



REPUBLIC OF THE PHILIPPINES
PHILIPPINE STATISTICS AUTHORITY BOARD

**PSA Board Resolution 11
Series of 2017**

**APPROVING AND ADOPTING THE OFFICIAL METHODOLOGY
FOR THE GENERATION OF PROVINCIAL HUMAN DEVELOPMENT INDEX**

WHEREAS, human development is a process of enlarging people's choices, the three essential ones of which are for people to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent standard of living;

WHEREAS, in 1990, the Human Development Index (HDI) was developed by the United Nations Development Programme (UNDP) as a summary measure of average achievement in key dimensions of human development;

WHEREAS, the Human Development Network (HDN), a non-stock, non-profit organization guided by a mission to propagate and mainstream the concept of sustainable human development through research and advocacy, launched the 1994 regional HDIs through the first volume of the Philippine Human Development Report (PHDR);

WHEREAS, the HDN has been generating and releasing the HDI series for the Philippines at the national and provincial levels in the subsequent volumes of PHDRs;

WHEREAS, the HDI has been used by regional and provincial government offices in the formulation of subnational development and strategic plans;

WHEREAS, between 1997 and 2013, the HDN collaborated with the government agency that is now part of the Philippine Statistics Authority (PSA) in the estimation and approval of the final HDIs, institutionalization of the estimation of HDIs and proposed inclusion of the HDI in the System of Designated Statistics;

WHEREAS, in 2012, an interim HDI estimation methodology, adopting the 2010 global HDI methodology, was formulated;

WHEREAS, in 2014 to 2015, high level and technical meetings between PSA and HDN were conducted to review the issues related to the results of the 2012 provincial HDIs, which were subsequently released in PSA and HDN websites in January 2016;

WHEREAS, in 2016 to 2017, the HDI interim methodology was presented and reviewed by relevant PSA-coordinated Committees for comments and recommendations: former Technical Committee on Poverty Statistics (TC-PovStat), former Technical Committee on Population and Housing Statistics (TCPHS), Interagency Committee on Education Statistics (IACES) and Interagency Committee on Health and Nutrition Statistics (IACHNS);

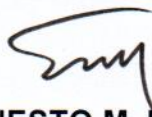
WHEREAS, after a series of meetings and consultations, the former TC-PovStat, TCPHS, IACES and IACHNS have endorsed the official methodology for the generation of HDI to the PSA Board for approval;

NOW, THEREFORE, BE IT RESOLVED, that the Board approve for adoption by all concerned the official methodology for the generation of HDI (Annex BR 11-20170825-01).

RESOLVED FURTHER, that:

1. PSA shall institutionalize the estimation of HDI and shall publish the HDI series on a regular basis at the national and provincial levels; and
2. PSA shall propose for the inclusion of HDI in the System of Designated Statistics.

Approved this 25 day of August 2017, in Pasig City.



ERNESTO M. PERNIA
Secretary of Socioeconomic Planning
National Economic and Development Authority
PSA Board Chairperson

Attested by:



LISA GRACE S. BERSALES
Undersecretary
National Statistician and Civil Registrar General
Chairperson, PSA Board Secretariat



Official Methodology for the Generation of Provincial Human Development Index

The Human Development Index (HDI) is a summary measure of human development. It measures the average achievement in a country in three basic dimensions of human development: longevity or a long and healthy life, access to knowledge, and a decent standard of living. These dimensions are measured by a set of indicators that are aggregated into indices.

A. Indicators and Data Sources

Indicators for each of the dimension are sourced from available secondary data collected by government agencies.

Dimension	Indicator	Source
Longevity	Life expectancy at birth	Life Tables, Flieger and Cabigon Life Tables, Cabigon Life Tables based on Census of Population and Housing, PSA
Knowledge	Mean years of schooling Expected years of schooling	Labor Force Survey (LFS), Philippine Statistics Authority (PSA) Annual Poverty Indicators Survey (APIS), PSA
Standard of living	Mean per capita income	Family Income and Expenditures Survey (FIES), PSA Regional Consumer Price Index (RCPI), PSA Provincial Poverty Thresholds, PSA

The life expectancy at birth was generated using estimated life expectancy at birth from the Life Tables.

As for education, the mean years of schooling is the average years of prior schooling for adults aged 25 and older in a province while the expected years of schooling is the sum of the enrolment rate per age level from ages 6 to 24.

To compute for the mean years of schooling an equivalent number of years were assigned to each response under the "*highest grade completed*" variable (1 year for "*Grade 1*", and so forth, to 16 years for "*Graduate in Masters/PhD*") in LFS/APIS. Weighted average of the number of years of schooling among adults aged 25 and older is then generated for each province.

Expected years of schooling is calculated using the weighted sum of the complete number of years of a school-age child of a particular age (which is equal to 1), where the weights are the probability of being enrolled in school at age i (6 to 24), which is assumed equal to the current enrolment ratio at age i (6 to 24) in the LFS. [Klugman, J. et. al., 2012]

The real per capita income is the weighted mean total family income divided by family size converted in NCR pesos (for current HDI reference year). This was computed using the

trimmed¹ FIES income data, converted to prices (for current HDI reference year) using RCPI (for other FIES years other than reference year) and adjusted by the ratio of (for current HDI reference year) poverty thresholds of the province with Metro Manila, which serve as base.

B. Generating dimension indices and aggregating to produce HDI

Before the HDI itself is calculated, an index needs to be generated first for each of the three dimensions. To calculate these dimension indices, minimum and maximum values (goalposts) are chosen for each underlying indicator. The index for each dimension is then expressed as a value between 0 and 1 by applying the general formula:

$$\text{Dimension Index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

Global goalposts are adopted except in the case of education and income indices. For the education index, the actual (local) maximum value observed from covered HDI series and the minimum global value were adopted. For the income index, the minimum is set at 90 percent of the actual (local) minimum value observed while the maximum is set at 110 percent of the actual (local) maximum value observed. The latter is to avoid an undefined estimate when the general formula is applied. The goalposts to be used are as follows:

Indicator	Maximum	Minimum
Life expectancy at birth, years	85.0 (global)	20.0 (global)
Mean Years of Schooling	Highest mean years of schooling observed among provinces for the HDI years covered (local)	0.0 (global)
Expected Years of Schooling	Highest expected years of schooling among provinces for the HDI years covered (local)	0.0 (global)
Combined Education Index	Highest combined education index among provinces for the HDI years covered (local)	0.0 (global)
Real per capita income, NCR Pesos	Highest real per capita income among provinces for the HDI years covered (local)	Lowest real per capita income among provinces for the HDI years covered (local)

*Maximum is 110 percent of actual maximum; minimum is 90 percent of actual minimum

¹Symmetric trimming was done, i.e., 0.5% of upper and lower values.

Indices for both subcomponents of education are first calculated before computing their geometric mean. The combined education index is then computed by applying the general formula with minimum equal to 0 and maximum equal to the highest geometric mean observed among provinces.

Once the dimension indices have been calculated, the HDI is determined by computing the geometric mean of the three dimension indices:

$$\text{HDI}_{\text{Province}} = (I_{\text{Life}} \times I_{\text{Education}} \times I_{\text{Income}})^{\frac{1}{3}}$$

C. Data Limitations

HDI estimates are subject to the same limitations as all survey-based province-level estimates released by PSA (e.g. poverty statistics).

In order to better guide users of the data therefore, measures of *dispersion* (i.e. scatter about an average value) of the HDI component data, where applicable, will be presented along with the HDI estimates. These measures are the standard errors (SE), coefficients of variation (CV), and confidence intervals (CI).

SE is a measure of absolute dispersion and is used as a measure of variability of one data set. If there is a small amount of variation in the data set, then data values will be close to the mean and standard errors will be small. That is, the lower the standard error, the more precise the estimate.

CV is a measure of relative dispersion, used to compare two or more data sets with different means and/or different units of measurement. As a measure, it utilizes the mean and standard error and is expressed as a percentage; it is unitless. At present, there is no internationally agreed cut-off point for what are 'acceptable' levels of CV.² What is important however is for CVs to be fully disclosed so that users may be guided in the interpretation of estimates.

Reporting SE provides some idea of the accuracy of an estimate (of say, mean per capita income) from a particular sample, but does not really tell us how far that sample estimate is likely to be from the population value (or 'true' mean). For this purpose, an *interval estimate* of the true mean is appropriate which the CI provides. CI is computed using the sample mean and standard error; the larger the 90 percent CI, the more caution is required when using the estimated sample mean.

A number of provinces have overlapping CIs of their mean per capita income (in PPP NCR pesos), mean years of schooling and expected years of schooling. Thus, ranking of provinces on these bases needs to be undertaken with caution.

²Some developed countries like Australia and the United States have released to the public, statistics with CVs higher than ten percent. To quote from the Australian Bureau of Statistics' publication on Crime and Safety, Australia, for instance, "For tables in the publication, only estimates with relative standard errors (RSEs) of 25% or less, and percentages based on such estimates, are considered sufficiently reliable for most purposes".