Comments on the paper "Forecasting the old-age dependency ratio to determine a sustainable pension age"

The paper applies functional data models to mortality, fertility and net migration, and use the models to simulate future age-structure of the population. The paper then forecast old-age dependency ratio for Australia under various pension age schemes, and propose some pension age schemes with given targets. The application is interesting.

Comments:

1. Page 5, 2nd to last line. $G_t(B, 0)$ should refer to net migration rather than deaths?

2. Last line of Page 5 and first line of Page 6. What does the following sentence mean in its context: "The deaths are estimated using the standard life table approach of population projection."

3. Page 6, the numerator and denominator of equation (2) should be flipped?

4. Page 8, after equation (9), it is mentioned that "the HU method is applied to these two new variables." In the previous description of the HU method, smoothed version of $y_t(x)$ is modelled in the form of equation (6), whereas here the non-smoothed $\log[p_t(x)]$ and $\log[r_t(x)]$ are modelled in the form of equation (6). Please clarify.

5. Page 9. It is mentioned that "The future deaths and births in this equation are assumed to follow a Poisson distribution, with parameters as a function of future mortality and fertility rates." In the observed data, is the Poisson variation in the deaths and births modelled?

6. Page 14. In the second step of computing the pension age scheme P, what does "or $a_{T+1} - a_T = 1$" mean? Why is h not involved?