

# The refined Human Development Index (HDI)

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# What is the HDI

“Human development is a process of enlarging people's choices. In principle, these choices can be infinite and change over time. But at all levels of development, the three essential ones 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**. If these essential choices are not available, many other opportunities remain inaccessible.” (UNDP. 1990. p. 10.)

The HDI is a composite index aggregating these three basic dimensions into a summary measure.

# It is a capabilities index

*A capabilities index* is a summary description of the freedom that people have to pursue alternative valuable life plans

“ Expanding these freedoms should be one objective – and a very important one – of society. However, there is no contention that it should be the *only* objective, and there is the recognition that other objectives will enter into social decisions alongside the pursuit of human development.”

*(Klugman, J., et. al. “The HDI 2010: New Controversies, Old Critiques”, HDRP 2011/01, UNDP , April 2011 )*

# Why the HDI

The HDI was motivated as an explicit challenge to the reigning paradigm of the late 1980s in development policy circles, commonly known as the ‘Washington consensus’, symbolized in the practice of ranking countries by per capita income

“[a]ny measure that values a gun several hundred times more than a bottle of milk is bound to raise serious questions about its relevance for human progress.” (Mahbub ul Haq)

*Source: Klugman, J., et. al. 2011*

# The original HDI

	Global	Localized
Long and healthy life	<b>Life Expectancy at Birth</b>	same
Knowledge	<b>Adult literacy rate (2/3)</b>	HS graduate ratio (2/3)
	<b>Combined gross enrollment ratio (primary, secondary, tertiary) (1/3)</b>	Basic enrollment ratio (primary, secondary) (1/3)
Living standards	<b>Real per capita GDP in PPP US\$</b>	Real per capita income in NCR 1997 pesos
Aggregation Method	<b>Arithmetic Mean of the 3 sub-indices</b> $= (I_L + I_K + I_I) / 3$	Same

# Key contribution

***“While the HDI is a single number, its contribution to policy debates has been, precisely, to illustrate the multidimensional nature of development”***

- There are significant differences in country rankings between HDI and per capita income.
- Economic growth is a *means and not an end*. Human development is about *outcomes*.

# The refined HDI

	Refined global	Localized
Long and healthy life	Life expectancy at birth	Same
Knowledge	<b>Mean Years of Schooling (1/2)</b>	Same
	<b>Expected Years of Schooling (1/2)</b>	Same
Standard of living	<b>Real per capita GNI in PPP US\$</b>	<b>Real per capita income in NCR 2009 pesos</b>
Aggregation Method	<b>Geometric Mean of the 3 sub-indices</b> $=(I_L * I_K * I_I)^{1/3}$	same

# Rationale for global refinements

- **Education index** - now expressed in terms of years of schooling, with education of current and future generations receiving equal weight
  - **Mean years of schooling of adults** - a stock. More frequent, broader coverage, better discriminatory power than literacy
  - **Expected years of schooling** , or how many years of schooling, on average, children are expected to attain in adulthood.
- **GNI** – includes net factor income from abroad. Better represents typical person's command over resources to acquire goods and services and save for the future



# Rationale for global refinements

**Aggregation using geometric mean**– a conceptual change in the way one conceives the relationship between different dimensions

- Arithmetic mean - dimensions are perfect substitutes; the rate at which one capability can offset another is constant, e.g. improvements in income needed to offset a decrease in health and maintain the same HDI does not vary with levels of income or health.
- Geometric mean –there is both substitutability and complementarity across dimensions. The higher the level of achievement in one, the less it can compensate for the others.

# Rationale for local refinement

**Real per capita income in NCR 2009 pesos** (from NCR 1997 pesos). The income component is per capita purchasing power comparable over time and space

**Transformation from nominal per capita income** (directly estimated from FIES data): Deflate by regional CPI

→ **Real per capita income.** Divide by  $\frac{\textit{poverty line province}}{\textit{poverty line NCR}}$

→ **Real per capita purchasing power** - command over basic requirements (food and non-food), comparable over space

# For Province 1:

*In NCR 2009 pesos (using official poverty lines)*

$$pcinc_1 2006 * \frac{1}{RCPI_1 2006_{b2009}} * \frac{pov\ line_{NCR} 2009}{pov\ line_1 2009}$$

*In NCR 1997 pesos (using Balisacan poverty lines)*

$$pcinc_1 2006 * \frac{1}{RCPI_1 2006_{b1997}} * \frac{pov\ line_{NCR} 1997}{pov\ line_1 1997}$$

# Ratio of official 2009 poverty lines

- 2009 official poverty lines represent how much is needed to pay for basic/minimum food and non-food requirements per province  
([www.nscb.gov.ph/announce/ForTheRecord/13Dec2011\\_poverty](http://www.nscb.gov.ph/announce/ForTheRecord/13Dec2011_poverty))
  - i. Food requirements: using a national food bundle that satisfies requirements for energy (2000 kcal) and 80% of requirements for other nutrients, converted to provincial bundles using low cost available goods
  - ii. Non-food requirements: estimated from ratio of food expenditures to basic expenditures

# Illustration

- 2009 poverty line of Basilan = P15, 341.
- 2009 poverty line of NCR = P19, 802.

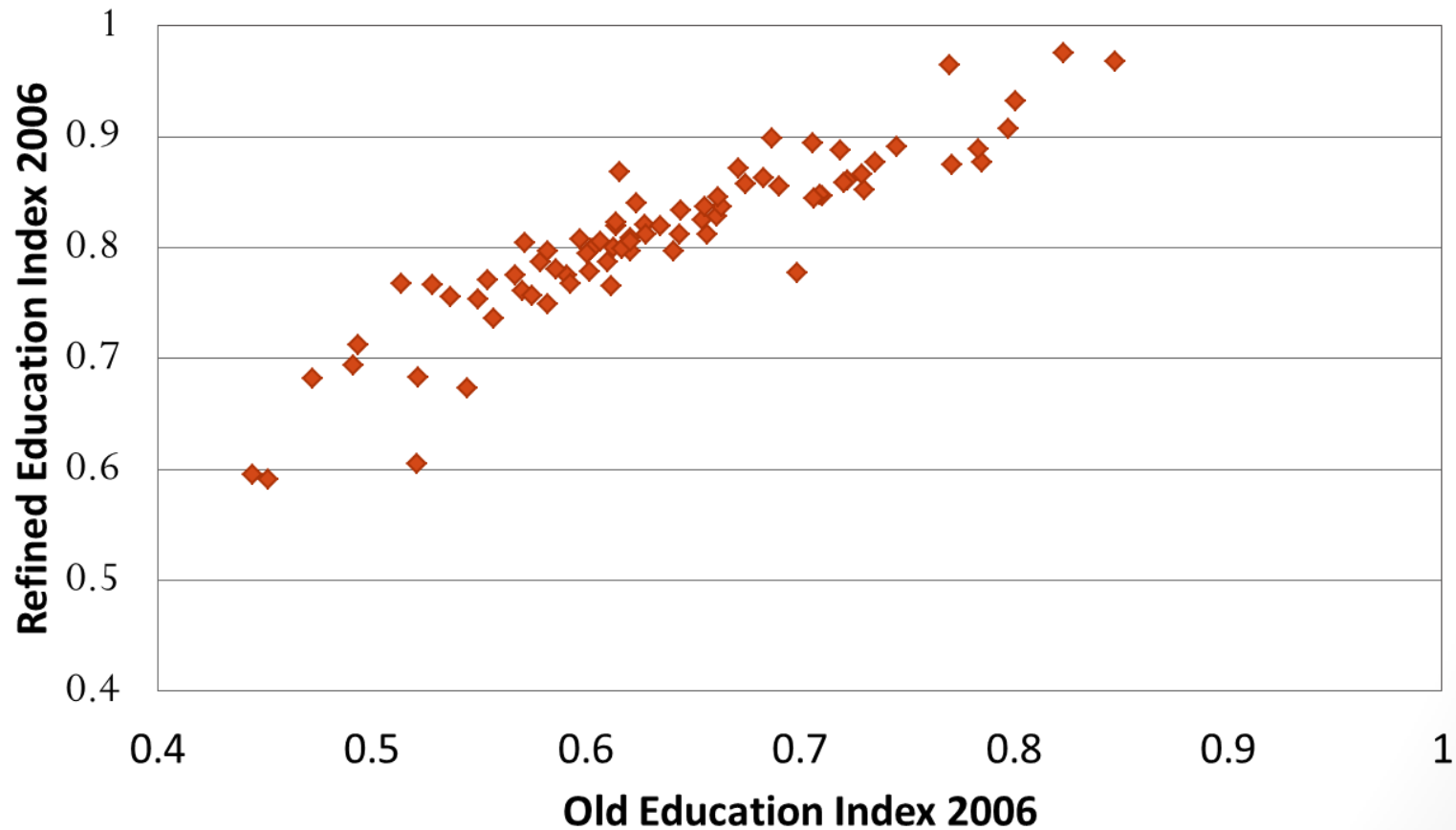
The 'same' bundle of minimum (basic) food and non-food requirements in Basilan costs about 15,341/19,802 or  $\sim \frac{3}{4}$ , what it costs in NCR.

Put another way, an individual in Basilan has 29.1 % more purchasing power than an individual with the same income in NCR.

- Education Index 2006: old versus refined
- Old HDI 2006: aggregated using arithmetic mean vs. geometric mean
- Old HDI 2006: using NCR 2009 pesos vs. NCR 1997 pesos

## CONSEQUENCES OF REFINEMENTS

# Old Education Index 2006 vs. Refined Education Index 2006 ( $r = .91$ )



## Example: North Samar

Components	Values	Old Education Index	Components	Values	Refined Education Index
%HS Grad (18 & above)	34.9	0.528	Mean Years of Schooling	7.4	0.786
Basic Enrolment Ratio	88.6		Expected Years of Schooling	11.5	

## Example: Samar

Components	Values	Old Education Index	Components	Values	Refined Education Index
%HS Grad (18 & above)	37.4	0.537	Mean Years of Schooling	7.0	0.774
Basic Enrolment Ratio	86.2		Expected Years of Schooling	11.8	



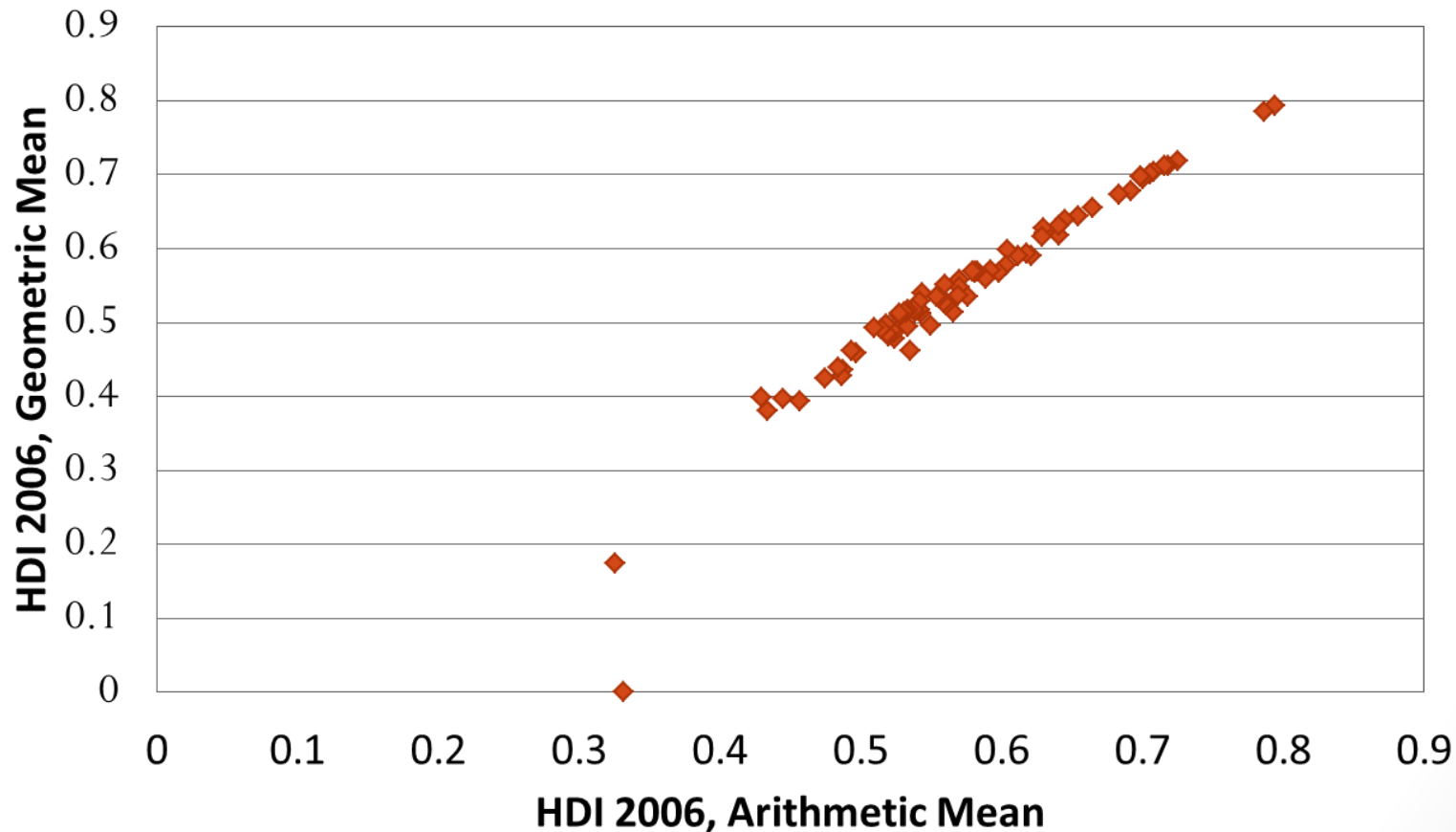
# Top provinces by education index for 2006, old vs. refined

Top	Old index	Refined index
Metro Manila	0.847	0.992
Benguet	0.823	0.999
Rizal	0.801	0.955
Cavite	0.797	0.930
Bataan	0.785	0.899
Laguna	0.784	0.911
Pangasinan	0.771	0.897
Batanes	0.770	0.988
La Union	0.745	0.914
Abra	0.735	0.899
Camiguin	0.687	0.922
Iloilo	0.706	0.917
Misamis Oriental	0.719	0.910

# Bottom provinces by education index for 2006, old vs. refined

Bottom,	Old index	New index
Western Samar	0.537	0.774
Northern Samar	0.528	0.786
Tawi-Tawi	0.522	0.701
Maguindanao	0.521	0.620
Masbate	0.514	0.787
Negros Oriental	0.494	0.730
Zamboanga del Norte	0.491	0.711
Davao Oriental	0.472	0.699
Sarangani	0.452	0.606
Sulu	0.444	0.610
Lanao Sur	0.583	0.768
North Cotabato	0.557	0.755
Basilan	0.545	0.690

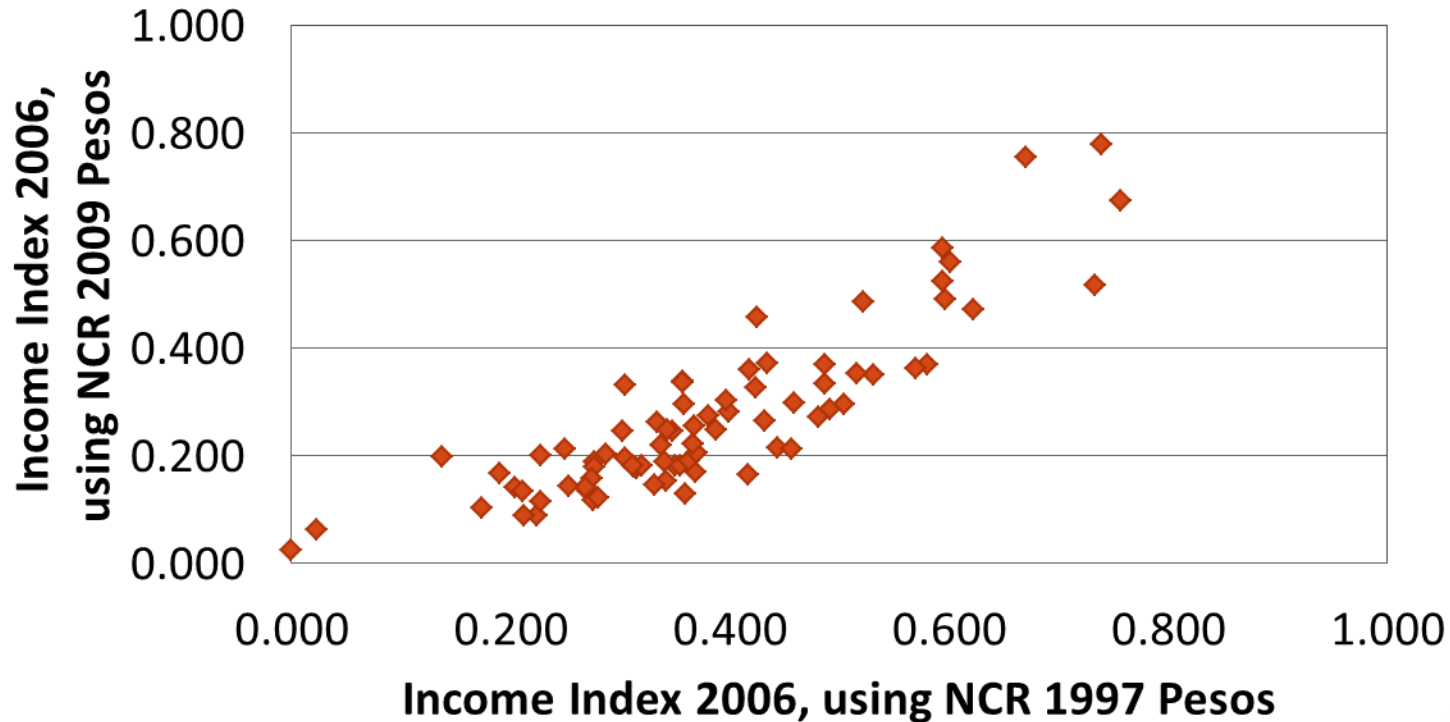
# (Old) HDI 2006, aggregated by arithmetic mean vs. geometric mean ( $r = .96$ )



# Top and bottom provinces by (old) HDI 2006, arithmetic vs. geometric mean

Top , using arithmetic mean	Using geometric mean	Bottom, using arithmetic mean	Using geometric mean
Metro Manila	Y	Romblon	Y
Benguet	Y	Zamboanga del Norte	Y
Rizal	Y	Eastern Samar	Y
Cavite	Y	Sarangani	Y
Bataan	Y	Masbate	Y
Laguna	Y	Lanao del Sur	Y
Pampanga	Y	Basilan	Y
Ilocos Norte	Y	Maguindanao	Y
Batanes	Y	Tawi-Tawi	Y
Nueva Vizcaya	Y	Sulu	Y

# Income index 2006: in NCR 1997 Pesos vs. NCR 2009 Pesos ( $r = .87$ )



# Top provinces by (old) HDI 2006, old vs. updated income index

Top	HDI 2006, with old income index	HDI 2006 index, w updated income index
Benguet	0.787	0.798
Rizal	0.725	0.719
Cavite	0.718	0.691
Bataan	0.716	0.661
Laguna	0.708	0.691
Pampanga	0.706	0.666
Ilocos Norte	0.700	0.625
Batanes	0.699	0.725
Nueva Vizcaya	0.699	0.622
La Union	0.692	0.616
Bulacan	0.684	0.667

# Bottom provinces by (old) HDI 2006, old vs. updated income index

Bottom, using old income index	HDI 2006, with old income index	HDI 2006, with updated income index
Romblon	0.487	0.439
Zamboanga del Norte	0.487	0.454
Eastern Samar	0.484	0.468
Sarangani	0.475	0.429
Masbate	0.457	0.426
Lanao del Sur	0.445	0.430
Basilan	0.434	0.486
Maguindanao	0.430	0.376
Tawi Tawi	0.332	0.332
Sulu	0.326	0.331
Northern Samar	0.493	0.447
Agusan Sur	0.528	0.443
Davao Oriental	0.497	0.437

# Other indices which complement the HDI

	Refined (global)	Old (global)	Localized
Measuring Inequality	<b>Inequality-adjusted HDI (I-HDI)</b>	--	Same, but only for 2009
Measuring Gender Inequality	<b>Gender Inequality Index (GII)</b>	Gender-related Development Index (GDI)	GDI, using components of refined HDI
Measuring Multidimensional Poverty	<b>Multidimensional Poverty Index (MPI)</b>	Human Poverty Index (HPI)	MPI (Balisacan 2011)



Thank you.

[www.nscb.gov.ph](http://www.nscb.gov.ph)

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