

Frequently Asked Questions - Inequality-adjusted Human Development Index (IHDI)

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 still have the same average HDI value.

The IHDI takes into account not only the average achievements of a country in health, education, and income, but also how those achievements are distributed among its population by “discounting” each dimension’s average value according to its level of inequality.

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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 Technical note 2.

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

The IHDI has been calculated for years 2010-2018. By analyzing the trend in the IHDI one can assess the direction of the change. Dashboard 5 on socioeconomic sustainability includes the annual average change in the overall loss due to inequality in HDI distribution across population.

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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 micro data from national household surveys harmonized to common international standards: Eurostat’s European Union Statistics on Income and Living Conditions, the Luxembourg Income Study, 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 Socio-economic database for Latin America and the Caribbean (SEDLAC), and the 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. A list of surveys used for the 2018 IHDI estimation is given at <http://hdr.undp.org/en/composite/IHDI> .

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What is the reference year for the IHDI?

The IHDI refers to 2018. It uses the HDI indicators that refer to 2018 and measures of inequality that are based on the most recent household surveys available from 2007 to 2018 and life tables that refer to the 2015-2020 period. The logic is to use the year to which the HDI indicators refer.

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[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 the 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.

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[What does the Coefficient of Human Inequality measure?](#)

The Coefficient of Human Inequality, introduced in the 2014 HDR as an experimental measure, is a simple average of inequalities 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 overall loss in HDI differ negligibly; when inequalities differ in magnitude, the loss in HDI tends to be higher than the coefficient of human inequality.

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[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 that it does not account for overlapping inequalities—whether the same people are at the lower end of each distribution. Also, individual values of education and income can be zero or even negative (for income), so they have been adjusted to non-negative non-zero values uniformly across countries. This adjustment can reshape the distributions a bit, so it is fair to say that the Atkinson inequality measure provides an approximation of the magnitude of inequality.

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[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.

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[Is the IHDI approach useful to UNDP at the country level?](#)

The IHDI and its components can be useful as a guide to help governments better understand the inequalities across population and their contribution to the overall loss in the level of human development due to inequality.

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Can the indicators be adapted at the country level?

The IHDI in its current form is 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, provided that the appropriate data are available. National teams can use proxy distributions for indicators, which may make more sense in their particular case.

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This is the ninth 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 conferences on measuring human progress held in 2012, 2013, 2014 and 2018. It became a regularly computed composite index and it may evolve over time like all other human development indices.

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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, thus it is not necessary that micro data on all components come from the same survey.

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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 inequality measure is 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 inequality measure puts more weight to the lower end, thus it accounts 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 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).

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Does the IHDI capture all inequalities in the HDI dimensions?

No. Due to data limitations and the construction, the IHDI does not capture 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, so the inequality in education dimension is assessed only from distribution of years of education for the adult population.

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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 is necessary to use both. The final estimates are modestly influenced by whether inequality refers to income or consumption distribution.

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

Life expectancy is calculated as the average life span of a hypothetical cohort of 100,000 people born at the same time who progress through successive ages, with the cohort shrinking from one age to the next according to a set of age-specific death rates, until all people in the cohort die. Such an average is the life span that people born in the same year can be expected to live under the constant-mortality assumption, i.e., age-specific mortality is maintained constant throughout the life of the cohort at the level estimated for the reference year of birth or the reference period.

As the cohort shrinks from one age to the next, it implies that people from the cohort are dying at different ages – thus there is an inequality in life spans. We capture this inequality and use it as the inequality measure of the health dimension - in the same way as we use the average of these life spans (i.e., life expectancy) to estimate the average achievement in health dimension.

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How is inequality in education calculated?

Inequality in the education dimension is approximated only by inequality in years of schooling of the adult population drawn from nationally representative household surveys.

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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 the adult population and 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.

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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 of education—masters and doctoral studies—vary in length across countries. However, the Atkinson measure of inequality, which is used to assess inequality in the education components, is less sensitive to differences at the upper end of the distribution.

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