Years of Good Life (YoGL): A wellbeing indicator designed to serve as sustainability criterion

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What is the ultimate end of human development?

The “wellbeing production function” (Levin & Clark 2010; Clark 2012):

\[ W(p, t) = f(C_{i,p,t}, I_{p,t}, K_{p,t}) \]

\( p \) – population

\( t \) – time

\( C_i \) – stocks of ‘Capital Assets’ (manufactured capital, human capital and natural capital)

\( I \) – institutions (laws, rules, norms, expectations, etc.)

\( K \) – knowledge

In sustainability science there is much research on inclusive wealth/capital and its change over time but little addressing W directly.
A vast array of wellbeing measures
Objective

Propose a tailor-made indicator to serve as a sustainability criterion.
Six criteria for a wellbeing indicator

1) It needs to embody universally shared values in terms of ultimate ends.

2) It needs to be based on **characteristics of individuals** that can be flexibly aggregated to **sub-populations**.

3) It needs to be **comparable over time and across sub-populations**.
Six criteria for a wellbeing indicator

4) It should be theory based and not include implicit trade-off assumptions or arbitrary weighting schemes.

5) There needs to be sufficient empirical information for different sub-populations and time points to be fit for serving as the dependent variable in panel regressions.

6) If possible, it should have a substantive interpretation in terms of some real life analogy rather than just being an abstract index.
Capable Longevity
✓ Being out of poverty
✓ Being free from physical limitations
✓ Being cognitively able

Subjective Quality of Life
✓ Being satisfied with life

Years of Life = Being Alive = Life Expectancy

Capable Longevity
(out of poverty and no severe cognitive or physical limitations)

Years of Good Life (YoGL)

Years with positive life satisfaction

Human Well-being
How to calculate YoGL?

- Sullivan Method (1971)

\[
\frac{1}{l_0} \sum_{i=0}^{A} \pi_i L_i
\]

- \( l_i = \text{number of survivors at age } x_i \, (\text{beginning of the interval } i) \)
- \( L_i = \text{number of person years lived in the age group } i \)
- \( \pi_i = \text{prevalence of the state of interest.} \)
How to calculate YoGL?

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<th>$T_i$</th>
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How to calculate YoGL? A practical example

**Life expectancy**
- UN World Population Prospects
  - Age and sex specific life tables.

**Being free from physical limitations**
- World Value Survey:
  - No tested health.
  - Imputations based on age, sex, country, subjective health status etc.
- SHARE, SAGE, WHO MCSS:
  - Tested health (ability to stand up from a chair and walking speed).

**Being out of poverty**
- World Value Survey:
  - Income brackets and savings behaviour.
- Verified by World Bank poverty rates.

**Being cognitively able**
- World Value Survey:
  - Interviewer assessment of participant's literacy (Yes/No)
  - Verified by tested literacy shares in national surveys.

**Life satisfaction**
- World Value Survey:
  - “All things considered, how satisfied are you with your life as a whole these days?” (1-10 scale)
YoGL at age 20, 2010-2015

- Female
- Male

Sweden
Netherlands
Germany
China
Chile
Spain
South Korea
Cyprus
Estonia
Uruguay
Ecuador
Thailand
Brazil
Colombia
Lebanon
Malaysia
Romania
Peru
Mexico
Turkey
Georgia
Armenia
Kazakhstan
Russia
Jordan
Iraq
Algeria
Ghana
South Africa
Pakistan
Haiti
Tunisia
India
Zimbabwe
Egypt
Morocco
Rwanda
Yemen

[Detailed chart showing comparisons between Sweden and other countries for females and males across various indicators such as YoGL, Health, Out of poverty, Cognition, Life satisfaction, Life expectancy.]
YoGL (solid) and life expectancy (transparent) at age 50 females, 2013

Education level: High, Medium, Low

YoGL (solid) and life expectancy (transparent) at age 50 males, 2013

Data sources: SHARE & Eurostat
Applying YoGL to the world's longest national demographic time series: Finland 1722-2100

I. Years of Life in Finland:
Life expectancy at birth 1751-2100

Estimated proportion of literate population (15+), 1740-1920

Source: Myllyntaus (1990)
II: Capable Longevity: Estimated share of population with basic cognitive ability, 1860-2015
IV. Years of Good Life (YoGL) vs. life expectancy 1860-2015
The big challenges ahead

• Estimate YoGL for time series 1970-2015 for all countries in the world and selected sub-populations.

• Estimate a “well-being production function” based on a set of capitals. Clear distinction between determinants and constituents (schooling a determinant, cognitive health a constituent).

• Operationalize Population-Development-Environment (PDE) Interactions including feed-backs on YoGL (mortality, obj. indicators, life satisfaction).
Thank you.

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