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On the evolution of the US consumer wealth distribution ☆

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ABSTRACT

We use all available waves of the Survey of Consumer Finances to document the evolution of the wealth distribution in the US since the 1980s. Relying on the shape of this distribution we then estimate a life-cycle incomplete markets model. We find that considering a wide range of net worth percentiles for prime-age consumers between ages 26 and 55 delivers very precise estimates of the structural parameters, impatience and risk aversion. The estimated model captures how average net worth increases with age while the dispersion of net worth falls with age. The model also predicts some of the evolution of the net worth distribution since the 1980s. Feeding the observed higher labor income risk into the model increases precautionary savings while the higher experience premium of labor earnings reduces wealth accumulation. Quantitatively, these two forces imply that the model reproduces the stable average net worth for young consumers since the 1980s and the increasing dispersion of net worth for all prime-age consumers, while the model does not predict the observed increase of average net worth for older consumers between ages 46 and 55.

1. Introduction

Net worth in the US is quite unequally distributed across consumers where the distribution of wealth below the top quintile has remained quite stable in the last 20 years (details are provided in the next section). Since many academic and political debates revolve around inequality, it is important to understand what economic models are useful to explain the level of wealth inequality and its evolution over time.

The standard model in the recent consumption literature that makes predictions about wealth inequality is the life-cycle incomplete markets model. In that model incomplete markets imply an endogenous distribution of wealth across consumers with different ages and histories of uninsurable labor income shocks (see, for example, Aiyagari, 1994; Carroll, 1997; Deaton, 1991, or Kaplan and Violante, 2010; Yang, 2009, for more recent applications).

We apply the model to study the net worth distribution in the time period 1983–2007 for which comparable disaggregate data on consumer wealth are available in the Survey of Consumer Finances (SCF) for the US. The focus is on the net worth distribution up to the 90th percentile due to the well-known problem of matching the wealth concentration in the top

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percentiles. We first estimate the model by matching the empirical net worth distribution (up to the 90th percentile) in 1983 with the simulated method of moments. The model implies plausible estimates of risk aversion and the discount factor. It reproduces how average net worth increases with age while the dispersion of net worth falls with age.

We then use the estimated model to predict the evolution of US consumer wealth between 1983 and 2004 where we choose the SCF 2004 for the comparison with the SCF 1983 since we are interested in long-term changes and both surveys have been undertaken at similar points in the business cycle. We feed observed changes in labor income risk, the experience premium of labor earnings and other life-cycle characteristics into the model to predict the consumer wealth distribution in 2004.

The estimated model predicts some of the observed evolution of the net worth distribution since the 1980s. The observed higher labor income risk in 2004 increases precautionary savings while the higher experience premium of labor earnings reduces wealth accumulation. Quantitatively, these two forces imply that the model reproduces the stable average net worth for young consumers since the 1980s. The model also predicts the increasing dispersion of net worth for all prime-age consumers but it does not match the increase of average net worth for older consumers between ages 46 and 55, observed possibly due to measurement problems for pension wealth in the SCF as we explain in Section 2.

Many other papers have investigated empirical predictions of the life-cycle incomplete markets model (see, for example, Gourinchas and Parker, 2002; Cagetti, 2003; Castañeda et al., 2003; Kaplan and Violante, 2010; Yang, 2009, and the references therein). Gourinchas and Parker (2002) match life-cycle consumption profiles and Cagetti (2003) matches median-wealth profiles to estimate impatience and risk aversion. In this paper instead, we rely on the shape of the cross-sectional wealth *distributions for different age groups* as the basis for our analysis and the estimation. This results in much more precise estimates for the preference parameters than in Cagetti (2003).

Most related to our analysis of wealth distributions is the quantitative analysis of US wealth inequality by Castañeda et al. (2003) who calibrate an incomplete markets model to match the earnings and wealth inequality observed in the SCF 1992. They add additional twists to the basic incomplete markets model, mixing features of a dynastic and life-cycle economy, to match the concentration of wealth at the *top* percentiles of the distribution. To achieve this quantitatively, one necessary assumption is that there exists a state with very large labor earnings which is attained with small probability: in Castañeda et al. (2003), Table 5, hourly wages in the best state are assumed to be 1000 times larger than in the worst state and about 100 times larger than in the second-best state. In this paper, we follow an alternative research strategy by abstracting from the very wealth-rich consumers so that we do not need this assumption for the earnings process. Our research strategy is sensible if general equilibrium feedbacks on the interest rate from the consumers excluded in the analysis (but exposed to the same changes in the economic environment) are negligible quantitatively. We consider this to be a reasonable working hypothesis given that capital markets have been very integrated globally in the time period which we consider.

We show that if we abstract from the top percentiles of the wealth distribution, the standard life-cycle incomplete markets model is quantitatively successful in matching the cross-sectional net worth distributions up to the 90th percentile for age groups between ages 26 and 55 and the evolution over time for young consumers between ages 26 and 45. To the best of our knowledge, we are among the first to investigate the out-of-sample predictions of the model for the *evolution* of the net worth distribution since the 1980s. Related in this respect is Favilukis (2008) who argues that an increase in income risk and a fall in the stock-market participation cost have an opposite effect on wealth inequality, implying a moderate increase of wealth inequality as observed in the data.

The rest of the paper is structured as follows. In Section 2 we discuss empirical facts for the distribution of US consumer net worth and its determinants. We present the model and discuss its numerical solution in Section 3. In Section 4 we estimate the model and analyze its predictions in Section 5 for the evolution of US consumer net worth between 1983 and 2004. We conclude in Section 6.

2. Empirical facts

In this section we present the empirical facts which we use for our subsequent analysis. These facts are based on the Survey of Consumer Finances (SCF). The SCF has been widely used as it provides the most accurate information on consumer finances in the US. The data collectors of the Federal Reserve System pay special attention in their sampling procedures to capture the right-skewed wealth distribution (see Kennickell, 2003, and the references therein). The data thus allow us to compute precise statistics for consumer net worth.

The SCF is a triennial survey and comparable data exist for the period from 1983 to 2007. As is common practice, we do not use the 1986 survey since it was only a limited reinterview survey with respondents to the 1983 SCF. This leaves us with eight repeated cross-sectional surveys in 1983, 1989, 1992, 1995, 1998, 2001, 2004 and 2007. Using these surveys, we first document stylized facts about the evolution of the net worth distribution. We then document the changes of the experience premium and the dispersion of net labor earnings in the sample period, which are important determinants of the net worth distribution in the standard life-cycle incomplete markets model presented in the next section.

We largely follow Budría Rodríguez et al. (2002) and Díaz-Giménez et al. (1997) in constructing measures for net worth and labor earnings in the US. We provide further information on our sample and how we construct the variables in Appendix A. We account for differences in household size using the equivalence scale reported in Fernández-Villaverde and Krueger (2007), Table 1, last column, with a weight of 1 for the first person in the household, 0.34 for the second person and approximately 0.3 for each additional member of the household. We normalize all variables by average net