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Pension contributions as a commitment device: Evidence of sophistication among time-inconsistent households

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Abstract

Sophisticated agents who are aware of their self-control problems value commitment devices that constrain future choices. Using Australian household data I test whether these households value commitment devices in the form of illiquid pension contributions. Estimating probabilistic choice models, the results confirm the conjecture that households with problems of self-control are more likely to invest in illiquid pensions while less likely to hold very liquid forms of assets.

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1. Introduction

Economic agents with self-control problems should value commitment devices that constrain future choices. To overcome a weakness for chocolate or cigarettes, individuals may throw away the packets. Similarly, buying long-term memberships to fitness clubs

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helps commitment when the spirit is willing but the flesh is weak. More pertinent to economics is the use of savings products such as illiquid pensions and Christmas accounts to hinder over consumption. These commitment devices help individuals who recognize that they would like follow a particular path, such as saving more, but lack the will-power to do so. While there is much anecdotal evidence, empirical evidence on the relationship between the propensity to use commitment devices and self-control is scarce. Using theory and evidence drawn from the literature in psychology and behavioural economics to motivate the analysis, this paper presents empirical evidence to support the contention that households with problems of self-control value commitment devices in the form of illiquid pensions.

Experimental psychology research has shown that individuals behave impulsively and in a time-inconsistent manner and that individuals' discount functions are characterized by a hyperbolic function. This time-inconsistency is the basis for self-control problems. Agents plan in the current period to do an activity in the next but in the next period, the costs associated with the activity are too high and the activity is not carried out. Much of the literature in behavioural economics dealing with time-inconsistent preferences has focused on the extreme assumptions of 'sophistication', where agents are aware of their time-inconsistency, or 'naïveté', where they are not aware. In the present context, the sophistication assumption has testable implications. This is because, being aware of the problems of self-control, sophisticated individuals appreciate the existence of commitment devices that they use to commit to a course of action. The availability of commitment devices precludes future selves from behaving in a time-inconsistent manner. Conversely, the naïveté assumption does not immediately lead to testable hypotheses; naïve individuals are observationally equivalent to those who merely have a high and constant rate of time preference in the traditional economic sense.

This paper focuses on the characteristics of households that invest in Australian pension accounts – superannuation. Behavioural models of consumption predict that *sophisticated*, time-inconsistent households should value external commitment. Since illiquid asset investment captures patient, far-sighted behaviour and if agents are assumed to be sophisticated, a measure of time-inconsistency – which in this paper I label 'impulsivity' – should be positively related to the probability of investing in superannuation. The greater the problems of self-control (impulsivity) the more likely are households to make use of the commitment device.[1]

I test this hypothesis using data from the 1998–1999 wave of the Australian Bureau of Statistics (ABS) Household Expenditure Survey (HES). The Australian experience is valuable in this context because restrictions on early withdrawal of voluntary superannuation contributions, which became almost total in July 1999, make this a highly illiquid form of saving. A measure of impulsivity is constructed to capture self-control problems and the relationship between this measure and voluntary superannuation contributions is investigated. Illiquid saving, in the form of voluntary contributions to superannuation, is found to be partially correlated with a measure of impulsivity constructed using proxies for impulsive behaviour after controlling for household demographic characteristics, life-cycle considerations and other control variables. Individuals knowing themselves to have

[1] I distinguish between impulsivity and impatience, where impulsivity captures self-control problems. In economics, impatience is represented by the rate of time preference, a constant parameter which reveals the degree to which agents care less about the future.