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Increasing returns to savings and wealth inequality

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Abstract

In this paper I present an explanation to the fact that in the data wealth is substantially more concentrated than income. Starting from the observation that the composition of households' portfolios changes towards a larger share of high-yield assets as the level of net worth increases, I first use data on historical asset returns and portfolio composition by wealth level to construct an empirical return function. I then augment an Overlapping Generation version of the standard neoclassical growth model with idiosyncratic labor income risk and missing insurance markets to allow for returns on savings to be increasing in the level of accumulated assets. The quantitative properties of the model are examined and show that an empirically plausible difference between the return faced by poor and wealthy agents is able to generate a substantial increase in wealth inequality compared to the basic model, enough to match the Gini index and all but the top 1 percentile of the US distribution of wealth.

JEL classification: E21; D31; G11

Keywords: Wealth inequality; Self-insurance; Portfolio composition; Increasing returns

1. Introduction

Empirical studies like Hurst et al. (1998), Díaz-Giménez et al. (1997), Budría-Rodríguez et al. (2002) and Wolff (2000) have shown that earnings, income and wealth are very concentrated, with distributions that are skewed to the right. Of the three variables wealth is by far the most concentrated with a Gini coefficient of 0.78, while the same index for earnings and income is

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0.63 and 0.57.[1] The latter fact is a regularity that is observed over time and across countries as well and has drawn considerable attention in the quantitative macroeconomic literature.

The basic framework used to explain this fact is the one in Aiyagari (1994) and Huggett (1996) and is based on a stochastic version of the standard neoclassical growth model featuring heterogeneous labor earnings shocks, missing insurance markets and borrowing constraints. Both models are successful at reproducing qualitatively the empirical evidence. However they are incapable of matching the data quantitatively so that various features, like heterogeneous subjective discount factors, bequest motives and entrepreneurship have been used in later work to improve the performance of the basic model.

Both the basic model and the extensions that followed share one key assumption about the assets available to the agents to carry out their saving plans. This assumption is that there is a single asset in the economy. A consequence is that all agents, no matter what their income or wealth is, face the same return on their investments. This assumption is clearly at odds with reality since real world households may choose to hold assets as diverse in terms of return, risk and liquidity as for example housing and stocks or life insurance policies and checking accounts. To the extent that portfolio composition and returns vary systematically among households, these will have different incentives to save adding a further potential source of wealth inequality.

The goal of this research is to incorporate this basic feature of households' investment decisions in a stochastic, overlapping generation version of the neoclassical growth model and test whether the existence of increasing returns on savings is a quantitatively relevant source of wealth inequality. It turns out that it is: the empirically observed difference in the return faced by poor and wealthy households in the economy is sufficient to match the Gini index and the share of almost all percentiles of the US distribution of wealth. This suggests that so far an important piece of the explanation for the massive concentration of wealth of real economies has been overlooked.

The model assumes exogenously that returns to saving are increasing in the level of wealth without modeling explicitly household portfolio choice; however, this feature of investment opportunities has strong support in the data. Empirical research by Bertaut and Starr-McCluer (2000), Kennickell et al. (2000) and Samwick (2000) clearly shows that the composition of households' portfolios shifts towards larger fractions of high-yield assets, like stocks and business equity, as the household's net worth increases. In the paper I first use Survey of Consumer Finance data on households' balance sheets and data on returns of broad categories of assets from a variety of sources to give a precise characterization of the empirical relation between wealth and returns. This exercise reveals that while the poorest 60 percent of the population faces an average return on its wealth which is close to 1 percent, the top 1 percent invests its wealth at an average return between 4.5 and 6 percent. Then I interpolate the empirical schedule and use it in a standard model with uninsurable idiosyncratic earnings risk that mixes the life-cycle and dynastic framework. The properties of the resulting stationary distribution of wealth in the two cases of constant and increasing returns on savings are compared, revealing that when the estimated return function is used a substantial boost to wealth inequality follows, closing the gap between the quantitative prediction of a standard model with constant returns and the data.

Before moving to the remaining sections of the paper it is important to spend a few words about the interpretation of the positive relation between net worth and portfolio returns that is

[1] The values reported here are taken from Díaz-Giménez et al. (1997) and are based on the 1992 Survey of Consumer Finances.