Variable Retirement and the Effects of Social Insurance
on Savings, Wealth, and Welfare

by Bruce and Turnovsky, report for EJournal, manuscript #5

The paper considers the effects of a PAYG insurance with respect to retirement and medical risks in a continuous time overlapping generations (OLG) model. The model is a generalization of a recent model by Gertler (1999) with constant mortality risk that also includes an exogenous transition from work to retirement. When agents switch to retirement, they loose earnings capacity and learn their state of health which determines required health spending during remaining life-time. There are thus two types of risks which are assumed uninsurable on private markets, loss of earnings and state of health. By way of contrast, the authors assume the existence of reverse life-insurance markets to insure against life-time uncertainty. Given this framework, the paper analytically investigates how policy affects individual and aggregate consumption, saving and levels and distribution of wealth. The last part provides a characterization of optimal PAYG insurance in the presence of the two sources of uninsurable risks, and shows that the optimal policy is Pareto improving if starting from a world without government. The paper is well written and the possibilities for insightful analytical results have been exploited to the fullest possible extent.

I have some general and several minor, specific comments on the paper.

First, the assumptions on the existence of risk markets seem quite unnatural to me. On the one hand, the authors assume – in line with the literature based on the Blanchard type OLG model – the existence of a reverse life-insurance market where competitive insurance firms offer contracts paying a premium to surviving agents in exchange for the right to collect the left over assets upon death. By way of contrast, the authors assume the non-existence of insurance markets for health risks. Reality seems to be the other way around: there are no reverse life-insurance markets but there seems to be some market insurance available for health and disability risks. The assumptions about the (non-)

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existence of insurance markets should have obvious consquences for an optimal public social insurance scheme.

Second, the paper's title is to some extent misleading. "Variable retirement" creates the expectation that there is an explicit retirement decision. There is in fact a large empirical and theoretical literature on the choice of the date of retirement (Gruber Wise program). By way of constrast, the paper assumes an exogenous transition from work to retirement with no individual discretion at all. Quite to the opposite: the date of retirement is considered as another source of uninsurable labor income risk, the loss in wage earnings comes sooner or later, a shock that is assumed to be beyond individual control. I have great difficulties in considering this an uninsurable labor income risk. Either the retirement date is institutionally given, with no uncertainty whatsoever, or retirement is deliberately chosen to happen earlier or later as a reflection of individual preferences. It is also unnatural that the health shock should be exactly correlated with the retirement date. To my knowledge, the really big health risks occur at higher ages substantially after the retirement date. Since the non-existence of insurance markets is the ultimate reason for optimal social insurance, these assumptions seem not innocuous, and their implications for the paper's results should be discussed more extensively.

Specific Comments:

1. Page 6: I presume CARA was assumed for reasons of analytical tractability. Why not CRRA? Also, how is the CARA parameter related to the intertemporal elasticity of substitution, an important determinant of savings behavior? Does parameter γ relate to both risk aversion and intertemporal substitution? How does that influence the welfare analysis? Some remarks would be helpful.

2. Page 10, eq. (15): can the precautionary savings motive be characterized more precisely here? After all, it should play a central role in interpreting the formulas for optimal social insurance.

3. Page 19, prop. 5: is this proposition general? Maybe some discussion on robustness would be useful. How does this result depend on the intertemporal elasticity of substitution as distinct from the degree of risk aversion? What would happen if mortality risk would increase with age, as in Gertler (1999) who assumed not unrealistically that mortality risk is zero for workers and positive for retirees.

4. Page 21, 4th line: shouldn't it be $\xi^N = 1$ for $s_R = 0$ and $\xi^N = 0$ in the other case?

5. Page 22, 2nd paragraph: the explanation exclusively relies on the lifecycle savings motive. What's the role of the precautionary savings motive?

6. Page 28, prop. 8: there should be more intuitive discussion why the optimal level of social insurance increases with the population growth rate and the mortality rate, and declines with the interest rate. Also, it should increase with the magnitude of risk, e.g. the variance of the health risk. Can this also be shown?