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Social security and unsecured debt ☆

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Abstract

In this paper, we use a calibrated life-cycle model to explore quantitatively ways of reducing the burden of social security in a world populated by both optimizing and rule-of-thumb consumers. Social security contributions force young households with upward-sloping income profiles to save a sizeable portion of their income for retirement, when their optimal consumption plan would likely have them either saving little or borrowing. We first use household data to document that young households have accumulated social security contributions that are large relative to debt holdings. Then, using a calibrated life-cycle model, we show that both allowing households to use social security wealth to pay off their debt and exempting young households from social security contributions (but in both cases requiring higher contributions later) mitigate many of the inefficiencies of social security from the perspective of life-cycle financial planning. Specifically, in our preferred experiment, which exempts households whose heads are under 30 from making social security contributions, we find that certainty-equivalent consumption increases by 3.4% for optimizing households and by 3.3% for rule-of-thumb households.

Keywords: Social security; Life-cycle models; Portfolio choice

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1. Introduction

Many households, particularly the young, hold large amounts of unsecured debt on which they pay a high interest rate.[2] At the same time, many of these households have made substantial contributions into the social security system on which they earn a low return, thus imposing a potentially suboptimal financial planning regime. In this paper, we use a calibrated life-cycle model to explore quantitatively ways of reducing the burden of social security on such households. We show that both allowing households to use social security wealth to pay off their debt and exempting young households from making social security contributions (but in both cases requiring higher contributions later so as not to affect the present value of total lifetime contributions) can mitigate many of the inefficiencies of social security from the perspective of life-cycle financial planning.

We begin the paper by comparing empirically the distribution across individuals of non-collateralized debt and accumulated social security contributions. In our sample of households under the age of 40, 62% have unsecured debt. We show that if households could access their accumulated social security contributions to pay off debt, only 17% would continue to hold debt. And for that 17%, total debt would be dramatically reduced: for the 90th-percentile household in the debt distribution, unsecured debt would fall from 84% to 33% of that household's average income. We conclude that there is a large potential margin to reduce household debt that could be achieved if young households were allowed access to their past social security contributions.

In Section 3, we construct a dynamic life-cycle portfolio choice model with an embedded social security program. We follow Campbell and Mankiw (1989) and others in assuming that the world is populated by two types of households: optimizing households that use financial assets to maximize utility and "rule-of-thumb" households that simply set consumption equal to income. Among other things, rule-of-thumb households provide a justification for the existence of social security. Specifically, social security prevents destitution for rule-of-thumb households once they enter retirement and have no income and no savings. For the optimizing households, we adapt the model developed by Davis et al. (2006). In that model, households can invest in stocks and bonds and can also take out unsecured loans. We specify that the interest rate on unsecured debt (that is, the borrowing rate) exceeds the interest rate on bonds (that is, the lending rate). Such an assumption is consistent with the empirical pattern of observed borrowing and lending rates.[3] The parameterization of this model roughly matches the life-cycle borrowing behavior documented in Section 2.

In Section 4, we analyze the effects of two policy experiments aimed at alleviating the inefficiency to young households that has them simultaneously making large social security contributions and holding unsecured debt on which they pay a high interest rate. In our first experiment, we allow households currently in the social security system to access their accumulated social security contributions to pay off debt. In our second experiment, we build on an idea of Hubbard and Judd (1987) and exempt young households from social security contributions. Under both proposals, households would contribute more to social security (via higher taxes) later in their working lives to compensate for their reduced contributions while young. Such an assumption ensures unchanged social security benefits upon retirement. Both of the above proposals lead to increases in saving, reductions in debt, and increases in certainty-

[2] In general, throughout this paper, the age of a household is defined by the age of the household head. By young here, we mean, households with a head whose age is less than 40.

[3] See Davis et al., 2006.