1 Introduction

The macroeconomics literature has expanded to allow for quantitative statements to be made about the relationship between inequality and the economy in recent recent years. One example of this is the finding that the distribution of wealth across households offers insight into how the economy as a whole responds to aggregate fiscal shocks.[1] Analysis of this sort has been accomplished in large part due to the widespread adoption of models that abandon the traditional representative agent assumption.

The first departure from the representative agent framework incorporates labor income risk. There is a precautionary savings motive in this setting. The availability of a riskless asset that partially insures against this income risk results in households choosing to hold different levels of market resources optimally. Krusell and Smith (1998)'s seminal work suggests that models assuming heterogeneity in individual income perform well in matching the aggregate capital stock but poorly in matching the distribution of wealth.

The next departure is to assuming heterogeneity among households beyond the ex-post realizations of the stochastic process for income. This will lead to more households to optimally hold lower levels of wealth. Carroll, Slacalek, Tokuoka, and White (2017) accomplish this by performing a structural estimation of *ex-ante* heterogeneity in time preferences which allows for the model's distribution of wealth to match the household wealth data much better.

Although the time preference factor (β) is a key parameter in determining a household's target level of market resources, it is not directly observable. The rate of return to, on the other hand, *is* directly observable and can be estimated. Recently, Fagereng, Guiso, Malacrino, and Pistaferri (2020) analyze 12 years of administrative tax records on capital income and wealth stock for all taxpayers in Norway from 2004-2015 to estimate these rates of return. This serves as motivation for the HA model of heterogeneous returns which I present in this paper.

References

Carroll, Christopher, Jiri Slacalek, Kiichi Tokuoka, and Matthew N. White (2017): "The distribution of wealth and the marginal propensity to consume," *Quantitative Economics*, 8(3), 977–1020.

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

[1]Parker, Schild, Erhard, and Johnson (2022) note that "In sum, while on average the [economic impact payments] EIPs appear to have gone to many households with incomes that were unharmed by the pandemic, some of the EIPs, mainly in the first round, did support short-term spending for some households, primarily those with low ex ante liquid wealth and those reliant on income that could not be earned by working from home."

Krusell, Per, and Anthony Smith (1998): "Income and Wealth Heterogeneity in the Macroeconomy," *Journal of Political Economy*, 106(5), 867–896.

Parker, Jonathan A, Jake Schild, Laura Erhard, and David Johnson (2022): "Economic Impact Payments and Household Spending During the Pandemic," Discussion paper, National Bureau of Economic Research.