

Problem Set for Week 6

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See past problem sets for guidance on “stars.”

P.S. Feel free to team up for any of the problems, but especially the “starred” ones.

1. Write up your answers to the in-class questions in `tempo_simu.R`.
2. Calculate the age profile of fertility change predicted by the Bongaarts-Feeney model by taking time derivatives of the log schedules. You will end up with three terms. Describe each of these in words.
3. Use simulation based on `tempo_simu.R` to check your answer.
- * 4. Is there a diagnostic plot that you could do to compare observed age-specific changes to those predicted by the BF model? Hint: use normalized schedules that sum to 1.0
- * 5. Use this diagnostic plot to all-order fertility change during the Great Recession.
- * 6. Use this diagnostic plot to 1st, 2nd, and 3rd births.
- ** 7. Fit the two-part normal mixture model to fertility from another country based on what looks interesting in the Burkimsher paper. (E.g., Canada, Portugal, or the Netherlands). I recommend doing this for 1 year, but once you get your code running, you could iterate over years. Use graphs to discuss the goodness of fit. And if you do more than 1 year, discuss whether the time trends in the parameters make substantive sense.