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Quasi-hyperbolic discounting and retirement

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Abstract

Some people have self-control problems regularly. This paper adds endogenous retirement to Laibson's quasi-hyperbolic discounting savings model [Quarterly Journal of Economics 112 (1997) 443–477]. Earlier selves think that the deciding self tends to retire too early and may save less to induce later retirement. Still earlier selves may think the pre-retirement self does this too much, saving more to induce early retirement. The consumption pattern may be different from that with exponential discounting. Other observational non-equivalence includes the impact of changing mandatory retirement rules or work incentives on savings and a possibly negative marginal propensity to consume out of increased future earnings. Naive agents are briefly considered.

Keywords: Laibson's model; Retirement; Quasi-hyperbolic discounting

1. Introduction

If you are one of the vast majority of people who think they are saving too little of their income.[1] The natural conclusion is that you have self-control problems. If, in addition, you argued to yourself that saving more today would only lead to spending more tomorrow, and thus there is no point in saving for retirement, at

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[1]Bernheim (1994) reports that people 'admits to' saving much less for retirement than they should. We don't know, though, how prevalent this is among academics.

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least there is a small consolation: you are a *sophisticated* decision-maker with self-control problems. And self-control problems can extend beyond savings decisions. A thirty-something Italian, one of us met in Prague, had decided that it wasn't worth looking for a job anymore, because even if he got himself to do it and found one, he would quit shortly thereafter, anyway.

It is exactly these kinds of agents our paper is concerned with: people who have self-control problems but realize this and behave according to it. A very clean way to model such actors is through the introduction of quasi-hyperbolic discounting.[2] This form of discounting sets up a conflict between the preferences of different intertemporal selves. With assumptions of no commitment and that the agent takes into account her self-control problem, savings decisions can then be modeled as an equilibrium in a sequential game played by the different selves. This modeling paradigm avoids the common connection made between preference changes and cognitive failures,[3] and is therefore closer to standard economic analysis. The agent in the model understands perfectly the consequences of her actions, and acts optimally within the constraints imposed by her discount function, which the psychological evidence seems to support at least some of the time,[4] and the absence of easily available commitment.

Laibson (1997a) analyzed actors of the above kind in detail. His key result is that sophisticated actors with a quasi-hyperbolic discount structure undersave; that is, all intertemporal selves could be made better off if all of them saved a little bit more. Since each self consumes too much from earlier selves' point of view, each of them would agree to increase savings a little bit in exchange for later selves doing the same.

We adapt Laibson's basic setup for the analysis of the effect of endogenous retirement decisions on savings behavior. The addition is simply that in each of the models there is a single period (period 0) in which the agent can choose whether to work or retire. Working costs the agent some utility, but she is compensated for it with extra wealth. We assume that commitment is not possible: agents cannot precommit to a decision concerning retirement, nor to any consumption level. The paper characterizes the savings and retirement outcomes with these preferences as a function of lifetime income and of the additional earnings if retirement is delayed.

There are three types of individual outcomes. Saving and early retirement could be the same as in the situation where work in period 0 were not an option. Similarly, saving and delayed retirement could be the same as in the situation

[2]Quasi-hyperbolic instead of psychologically more accurate hyperbolic discounting is used only for computational tractability.

[3]For example, Mischel and Staub (1965) find that subjects fail to understand the contingencies involved in a decision about delay of gratification. See Ainslie and Haslam (1992) for further references.

[4]For example, Ainslie (1992).