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How important is discount rate heterogeneity for wealth inequality?

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Abstract

This paper investigates the role of discount rate heterogeneity for wealth inequality. The key idea is to infer the distribution of preference parameters from the observed age profile of wealth inequality. The contribution of preference heterogeneity to wealth inequality can then be measured using a quantitative life-cycle model.

I find that discount rate heterogeneity increases the Gini coefficient of wealth by around 0.07 to levels that are close to the data. The share of wealth held by the richest 1% of households rises by around 0.04, but falls short of the data by more than 10 percentage points. Discount rate heterogeneity also helps to account for the large wealth inequality observed among households with similar lifetime earnings.

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1. Introduction

A large literature studies wealth inequality in the context of quantitative life-cycle models. These studies highlight the importance of earnings shocks, bequests, and entrepreneurship.¹

A more recent branch of this literature suggests that preference heterogeneity may be an important source of wealth inequality. This is motivated by the finding that observationally similar households hold very different amounts of wealth.² For example, [Venti and Wise \(2000\)](#) study wealth inequality at the outset of retirement among households with similar lifetime earnings and conclude ‘that the bulk of the dispersion must be attributed to differences in the amount that households choose to save’ (p. 1).

Household survey data support the notion of preference heterogeneity. Empirical estimates of consumption Euler equations indicate heterogeneity in time preferences ([Lawrance, 1991](#)) and in risk aversion coefficients or intertemporal substitution elasticities ([Vissing-Jørgensen, 2002](#); [Attanasio and Browning, 1995](#)). Substantial heterogeneity is also found in survey data that are designed to reveal households’ preference parameters ([Barsky et al., 1997](#); [Charles and Hurst, 2003](#)).

The potential importance of preference heterogeneity for wealth inequality is highlighted by [Krusell and Smith \(1998\)](#). In their model, a ‘small’ amount of discount rate heterogeneity leads to large increases in wealth inequality (the Gini coefficient increases by 0.57).

The objective of this paper is to measure the importance of preference heterogeneity for wealth inequality.

1.1. The approach

The main difficulty in addressing this issue is how preference parameters can be inferred from data on consumption and saving behavior. The key idea of the paper is to exploit that preference heterogeneity affects how wealth inequality changes with age.

To illustrate the intuition underlying this approach, consider a life-cycle model in which the permanent income hypothesis holds and agents are identical except for their discount factors. Patient households choose steeper age-consumption profiles and accumulate more retirement wealth than do impatient households. As a result, wealth inequality, at least among the old, increases with the dispersion of discount rates in a way that can be exploited to infer the distribution of preference parameters.

Based on this idea, I measure the importance of preference heterogeneity for wealth inequality as follows. Section 2 develops a quantitative life-cycle model of the kind that has been used previously to study the wealth distribution. The model is

¹Examples include [Huggett \(1996\)](#), [Laitner \(2002\)](#), [Castañeda et al. \(2003\)](#), and [De Nardi \(2004\)](#).

²See [Hurst et al. \(1998\)](#), [Venti and Wise \(2000\)](#), [Charles and Hurst \(2003\)](#), [Knowles and Postlewaite \(2005\)](#).

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