

ECONOMICS HONS.

Sem-6

DSE Course-Group B(a) (ECOADSE04T)
CONTEMPORARY DEVELOPMENT ECONOMICS

Topic: Meaning of Economic Development
Sub Topic: Construction and Interpretation of HDI

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Basic Concept of HDI (Human Development Index)

- The concept of different human development indicators are explained and suggested by the United Nations Development Program's (UNDP's) Human Development Reports (HDRs). Human Development Index (HDI) is the universally accepted measure of the quality of life published in UNDP annually.
- HDI is a composite index measuring average achievement in three basic dimensions of human development – longevity, i.e., a long and healthy life which is measured by life expectancy at birth; knowledge which is measured by mean years of schooling and expected years of schooling and finally, decent standard of living which is captured by Gross National Income (GNI) per capita (PPP \$). PPP, i.e., Purchasing power parity (PPP) measures how much a currency can buy in terms of an international benchmark (usually in dollars \$), since the cost of goods and services differs between countries. So GNI per capita is measured in PPP \$.
- Three separate dimension indices on health, knowledge and income are constructed. Then geometric mean of three dimension indices of the three indicators gives the HDI.
- The Human Development Index (HDI) is a summary measure of achievements in three key 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 for each of the three dimensions.

Steps to Calculate Human Development Index Values

There are two steps to calculating HDI values.

Step 1. Creating the dimension indices

Minimum and maximum values (goalposts) are set in order to transform the indicators expressed in different units into indices between 0 and 1. Minimum goalpost is set as zero for Educational Indicators and very low values for others; Maximum goalpost is set at achievable target. Using these Maximum and Minimum values component indicators are standardized (see equation 1 below). They are set at the following values:

Dimension	Indicator	Minimum	Maximum
Health	Life expectancy (years)	20	85
Education	Expected years of schooling (years)	0	18
	Mean years of schooling (years)	0	15
Standard of living	GNI per capita (2017 PPP\$)	100	75,000

The justification for placing the natural zero for life expectancy at 20 years is based on historical evidence that no country in the 20th century had a life expectancy of less than 20 years. Maximum life expectancy is set at 85, a realistic aspirational target for many countries over the last 30 years. Due to constantly improving living conditions and medical advances, life expectancy has already come very close to 85 years in several economies: 84.9 years in Hong Kong, China (Special Administrative Region) and 84.6 years in Japan.

Societies can subsist without formal education, justifying the education minimum of 0 years. The maximum for expected years of schooling, 18, is equivalent to achieving a master's degree in most countries. The maximum for mean years of schooling, 15, is the projected maximum of this indicator for 2025.

The low minimum value for gross national income (GNI) per capita, \$100, is justified by the considerable amount of unmeasured subsistence and nonmarket production in economies close to the minimum, which is not captured in the official data. The maximum is set at \$75,000 per capita.

Having defined the minimum and maximum values, the dimension indices are calculated as:

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

For the education dimension, equation 1 is first applied to each of the two indicators, and then the arithmetic mean of the two resulting indices is taken. Expected years of schooling and mean years of schooling are perfectly substitute, so arithmetic mean of the two education indices is used as average.

Each additional dollar of income has a smaller effect on expanding capabilities. Thus for income the natural logarithm of the actual, minimum and maximum values is used.

Step 2. Aggregating the dimensional indices

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

$$HDI = (I_{Health} \cdot I_{Education} \cdot I_{Income})^{1/3}$$

Example: Sudan (from Technical Notes, HDR)

Indicator	Value
Life expectancy at birth (years)	65.3
Expected years of schooling (years)	7.9
Mean years of schooling (years)	3.8
Gross national income per capita (2017 PPP \$)	3,829

Note: Values are rounded.

$$\text{Health index} = \frac{65.3 - 20}{85 - 20} = 0.6971$$

$$\text{Expected years of schooling index} = \frac{7.9 - 0}{18 - 0} = 0.4380$$

$$\text{Mean years of schooling index} = \frac{3.8 - 0}{15 - 0} = 0.2513$$

$$\text{Education index} = \frac{0.4380 + 0.2513}{2} = 0.3447$$

$$\text{Income index} = \frac{\ln(3,829) - \ln(100)}{\ln(75,000) - \ln(100)} = 0.5506$$

$$\text{Human Development Index} = (0.6971 \cdot 0.3447 \cdot 0.5506)^{1/3} = 0.510$$

Human Development Categories

The 2014 Human development Report introduced a system of fixed cutoff points for the four categories of human development achievements. The cutoff points (COP) are the HDI values calculated using the quartiles (q) from the distributions of the component indicators averaged over 2004–2013:

$COP_q = HDI (LE_q, EYS_q, MYS_q, GNIpc_q)$, $q = 1, 2, 3$.

For example, LE1, LE2 and LE3 denote three quartiles of the distribution of life expectancy across countries.

This Report keeps the same cutoff points on the HDI for grouping countries that were introduced in the 2014 Report:

Level of Development	HDI Score	Countries for Example (from HDR 2021-22)
Very high human development	0.800 and above	Switzerland, Norway, Iceland, Australia
High human development	0.700–0.799	Maldives, Mexico, Tunisia, Colombia
Medium human development	0.550–0.699	India, Bangladesh, Bhutan, Ghana
Low human development	Below 0.550	Afghanistan, Mali, Niger, Guinea

Human Development Index Aggregates

Aggregate HDI values for country groups (by human development category, region and the like) are calculated by applying the HDI formula to the weighted group averages of component indicators. Life expectancy and GNI per capita are weighted by total population, expected years of schooling is weighted by population ages 5–24 and mean years of schooling is weighted by population ages 25 and older.

Adjustment for Inequality Inequality-adjusted HDI (IHDI) And for Gender Disparity Gender Inequality Index (GII) in HDI:

- Beside HDI an Inequality-adjusted HDI (IHDI) is constructed separately in UNDP. In IHDI adjustment is made in HDI for inequality in the distribution of each dimension. And it is done by discounting the average value of each dimension according to its level of inequality.
- To measure the inequality in achievements between women and men a new index Gender Inequality Index (GII) is constructed separately in UNDP from 2010. GII captures gender based inequality in three dimensions, viz., reproductive health, empowerment and labor market participation.

Criticism of the Concept of HDI:

- HDI implicitly assumes trade-offs between its components. For example, the HDI measures health using life expectancy at birth and measures economic conditions using GDP per capita. So the same HDI score can be achieved with different combinations of the two.
- HDI does not take into account human rights and freedom as mostly important factor of the quality of life. Providing health attainments, educational attainments and improved GDP per capita are necessary to enjoy a decent standard of living for an individual and also the socio-political environment of the economy where these facilities are being provided is very much important in the question of quality of life of an economy.
- Another important drawback of HDI is that it does not consider sustainable development as the component of human development. The concept of sustainable development which can be defined as a concept of inter-temporal resource use based on the theory of inter-generational equity, i.e., future generations have enough resources so that they will be able to attain at least the same level of social well-beings as enjoyed by the present generation. As a measure of human development, HDI must be concerned with the fact that whether the developments sustain overtime or it is just the development for the time being.

Conclusion:

- The HDI would cover both social and economic choices. The merging of economic and social indicators is one of the distinctive feature and chief strength of the HDI.
- One of the most important decisions was to keep the coverage and methodology of HDI quite flexible.
- It is accepted that the reliability of HDI depends upon the reliability of data fed into it. Therefore global community is impressed to improve the quality of underlying social and human statistics.
- Besides income the HDI measures, education and health; is thus multidimensional, rather than one-dimensional.
- HDI focuses the attention of the policy makers on the objective development, not just the means.
- The HDI can be disaggregated by gender, ethnic group and geographical regions and in many other ways.

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