

## Human development measurement: what evolutions?

### *State of the discussions regarding methodology and concept*

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#### Introduction

On the occasion of the 20th anniversary Human Development Report, in 2010, a revised Human Development Index (HDI) was introduced alongside three experimental indices<sup>1</sup>. The revised methodology was introduced in response to some criticism and followed extensive consultations.

The 2010 report looked at "Pathways to Human Development", and was followed, in 2011, by the Report "Equity and sustainability", focusing in particular on the tension between long term environment protection and equity.

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1. UNDP-HDRO (2010)

... / ... In 2011, the Human Development Report Office (HDRO) began a series of annual measurement conferences devoted to explore in more detail conceptual as well as political and data aspects of the HD measurements. It was followed by a second measurement conference on: “Measuring Human Progress” in March 2013. During these discussions, some of the evolutions introduced in 2010 were questioned and the difficulty to elaborate reliable sustainability indicators - to join a human development dashboard - has been raised.

This brief draws upon the debates that took place recently in Paris<sup>2</sup> and New York<sup>3</sup> to provide a first taste of the ongoing discussions regarding the methodological and conceptual evolutions of the HDI.

### ► Revising the HDI: *advocacy versus accuracy?*

In 2010, the HDI methodology was updated. Three main evolutions were introduced revising both its content (dimensions aggregated<sup>4</sup>) and its computation (normalization<sup>5</sup> and functional form<sup>6</sup>).

This update – not unlike the previous ones - has initiated a fair amount of discussion. Martin Ravallion underlined the increasing tradeoffs<sup>7</sup> between the dimensions, due to the use of the multiplicative function (i.e. geometric mean). To avoid these increasing tradeoffs, Ravallion proposed a generalized additive HDI<sup>8</sup>, inspired by Chakravarty’s framework<sup>9</sup>.

Francisco Rodriguez argued that the HDI should not be considered as a utility function to be maximized<sup>10</sup>, discarding the importance one should attach to the tradeoffs between the HDI’s dimensions.

Finally, Eduardo Zambrano showed that Ravallion’s proposal would actually produce rather similar outcome<sup>11</sup> compared to the current HDI methodology.

During the 2013 HD measurement conference, organized in New York, participants agreed that the HDI should not be revised too often. Thus, the 2014 edition should not see major revisions of the UNDP’s famous Index.

#### *Technical issues raised:*

First, the way of building country groups by floating/relative HDI level – i.e. using percentiles to determine HDI groups: *Very High, High, Medium, Low Human Development* – was widely criticized, it results in difficulties for a country to move upward even if progress were achieved.

Introducing fixed thresholds would address this limitation providing further incentives for policy makers if achievements would finally lead their country to move from the *Low Human Development* category to *Medium* one.

On a more methodological ground, discussions are still open concerning the most appropriate way of normalizing the HDI dimensions. The use of the logarithm was questioned for the income dimension. An alternative would consist in using the half-order polynomial, which displays a less pronounced concavity – reducing the aforementioned challenged trade-offs.

The moving superior cap for the life expectancy index was also discussed. The use of a forecast value for life expectancy was suggested to avoid regular update of the upper cap and facilitate time comparisons (e.g. use of 91 years old as upper cap –i.e. forecasted longest life expectancy in 2050).

For the education dimension, considering the substitutability of the two sub-indices,

2. Hosted at the *Agence Française de Développement*, January the 27th and 28th, 2013.

3. UN, New York, March the 4th and 5th, 2013.

4. Introduction of the *mean years of schooling* and *expected years of schooling* instead of literacy rate for the education dimension. Use of GNI rather than GDP for the income dimension.

5. The caps were modified for the normalization process. See UN-DHRO (2011a)

6. Use of the geometric mean instead of the arithmetic mean to aggregate the three dimensions of the HDI.

7. See Ravallion, M. (2010). NB. *The kind of underlying questioning is “How many additional years of life expectancy are necessary for the HDI to remain constant, following a one unit decrease of the income?”*

8. See Ravallion, M. (2011).

9. See Chakravarty (2003).

10. See Rodríguez, F. (2010).

11. According to Zambrano’s computation, the spearman rank correlation between the actual HDI and Ravallion’s HDI is 0.9923. See Zambrano, E. (2011a)

the use of only one sub-index, or the use of the arithmetic instead of the geometric mean for their aggregation, seemed to meet a consensus.

If the previous points were not raised in dissent, the discussions chiefly stumbled upon the HDI functional form, initiating the *advocacy versus accuracy* debate. Arithmetic means supporters raised the point that the HDI is foremost about dialogue and awareness. According to Amartya Sen, the asset of the arithmetic mean is to facilitate policy discussions, arguing that the rationale of the geometric mean is more complex to explain to a non-specialist audience. Furthermore, the point has been made that an index constructed using arithmetic mean is easier to decompose. Thus, influential defenders of the previous functional form voiced their doubt over the recent revision of the HDI.

Nevertheless, the geometric mean possesses an interesting feature: the nonlinear compensation of the aggregated dimensions. Thus, one unit of income cannot compensate one unit of health or education. As highlighted by Michaela Saisana, by giving a surplus for equality across the dimensions, this functional form actually provides a strong incentive for policy-maker to improve the weakest dimension of the HDI. In this perspective, the geometric mean has a more profound resonance with Sen's *capability approach*.

### ► Sustainability and HD measurement

As recognized by the Human Development Reports, Human Development is a broader concept than what the HDI actually captures. Tensions exist between HDI achievement and Human Development progresses, especially on the ground of sustainability and environmental deterioration. For example, rising income (i.e. improving HDI) in developing countries often comes along with environmental threats and resource depletion. The January 2013 Paris Seminar on *Measurement of Sustainable Human Development*, was part of the consultations to investigate the scope to more deeply entrenched sustainability within Human Development measurements.

The framework draws on Rockström et al (2009a), *Planetary Boundaries*. This framework lists nine boundaries that development should not exceed to preserve the necessary living conditions for humankind. It uses scientific measures and thresholds such as ocean acidification, stratospheric ozone; biogeochemical nitrogen cycle etc. to determine the "safe operating space for humanity" (see also Rockström et al, 2009b).

This option would represent a step towards integrating ecological sciences in Human Development measurement. However, as with the socioeconomic dimensions, limitations lie in data availability and in the information loss due to aggregation. In this respect, the discussions are still ongoing.

If the question of upgrading the HDI regularly pops up, the most likely scenario is to place on the set new indicators to complete the HD measures dashboard. Indeed, it is argued that sustainability cannot be considered as a capability in itself, although it constrains future capabilities. An alternative solution evoked might consist in building a loss function applied to a sustainability adjusted HDI, accounting for country level progress or regress in moving towards sustainable development. Single indicators proved to be very useful communication tools for raising awareness; on the other hand, their conceptual and methodological shortcomings lend themselves to effortless criticism.

### ► Conclusion

A fair amount of methodological discussion is still paving the way for further evolutions of the HD measurement framework. Nevertheless, old questionings remain, inquiring the HDI's DNA and objectives: *awareness tool or accurate measure of human development?*

The challenge for HDRO is to strike a balance that accommodates scientific rigor and the importance of clear communication and advocacy. The good balance between the two finally appears fluctuating according to the climaxing priorities.

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