1 Extensions

This concludes the preliminary results of this work. From here on, I discuss actionable extensions of the model which are of high priority to be completed.

1.1 Incorporating bequest motives

The model to this point completely explains the saving behavior of households through the precautionary saving motive present in this setting. The desire to leave bequests is thought to be an important reason for households to save, especially those at the top end of the wealth distribution. More generally, the following specification of additively separable wealth in the utility function[1] extends the model to accomodate these other reasons to accumulate assets:

$$u(c_t, a_t) = \frac{c_t^{1-\rho}}{1-\rho} + \kappa \frac{(a_t - \underline{a})^{1-\Sigma}}{1-\Sigma}.$$

Straub (2019) provides calibration values for κ and $\underline{a}$ and estimation for the elasticity parameters.[2] However, I will need to make decisions about which additional features of the model should be estimated. This will require more empirical moments of the data to be matched by the simulated moments.

1.2 Incorporating portfolio choice

Portfolio choice is also an important feature of the consumption-saving problem of households not currently present in the model. Denoting the gross return on the risky asset as $\mathcal{R}_{t+1}$ and the proportion of the porfolio invested in the risky asset as ς_t, the revised maximization problem is

$$\begin{aligned}
v(m_t) &= \max_{c_t, \varsigma_t} u(c_t, a_t) + \beta \not{D} \mathbb{E}_t[\psi_{t+1}^{1-\rho} v(m_{t+1})] \\
&\text{s.t.} \\
a_t &= m_t - c_t(m_t), \\
k_{t+1} &= \frac{a_t}{\not{D}\psi_{t+1}}, \\
\mathbb{R}_{t+1} &= \mathsf{R}_{t+1} = (\mathcal{R}_{t+1} - \mathsf{R}_{t+1})\varsigma_t \\
m_{t+1} &= (\mathbb{R} - \delta)k_{t+1} + \xi_{t+1}, \\
a_t &\geq 0.
\end{aligned}$$

[1] Alternative specifications, such as a non-separable utility function of consumption and wealth, may also be explored in this setting.

[2] The paper also discusses the implications of assuming $\Sigma = \rho$ versus $\Sigma < \rho$. Incorporating the latter is a more difficult implementation in the existing code, but it is a highly desirable version of the model in order to match the empirical evidence on the saving behavior of households.

where $\mathbb{R}$ denotes the overall return on the portfolio across periods.[3]

The revised structural estimation procedure will assume households earn the same rate of return on the safe asset R, and instead estimate ex-ante heterogeneity in the risky return. There are at least two issues that must be resolved in this version of the model. First, once portfolio choice is incorporated, households may have different levels of risk aversion which determines their optimal portfilio share. This suggests that a distribution of risk preferences should be estimated as well, which would require more empirical moments for correct identification. Second, and more importantly, I must be sure to retain the notion of heterogeneous returns *conditional on the risky portfolio share* measured by Fagereng, Guiso, Malacrino, and Pistaferri (2020). With a single asset, the analogy is clear since there is no risky asset. I'd like to preserve this definition of heterogeneous returns, since it is the main novelty of the empirical motivation for this model.

1.3 Multiple SCF waves for empirical moments

A final exercise is to rerun the exercise for wealth data other than the 2004 SCF wave. This will constitute a sort of robustness check regarding how plausibility of the estimated heterogeneity in the parameters of interest required to match the SCF data.

References

Fagereng, Andreas, Luigi Guiso, Davide Malacrino, and Luigi Pistaferri (2020): "Heterogeneity and Persistence in Returns to Wealth," *Econometrica*, 88(1), 115–170.

Straub, Ludwig (2019): "Consumption, Savings, and the Distribution of Permanent Income," Revise and resubmit at Econometrica.

[3]The perpetual youth setting is provided for simplicity. It is straightforward to allow for portfolio choice in the life cycle setting.