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Entry costs and stock market participation over the life cycle

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Abstract

Several explanations for the observed limited stock market participation have been offered in the literature. One of the most promising is the presence of market frictions mostly in the form of fixed entry and/or transaction costs. Empirical studies point to a significant structural (state) dependence in the stock market entry decision, which is consistent with costs of this type. However, the magnitude of these costs is not yet known. This paper focuses on fixed stock market entry costs. I set up a structural estimation procedure which involves solving and simulating a life cycle intertemporal portfolio choice model augmented with a fixed stock market entry cost. Important features of household portfolio data (from the PSID) are matched to their simulated counterparts. Utilizing a Simulated Minimum Distance estimator, I estimate the coefficient of relative risk aversion, the discount factor and the stock market entry cost. Given the equity premium and the calibrated income process, I estimate a one-time entry cost of approximately two percent of the permanent component of the annual labor income. My estimated model matches the zero median holding as well as the hump-shaped age–participation profile observed in the data.
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1. Introduction

Recent empirical evidence suggests that, in any developed country, about fifty percent of households do not hold equities directly or indirectly (through mutual funds, retirement ac-

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counts, etc.).[1] Furthermore, the median age of entry into the stock market is quite high (around forty-five). Although we began to see a substantial increase in stock market participation and much more sophisticated household portfolio structures over the 1990s, the observed aversion to stockholding and differences in participation patterns across households even after controlling for age, income, wealth and education still pose a great challenge to the life cycle model.[2] This paper asks whether a life-cycle portfolio choice model with a one-time fixed entry cost can match the empirically observed facts regarding stock market participation.

Most studies in the literature present evidence of the presence of an entry cost without inferring its magnitude (Vissing-Jorgensen, 2002 and Guiso et al., 2003). A few use simulation techniques to illustrate the potential size of the entry cost necessary to generate complete non-participation for different preference parameters (Bertaut and Haliassos, 1997; Polkovnichenko, 2001 and Haliassos and Michaelides, 2003). Gomes and Michaelides (2005) show that a realistically calibrated life-cycle model and a small fixed entry cost to stock market can generate observed participation rates using Epstein–Zin preferences and allowing for heterogeneity in risk aversion. None of these studies attempts to estimate entry cost within a complete structural estimation framework. This paper takes an important step forward in identifying fixed stock market entry costs by estimating a fairly rich version of the standard life-cycle portfolio choice model. The key contribution of the paper is to actually estimate the structural parameters (the coefficient of relative risk aversion and the discount factor) of a dynamic model and offer an estimate of a fixed cost that can rationalize stock market participation patterns.[3]

Costs that deter entry into the stock market may take several forms. Vissing-Jorgensen (2002) categorizes participation costs as fixed entry costs, fixed and variable transaction costs and per period trading costs. She points to strong structural (state) dependence in participation and stock holding decisions as evidence of fixed entry and transaction costs, but does not estimate those costs.[4] Structural dependence in participation manifests itself by making participation in a given period more likely if the household participated in the previous period. Using panel data on household indirect stockholding she finds that lagged participation is a very significant determinant of current participation. Another related study by Guiso et al. (2003) presents cross-country evidence on the presence of participation costs. On the basis of detailed descriptive work, they conclude that the cross-country differences in participation rates can be better explained by different institutional and informational barriers to entry across countries than by differences in stock returns.

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[1] Sweden has the highest indirect stock holding (54% in 1999) followed by the US (48% in 1998). See Guiso et al. (2003). According to the most recent SCF (2001), the indirect stock market participation in the US has gone up to 51% (see Ameriks and Zeldes, 2004).

[2] For instance in 1998 only 19% of the American households were holding equity directly in publicly traded corporations. This number is the highest (27%) for the UK among all developed nations. See Bertaut (1998) and Guiso et al. (2003).

[3] To my knowledge, Faria (2000) is the only study that estimates a fixed entry cost. However, he uses an infinite life general equilibrium model with no equity or labor income risk. His results are extremely sensitive to the equity premium assumed.

[4] She does estimate per period trading costs. Participation costs that do not create structural state dependence (such as per period trading costs) can be inferred within a reduced form setting. Costs, on the other hand, that create correlation of participation or stock holding decisions across periods (entry costs, fixed and variable transaction costs) can only be identified with structural estimation. Vissing-Jorgensen (2002) concludes that a per period transaction cost of as low as $50 can explain the choices of half of non-participants. Paiella (2001) estimates per period cost bounds in terms of forgone utility gains and finds that at least $31 is needed to generate the observed participation pattern for a consumer with log utility.