Rountable comments for Iván and Diego

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October 28, 2020

Some comments

- you should structure the Abstract in the DR format (if you aim to submit there).
- "Let us consider $m_{x,\delta} = m_x + \delta$" (page 2). You defined m_x as fertility rates, and here you are talking about mortality changes. I think you meant $\mu_{x,\delta} = \mu_x + \delta$ (i.e. a change in the hazard of death), as you correctly write when you consider the proportional change in mortality (bottom page 3).
- "entropy measure $\bar{H}$ (Keyfitz 2005)" (page 5). Please consider adding some additional (older) references, such as (Leser 1955; Keyfitz 1968, 1977; Demetrius 1974, 1978). José Manuel was "criticized" for not having provided references to other authors. You can find the references in the DR paper of José.
- in the equation of MAL_a, second line (page 6), you forgot the dx in the integral of the denominator.
- Figure 2, panel A. The relationship seems to follow a log-linear pattern. Probably if you take the log of the GRR, you should get a straight line, which may be more understandable and visually pleasing.
- Figure 3. The relative errors in the approximation of CS are very low, which is great. However, do you have an explanation/guess at why there is systematic over/underestimation at ages 30 and 50? Your hypothesis could be mentioned when you comment the figure.

Derivations

There are two mathematical derivations that I couldn't reconcile with you (although I didn't have time to check all your equations):

- (bottom of page 2) in the derivative of $dCS^{\delta}_{(a)}/d\delta$, aren't you missing the exponential term ?

$$\frac{dCS^{\delta}_{(a)}}{d\delta} = \int_{\alpha}^{a} m_x l_{a-x}(x-a)e^{\delta(x-a)}dx\,.$$

- (bottom of page 3) you write $l^{\delta}_{a-x} = (l_{a-x})^{(1+\delta)}$. My derivation is different from yours:

$$\begin{aligned} l^{\delta}_{a-x} &= e^{-\int_0^{a-x}\mu_t(1+\delta)dt} \\ &= e^{(1+\delta)}e^{-\int_0^{a-x}\mu_t dt} \\ &= e^{(1+\delta)}l_{a-x}\,, \end{aligned}$$

  where $l_{a-x} = e^{-\int_0^{a-x}\mu_t dt}$.