Human wellbeing in relation to climate, economy and environment

Sibel EKER  sibel.eker@ru.nl
Qi Liu, Claudia Reiter, Michael Kuhn
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Years of Good Life (YoGL)

Life Expectancy

- Being out of absolute poverty
- Having no severe activity limitation
- Being cognitively able to function
- Having positive life satisfaction

Source: Lutz et al. (2021) *PNAS*
Years of Good Life (YoGL)

- Applied to observed past and current conditions.

- How to combine with scenarios addressing future changes including feedback from environmental change?

Source: Lutz et al. (2021) PNAS
Years of Good Life (YoGL)
Years of Good Life (YoGL)

Prevalence of “good life” for each age group and gender = Population fraction with minimum primary education \times Population fraction out of poverty \times Ratio of healthy life expectancy to life expectancy \times Population fraction reporting life satisfaction

Life expectancy → Educational attainment

Poverty rate → Years of Good Life

Healthy life expectancy → Life satisfaction
Three baseline scenarios

- **Reference**: SSP2 narrative with endogenous population and GDP + climate impacts
- **Optimistic**: SSP1 narrative with endogenous population and GDP + climate impacts
- **Pessimistic**: SSP3 narrative with endogenous population and GDP + climate impacts
Three baseline scenarios
YoGL Projections

Female YoGL at age 20

Global Average YoGL

Reference | Optimistic | Pessimistic

Year

Time

2000 2020 2040 2060 2080 2100

2000 2020 2040 2060 2080 2100

10.5

8.6

~1

3.3
YoGL Projections

Female YoGL and its individual dimensions at age 20 with no climate damages

- YoGL
- Years out of poverty
- Years in good cognition
- Years in good health

Years: 2030, 2050, 2100

Optimistic, Pessimistic, Reference scenarios
(a) Female enrollment in primary and secondary education doubles by 2030
(b) Female labor force participation increases, reaching 94% in 2030 for women aged 25–54, and 67.5% for women aged 55–64
(c) Quality of secondary education increases, with “skilled” secondary education graduates increasing to 60%.
Female Empowerment

Female YoGL at age 20

2030

Baseline
Female empowerment
Baseline
Female empowerment
Baseline
Female empowerment

2050

2100

Optimistic
Pessimistic
Reference

Years

Years

Years

0 20 40 60 80
0 20 40 60 80
0 20 40 60
Female Empowerment

Global Average YoGL

- Baseline
- Female empowerment

Years

- 2030
- 2050
- 2100

Optimistic
Pessimistic
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Kuhn et al. (2023) Systems Analysis for Sustainable Wellbeing (eds. Lutz and Pachauri)
https://github.com/iiasa/Felix-Model/