Inequality Database. For inequality in the health dimension, we used the abridged life tables from the United Nations Population Division.

What is the reference year for the IHDI?

The IHDI uses the HDI indicators that refer to 2013 and measures of inequality that are based on household surveys from 2002 to 2013 and life tables that refer to the 2010-2015 period. So, the logic was to use the year to which the HDI indicators refer to, especially because we report the inequality-adjusted indicators/indices in tables.

How should the IHDI be interpreted?

While the HDI can be viewed as an index of average achievements in human development dimensions, the IHDI is the level of human development when the distribution of achievements across people in a society is accounted for. The IHDI will be equal to the HDI when there is no inequality, but falls below the HDI as inequality rises. The difference between the HDI and IHDI, expressed as a percentage of the HDI, indicates the loss in human development due to inequality.

This year there is a new measure of inequality - the Coefficient of Human Inequality.**What does it measure?**

The Coefficient of Human Inequality is an average inequality in health, education and income. The average is calculated by an unweighted arithmetic mean of estimated inequalities in these dimensions. When all inequalities are of a similar magnitude, the coefficient of human inequality and the loss in HDI differ negligibly, when inequalities differ in magnitude, the loss in HDI tends to be higher.

What are the limitations of the IHDI?

The IHDI captures the inequality in distribution of the HDI dimensions. However, it is not association sensitive, meaning it does not account for overlapping inequalities—whether the same people are at the lower end of each distribution. Also, the individual values of indicators such as income can be zero or even negative, so they have been adjusted to non-negative non-zero values uniformly across countries, which reshapes the distributions for a bit.

What is the policy relevance of the IHDI?

The IHDI allows a direct link to inequalities in dimensions of the HDI and the resulting loss in human development. Thus it can help inform policies towards inequality reduction and to evaluate the impact of various policy options aimed at inequality reduction.

Is the IHDI approach useful to UNDP at the country level?

The IHDI and its components can be useful as a guide to helping governments better understand the inequalities across populations and their contribution to the overall loss due to inequality.

Can the indicators be adapted at the country level?

The IHDI in its current form was inspired by a similar index produced by Mexico's national HDR. The IHDI can be adapted to compare the inequalities in different subpopulations within a country, providing that the appropriate data are available. National teams can use proxy distributions for indicators, which may make more sense in their particular case.

This is the fourth year that HDRO is computing the IHDI. Is the IHDI a permanent feature of UNDP's global HDR?

The IHDI was initiated as an experimental index in 2010, alongside the Gender Inequality Index and the Multidimensional Poverty Index. It has been critically examined and discussed at the conferences on measuring human progress held in 2012 and 2013. It became a regularly computed composite index and it will evolve over time like all the other human development indices.

What important properties does this methodology have?

One of the key properties of the approach is that it is “subgroup consistent.” This means that if inequality declines in one subgroup and remains unchanged in the rest of population, then the overall inequality declines. The second important property is that the IHDI can be obtained by first computing inequality for each dimension and then across dimensions, which further implies that it can be computed by combining data from different sources.

Is the Gini coefficient not a sufficient measure of inequality? What is the difference between Gini and Atkinson measures of inequality?

The Gini coefficient is commonly used as a measure of inequality of income, consumption or wealth. There was an attempt to apply the Gini index to measure inequality in the HDI distribution (Hicks, 1998).

The choice of the Atkinson index was guided by three factors: (i) subgroup consistency, (ii) sensitivity to the inequality in the lower end of distribution, and (iii) simplicity of computation and mathematical elegance of the resulting composite Inequality-adjusted Human Development Index.

Subgroup consistency means that if inequality declines in one subgroup (region, ethnic group, etc.) and remains unchanged in the rest of population, then the overall inequality declines. The Gini coefficient does not have this property.

By its construction, the Gini coefficient puts equal weights to the entire distribution, while the Atkinson index puts more weight to the lower end, thus accounting better for child mortality, illiteracy, and income poverty.

Finally, the geometric form of the HDI in combination with the Atkinson index provides a simple and elegant path-independent composite IHDI, obtained by first computing inequality for each dimension and then across dimensions, which further implies that it can be computed by combining data from different sources (life tables and different surveys for education and income).

Does the IHDI capture all inequalities in the HDI dimensions?

No. Due to data limitations, the IHDI does not capture all overlapping inequalities—whether the same person is at the lower end of distributions in all three dimensions. Also at this time we are not able to estimate inequality in distribution of expected years of schooling.

For some countries the assessment of inequality in the income dimension is based on household consumption, and for others it is based on income distribution. Are these inequalities comparable?

By their very nature, income and consumption yield different levels of inequalities, with income inequality being higher than inequality in consumption. Income seems to correspond more naturally to the notion of “command over resources.” Consumption data are arguably more accurate in developing countries, less skewed by high values, and directly reflect the conversion of resources. Income data also pose technical challenges because of the greater presence of zero and negative values. In an ideal world, one would be consistent in the use of either income or consumption data to estimate inequality. However, to obtain sufficient country coverage, it was necessary to use both. The final estimates are lightly influenced by whether the data are income or consumption.

How do you assess inequality in the distribution of life expectancy at birth?

This is the most difficult aspect of the IHDI, as life expectancy data are aggregate indicators. However, the inequality is estimated from the abridged life tables (five-year age cohorts) and reflects the current inequality in mortality patterns—some people die under the age of one and others die at 75 or later. Undoubtedly, the quality of these estimates is no better than the data in the life table itself.

How is inequality in education calculated?

Inequality in the education dimension is approximated only by inequality in years of schooling of the adult population. For simplicity, the estimate of inequality in education is based only on the distribution of years of schooling across the population, drawn from nationally representative household surveys.

Would inclusion of expected years of schooling for children change the results?

Expected years of schooling is an aggregate measure and inequality in its distribution is reflected in current school enrolment ratios. Certainly, there is a difference in inequalities in the two distributions – years of schooling for adult population and the expected years of education for the school age population, with the inequality in distribution of expected years of schooling across the school-age population being lower. Thus, one can speculate that overall inequality in the HDI distribution would be reduced if expected years of schooling were used.

Are the estimated inequalities in distribution of years of schooling for the adult population comparable across countries given the differences in school systems?

Years of schooling of adults is mostly derived from the highest level of schooling achieved. Using UNESCO's country information on the duration of schooling needed for each level, the highest level of schooling is converted into years. While the duration of primary, secondary and most of post-secondary education is more or less standardized, the very high levels—masters and doctoral studies—vary across countries. However, the Atkinson measure of inequality, which is used to assess inequality in HDI education components, is less sensitive to differences at the upper end of a distribution.