Search for financial returns and social security privatization ☆

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A B S T R A C T

I develop a general equilibrium model in which the quality of household financial decisions is endogenously determined by the incentives to exert effort in learning about financial opportunities. The model generates predictions for asset market participation and returns across households. Moreover, search for financial returns enables the model to generate a more skewed equilibrium wealth distribution. In this context, social security privatization affects household search effort, asset market participation and the competitiveness of the asset market. Privatization reduces average welfare and this reduction is somewhat magnified by the search friction. While some have suggested that household decision making could be important for the consequences of privatization, my analysis does not bear this out.

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1. Introduction

Standard models of household consumption and savings assume that all households earn the marginal product of capital on their savings. This assumption is at odds with the evidence on the actual financial arrangements of households, which shows that a substantial number of households seem to have difficulty choosing a portfolio. Evidence of these difficulties takes several forms. For example, households may not allocate any savings to equities or they may hold under-diversified portfolios (Haliassos and Bertaut, 1995; Calvet et al., 2007). Surveys of financial literacy have also found that many households do not understand some fundamental financial concepts such as the difference between bonds and stocks (van Rooij et al., 2007). Other studies have found that those households that spend more effort planning for retirement reach retirement age with more wealth (Ameriks et al., 2003; Lusardi and Mitchell, 2007). In addition, researchers have found that experimental subjects have difficulty making sound financial decisions even when there is a clear normative ranking of the available choices (Choi et al., 2010). Many of these studies find that households with higher levels of income, wealth and education have more success in making sound financial decisions.

One way of understanding this empirical evidence is to view managing a portfolio as an activity that requires effort, with the incentive to devote effort varying across households. For example, households with high levels of wealth have more to gain in absolute terms from improving the return on their portfolios. Alternatively, highly educated households may be better able to assess the various risks and trade-offs that arise in choosing a portfolio. In this paper, I develop a general equilibrium model of household saving behavior in which households must exert effort to learn about the available investment opportunities by searching for high returns. In the model, a household can raise the expected return on its

portfolio by devoting more effort to search. The benefit of search exists because there is dispersion in the rates of return offered by financial intermediaries. When households are imperfectly informed, intermediaries can still attract savings even if they are not offering the highest return, but intermediaries that offer higher returns will attract more savings. Therefore, intermediaries face a trade-off between the number of savers they will attract and their profit margin. In the model, these competing forces balance in such a way that intermediaries choose to offer a range of returns, which gives rise to an endogenous distribution of offered returns that depends on the search and saving behavior of households.

The search friction is meant to capture a relationship between the effort households exert managing their finances and the return earned on their savings. Search frictions are a convenient way of modeling these relationships, but in reality there are more forces at work. For instance, some households have an imperfect understanding of the terms of the financial contracts or the principles of portfolio management. The point of view I take here is that households could learn these things if they devoted more effort.

There is a long tradition of literature that considers the role of information acquisition in financial markets. This information acquisition is often formulated in terms of learning about the payoff of an asset at some cost.[1] In these models, trade takes place in centralized markets at known prices. Van Nieuwerburgh and Veldkamp (2010) use a model in this style to rationalize under-diversified portfolios.[2] Another line of literature considers the acquisition of information about prices and trading opportunities in asset markets affected by search frictions (Duffie et al., 2005; Lagos and Rocheteau, 2009). This literature considers trading environments that resemble over-the-counter markets in which investors and dealers negotiate over prices. In this paper, I consider costly information acquisition in the context of a life-cycle savings model and explore the impact of the social security system on the incentives for households to expend effort in acquiring information in financial markets. The model presented here also features search friction, but prices are posted rather than negotiated, an assumption which seems more appropriate for retail financial markets.

The model is based on a heterogeneous-agent life-cycle savings model in the style of Bewley (undated), Huggett (1993) and Aiyagari (1994). It is natural to model household financial decisions within this framework because financial choices are non-linear functions of household assets, which means the distribution of financial outcomes will depend on the distribution of wealth. I modify the Bewley–Huggett–Aiyagari framework to include a search friction in the asset market. In the model, intermediaries post rates of return on risk-free assets and households choose how much time to spend searching among the offers for a high rate of return. To generate dispersion in returns, I use insights developed in the literature on search and equilibrium price dispersion, in particular from the work of Butters (1977) and Burdett and Judd (1983).[3] The other side of the asset market, in which intermediaries interact with production firms, is frictionless and does not play a major role in the analysis.

The model generates predictions for three aspects of household saving behavior that are absent from the standard model with a frictionless asset market: the amount of time that households spend managing their finances, asset market participation rates, and the distribution of returns. I compare the model's predictions to the available data and the model performs well on many of these dimensions.

The search friction also has implications for the distribution of wealth. Bewley–Huggett–Aiyagari models traditionally have had difficulty explaining the extreme skewness of the distribution of wealth. Cagetti and De Nardi (2006), Campanale (2007) and Benhabib et al. (2011) have shown that heterogeneity in household savings technologies can generate a more realistic distribution of wealth. While preceding work has relied on exogenous variation in the rates of return that households earn on their savings, the model presented here offers an endogenous mechanism that produces heterogeneity in returns. The mechanism at work was first pointed out by Arrow (1987) and further developed by Peress (2004): when households can pay to acquire information that will raise returns, wealthy households will acquire more information and earn higher returns, which leads to a more concentrated distribution of wealth. Indeed, the model predicts that wealthy and high-income households will be more likely to participate in the asset market and earn higher returns conditional on participation. This prediction is the result of a scale effect: as a household accumulates wealth, its incentive to search increases and it will earn higher returns on average. I am able to quantitatively explore the role of Arrow's mechanism in shaping the distribution of wealth. I find that the search friction does produce additional skewness in the distribution of wealth, raising the share of wealth held by the top quintile by 4.5 percentage points. I compare these predictions to those of a model with a fixed cost of asset market participation. That model does not generate as much wealth inequality because there is not heterogeneity in returns among those who participate in the market.

In an application of the model, I analyze the consequences of social security privatization in an environment in which households have difficulty allocating savings to the best investment opportunities. Many proposals for social security reform give individual households a larger role in managing their social security savings, but the empirical household finance literature raises questions about how well-prepared households are to take on this increased responsibility. To my knowledge,

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[1] The foundations of this literature were laid by Grossman and Stiglitz (1980), Verrecchia (1982), and Admati (1985).

[2] Arrow (1987) and Peress (2004), discussed further below, consider implications for the distribution of wealth.

[3] Drozd and Nosal (2008) also embed a Burdett and Judd setting within a model of household saving behavior to study the market for unsecured borrowing. In their model, banks target offers to specific types of households and the number of offers that a household receives depends on how intensely banks are targeting those households and not on the household's search effort. Carlin and Manso (2011) develop a search theoretic model of the market for mutual funds in which expert consumers are perfectly informed and non-expert consumers choose at random. Their focus is on the incentives of the mutual fund industry to obfuscate the choice set and not on household saving behavior.