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# What drives equity market non-participation?☆

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### ABSTRACT

This paper produces endogenous equity market non-participation in an economy with uninsurable labor income risk and heterogeneous skill levels. Prudence and impatience generate stationary household wealth levels that depend on income. Skill, and therefore labor income, heterogeneity leads to wealth heterogeneity, with high skill households accumulating high wealth and low skill households accumulating low wealth. A HARA class utility with subsistence consumption requirement generates decreasing RRA with respect to household wealth. Consequently, low skill households also have significantly higher local RRA. In addition low skill households have less human capital and therefore have lower diversification demand for stocks. Low wealth, high RRA and low diversification demand predicts that low skill households do not hold stocks in the face of a moderate ownership cost. In addition, the model predicts a humped lifecycle wealth accumulation pattern and a humped lifecycle stock allocation pattern. I also find that stockholders exhibit a greater aggregate willingness to supply risky capital during the expansion phase of a business cycle, despite the lower conditional equity premium.

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## 1. Introduction

Using the 1984 Panel Study of Income Dynamics (PSID) data, [Mankiw and Zeldes \(1991\)](#) find that only 23.2% of U.S. households hold more than \$1000 in stocks directly. [Blume and Zeldes \(1994\)](#) and [Haliassos and Bertaut \(1995\)](#) find similar patterns of equity market non-participation using the Survey of Consumer Finance (SCF) data. Using the U.S. Consumer Expenditure Survey (CEX) database, [Brav, Constantinides, and Geczy \(2002\)](#) and [Vissing-Jorgensen \(2002b\)](#) find that less than 30% of the U.S. households hold stock in material dollar amounts. [Attanasio, Banks, and Tanner \(2002\)](#) report the similar pattern of non-participation using the U.K. Family Expenditure Survey. Even during the heydays of Internet stock trading, [Bertaut and Starr-McCluer \(2000\)](#) find that less than 50% of households own stocks.

The high equity market non-participation rate documented is puzzling given the attractive premiums offered by stocks. Insights into this question would help us understand the equity premium puzzle. Recent papers have found that equity market non-participation helps explain the smoothness in aggregate consumption growth (empirical: [Attanasio et al. \(2002\)](#), [Brav et al. \(2002\)](#), and [Vissing-Jorgensen \(2002a, 2002b\)](#); theoretical: [Basak and Cuoco \(1998\)](#), [Constantinides, Donaldson, and Mehra \(2002\)](#) and [Storesletten, Telmer, and Yaron \(2007\)](#)). It is then doubly important to understand the nature of non-participation and the asset-pricing implications associated with a high equity market non-participation rate. Is the perceived cost associated with equity investment the main driver of non-participation? If so, what are the impacts on asset prices from the recent decreases in trading costs and increases in investor financial savvy-ness? Or perhaps, households simply are heterogeneous in their preferences, and non-participating households are just more risk averse than the stockholding households. In this case, the measure of risk aversion implied by aggregate data might overstate the risk aversion that is appropriate for studying the equity market.

Standard portfolio choice models have had tremendous difficulties delivering a high rate of equity market non-participation in the population. This has led the current literature to focus on exploring high fixed-cost of stock ownership and departures from the standard expected utility framework (see [Haliassos and Bertaut \(1995\)](#) for an excellent discussion on this). [Hong, Kubik, and Stein \(2004\)](#) believe that information cost, which is high for households not endowed with social networks, which facilitate the acquisition of financial knowledge, is responsible for non-participation. [Ang, Bekaert, and Liu \(2005\)](#), appealing to an alternative utility function specification, suggest that disappointment aversion, which can be high for some households, account for non-participation. [Cao, Wang, and Zhang \(2005\)](#), using a Knightian uncertainty approach, argue that some households are extremely uncertain about the right model for understanding equity returns and therefore use worst case scenarios to analyze investments; this leads to non-participation.

The more recent literature on portfolio choice finds that incorporating labor income deepens the non-participation puzzle!<sup>1</sup> Households endowed with (risky) labor income demand greater stock allocations in their portfolios than households without labor income to diversify their human capital. Labor income, therefore, makes the high rate of equity market non-participation all the more puzzling. Models, based on alternative preferences or non-expected utility paradigms, have not addressed this issue.

In this paper, I propose a model which delivers a high rate of equity market non-participation in the economy, without appealing to large market frictions, alternative preferences or non-expected utility framework. I also refrain from assuming preference heterogeneity (which is needed in [Ang et al. \(2005\)](#) to deliver non-participation) or cognitive heterogeneity (which is needed in [Cao et al. \(2005\)](#) to deliver non-participation). In my model, a high degree of wealth heterogeneity, which arises endogenously, coupled with moderate fixed-cost, leads to severe non-participation. Heterogeneity in household wealth is not addressed or linked to portfolio choice in the aforementioned theory papers

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<sup>1</sup> In a theoretical exercise of portfolio allocation with risky labor income, [Heaton and Lucas \(1997\)](#) predict that households endowed with (risky) labor income would demand leveraged stock portfolios and there would be full equity market participation even with fairly high transaction costs associated with owning stocks; these theoretical predictions are clearly at odds with reported micro data on personal finances. For a perspective on how the portfolio allocation puzzle is related to the equity premium puzzle, see [Heaton and Lucas \(1996\)](#).

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