Going beyond GDP with a Parsimonious Indicator: Inequality-Adjusted Healthy Lifetime Income

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Motivation

GDP per capita is of limited use as a measure of well-being (Kuznets, 1934; Stiglitz et al., 2009; Fan et al., 2018; Lutz et al., 2018):

- Negative externalities such as environmental damage are not accounted for.
- Important components of well-being are left out:
  - Health,
  - distributional aspects.

However:

- GDP is relatively easy to calculate.
- It is available over long periods of time and for many countries.
- Straightforward meaning and relation to other variables (such as national debt).

Our contribution

Our contribution

Measure that preserves the advantages of GDP but includes health and distributional aspects.

Why is life expectancy important?

Life expectancy. Compare Iceland and Germany in 2013:

- GDP pc in Germany: 42.910 USD.
- GDP pc in Iceland: 42.372 USD.
- Superficial conclusion: An average person in Germany is financially better off.
- However: Life expectancy in Iceland was one and half years longer than in Germany.

Main implication

Lifetime income of an average person in Iceland is higher than in Germany.

Why is inequality important?

Inequality. Again Iceland and Germany offer a nice illustration:

- Gini Index in Germany: 0,31.
- Gini Index in Iceland: 0,25.
- Inequality in Germany is higher than in Iceland.
- Since income distribution is skewed toward the right tail, mean income is to a larger extent driven by outliers in Germany.

Main implication

Annual **median income** in Iceland is higher than the in Germany.

Proposed alternative indicator

- Our alternative: **Inequality-Adjusted Healthy Lifetime Income (IHLI)**:

$$IHLI_i = y_i \cdot HALE_i \cdot (1 - Gini_i). \quad (1)$$

- In contrast to GDP, it takes into account:
  - Lifetime income.
  - health and quality of the environment,
  - inequality in terms of disposable income.
- The values can be directly interpreted,
- easy calculation with limited data requirements,
- covers a greater sample of countries compared to HDI and IHDI.

Interesting implications for country rankings

- The US and Saudi Arabia move down, despite their high GDP per capita.
- Reason: Low healthy life expectancy and high inequality.
- Certain European countries move up, despite having a rather low GDP per capita.
- For example, Denmark, Sweden, Austria, Belgium, Finland.
- Reasons: High healthy life expectancy and low inequality.

Comparing our indicator with IHDI

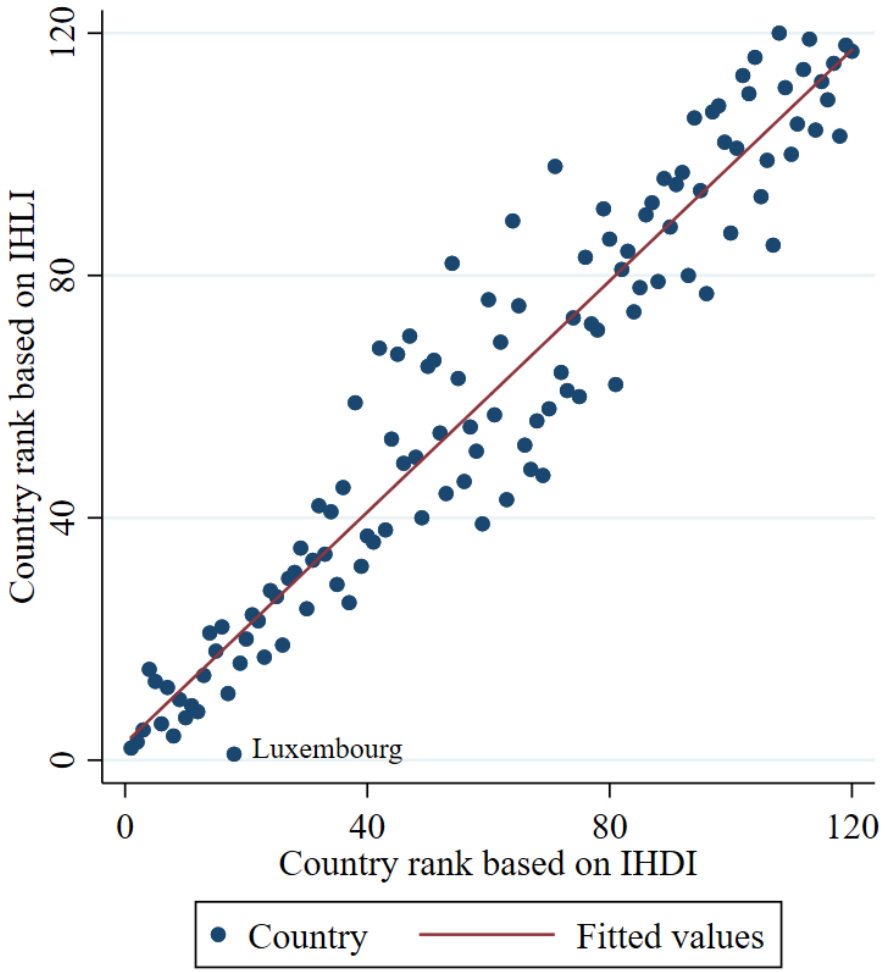

Figure 2: Comparing IHLI and IHDI (Spearman Correlation: 0,95)

Advantages of IHLI

- The ranking based on our indicator is strongly correlated with the rankings based on HDI and IHDI.
- In addition, our measure:
  - can be directly interpreted and used for meaningful economic calculations,
  - is not bounded from above,
  - is not dependent on arbitrary weighting of sub-indices,
  - is easy to calculate,
  - is available for more countries and longer time periods.

Summary

- IHLI preserves the advantages of GDP per capita but includes
  - Life expectancy.
  - Health and environmental quality.
  - Inequality.

Result

Pragmatic well-being indicator that improves upon existing ones.

Thank you for your attention!

Variants of IHLI

- Option 1 (accounting for commuting):

$$IHLI_i = \hat{y}_i \cdot HALE_i \cdot (1 - Gini_i). \tag{2}$$

- Option 2 (data availability of HALE):

$$IHLI_i = y_i \cdot Lexp_i \cdot (1 - Gini_i). \tag{3}$$

- Option 3 (data availability of Gini):

$$IHLI_i = y_i \cdot HALE_i \cdot \frac{median(y_i)}{mean(y_i)}. \tag{4}$$