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## Precautionary saving and earnings uncertainty in Japan: A household-level analysis

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This paper improves upon the methodology of Dardanoni (1991. Appl. Econ. 23, 153–160) and applies it to household-level data from a Japanese Government survey in order to analyze the impact and importance of precautionary saving arising from earnings uncertainty. The major results can be summarized as follows: (1) earnings uncertainty has a significant impact on household consumption and saving; (2) precautionary saving arising from earnings uncertainty comprises 5.557% of the total saving of salaried worker households and 64.3% of the total saving of agricultural, forestry, fisheries, and self-employed households; (3) the prediction of Carroll and Summers' buffer stock saving hypothesis that young households will be more likely to save for precautionary purposes than older household is confirmed; and (4) occupation, age, and educational attainment significantly affect the degree of household earnings uncertainty. *J. Japanese Int. Economies* **17** (2) (2003) 192–212. National Institute of Population and Social Security Research, 2-2-3 Uchisaiwaicho, Tokyo, Japan.

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## 1. Introduction

Compared to the extremely strong consumption demand of American households, Japanese households behave as though they are reluctant to consume, and their saving

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rate is much higher than that of Americans. Excessive household saving is regarded as one of the main factors inhibiting the recovery of the Japanese economy. Although Japan's high household saving rate is determined jointly by a large number of factors (Horioka, 1990), precautionary saving has been regarded as one of the most important ones, especially since the collapse of Japan's bubble economy. Even so, few empirical analyses of the precautionary saving behavior of Japanese households have been conducted. The purpose of the present paper is to conduct just such an analysis using household-level data from a Japanese Government survey.

The idea that people engage in precautionary saving dates back to Friedman (1957). Later studies by Leland (1968), Sandmo (1970), and Dreze and Modigliani (1972) show that precautionary saving in response to risk is associated with convexity of the marginal utility function, or a positive third derivative of utility function. Recent researches by Blanchard and Mankiw (1988), Zeldes (1989), and Caballero (1990) have bridged the gap between theoretical work and the empirical literature by successfully deriving a closed-form solution of consumption function with earnings uncertainty.

However, the empirical results concerning the importance of precautionary saving are inconclusive. Using data from the 1983 Survey of Consumer Finances (SCF), Carroll (1992) finds that 43% of respondents reported being prepared for emergencies as being their most important reason for saving. Skinner (1988) concludes that saving that arises as a precaution against future uncertainty is more than one-half of total life-cycle saving under certain assumptions. Carroll and Summers (1991) suggest that consumers do not save for retirement over most of their working lives, say until roughly age 45 or 50, and thus that the certainty equivalence LC/PIH can explain consumer behavior only between about age 50 and retirement. On the other hand, Guiso et al. (1992) use a self-reported measure<sup>1</sup> of the subjective uncertainty of future earnings and finds that, on average, precautionary saving accounted for only 2% of Italian households' net worth in 1990. Using the Family, Member, and Detailed Expenditure files of the CEX for the 1980–1993 period, Parker (1999) also finds no evidence that precautionary saving is responsible for the failure of consumption smoothing to hold in the USA.

There has been very little empirical research done on precautionary saving in Japan. According to a household survey of Japan (Horioka and Watanabe, 1997), saving for illness, disaster and other unforeseen expenditures, and saving for peace of mind account for a total of 8.9% of average household disposable income. Ginama (1988) presents time series estimates of the ratio of precautionary saving to total personal saving in the USA and Japan. He finds that precautionary saving can explain Japan's relatively high saving rate to some extent but that the precautionary saving motive of Japanese households was significant only during the period of the first oil crisis (1974–1976). For example, he estimates the share of precautionary saving to have been 5.81% in 1974, 4.13% in 1975, 2.57% in 1976, and less than 0.5% thereafter. Similarly, using time series data for the 1971–1987 period from the Survey of Consumption Trends in Japan, Ogawa (1991) investigates the importance of precautionary saving by using the variance of income

<sup>&</sup>lt;sup>1</sup> Every income recipient was asked to assign probabilities to various ranges of inflation and percentage increases in nominal earnings one year from now. These two marginal distributions were then used to calculate the subjective uncertainty of real earnings.

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