LIFESPAN INEQUALITY AND THE FIRST DEMOGRAPHIC DIVIDEND
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1 Research Question

- What is the influence of lifespan inequality?
- How to measure the dividend?
- When does it start?
- How long does it last?
- When does support ratio peak?
- What is the maximum support ratio?

2 Lifespan Inequality

- Life table entropy $H$ vs. life expectancy at birth $e_0$ for all life tables provided by UN
  - negative relationship between $H$ and $e_0$
  - increase in life expectancy associated with decrease in lifespan inequality
  - 1950 to 2021: life expectancy increased and lifespan inequality decreased
  - cross–country differences in life expectancy and in inequality in life expectancy both decreased

3 Analysis

Mortality law of Siler

$$\mu(a) = \alpha e^{\beta a} + \gamma + \delta e^{-\varepsilon a}$$

Vary $\alpha$ and $\beta$ to
- modify lifespan inequality $H$
- keep life expectancy $e_0$ constant

Peak time of support ratio

$$t^* = \left( A_0 - A_{W,0} \right) \frac{\mu}{\sigma} + t_0 \sigma^2 - t_{W,0} \sigma^2_{W,0}$$

with $t_0 \approx A_0 \theta - \mu^2 \theta = \frac{t_3 - t_2}{t_3 - t_0}$

4 Results

Life table functions India

- Life table data
- Siler mortality, $H = 0.203$
- Siler mortality, $H = 0.168$
- Siler mortality, $H = 0.254$

Lifespan inequality decreases

- Peak support ratio later
- Advantageous age structure earlier
- Maximum support ratio increases

- Duration increases
- Total amount (working years) increases