

Discussion

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Let me start by saying that I am pleased to have the opportunity to discuss Henning Bohn's excellent paper and that I learnt a lot from reading it. The paper covers a lot of ground. I'll stick to just a few key points.

The world is ageing as a result of declining fertility rates and increasing longevity. Given these demographic trends, the paper asks: how will individuals respond to these trends, what are the optimal responses and what are the implications for the world economy?

The paper examines responses to population ageing from a global perspective and focuses on savings, bequests and policy expectations in a world of mobile factors of production. As we have just seen, Henning studies demographic change in three different models: the Solow-Swan growth model with a fixed saving rate; the overlapping generations (OLG) model with life-cycle optimisation; and the dynastic model in which individuals value their children's lifetime utility. To study ageing simultaneously using three competing models is a particularly interesting aspect of the paper because it allows us to better identify how different assumptions affect the predicted outcomes.

In the Solow-Swan model, population ageing increases the capital intensity of the economy. The behaviour of individuals does not result from solving any optimisation problem. Instead they save a fixed fraction of disposable income. A fall in the rate of population growth (that is, due to falling fertility) makes labour relatively more scarce and puts upward pressure on wages and downward pressure on rates of return.

In the OLG model with life-cycle optimisation, ageing increases the capital intensity of the economy. As the paper makes clear, rising capital-labour ratios and declining returns are robust findings in life-cycle models of population ageing. In his presentation, Ralph Bryant told us that falling fertility and increasing longevity can have different implications for the capital-labour ratio and consequently for factor prices. In recent work we've done at the Bank, we show that this is especially true if retirement decisions are endogenous and determined in part by the health status of individuals (Kulish, Smith and Kent 2006). Lifespan extensions that go hand-in-hand with improvements in health are likely to make longer working lives more feasible. Eventually, however, the need to save for a longer retirement period increases the capital stock and more than offsets the initial increase in the supply of labour.

In the dynastic model, households choose their bequests optimally. Recall that individuals value their children's lifetime utility in this model. The choice of bequests has very important consequences for capital accumulation. Parents care about their children and through them their grandchildren and so on. Individuals in this economy have to decide how much wealth to allocate to their own consumption and how much wealth to pass on to future generations. Parents adjust their bequests

whenever the rate of return on savings (that is, the return to capital) differs from the rate at which they discount their children's utility. If, for example, the rate of return falls below this discount rate, parents will reduce bequests as they are better off consuming extra wealth themselves rather than passing it on to their children. In the life-cycle economy (without endogenous bequests), ageing leads to a rise in the capital-labour ratio, thereby pushing down the rate of return. But in a dynastic economy, any downward pressure on the rate of return would work to push down bequests (in effect, reducing the capital stock that parents pass on to their children). This response ensures that in the long run the capital-labour ratio (and hence the return to capital) is stabilised in the presence of demographic changes.

Henning argues that the dynastic model is a better approximation for developing economies. This is because public pensions and other transfer systems are more rudimentary and most national wealth is concentrated in family-based firms for which ownership tends to be inherited and not purchased. This suggests a prevalence of wealth accumulation through bequests in developing economies. On the other hand, it seems reasonable to use the life-cycle model for more developed economies, which tend to get closer to the lower bound on bequests. Convincing evidence of this comes from a popular car bumper sticker in the United States that reads '*Retired – Spending My Children's Inheritance*'. For Australia, the story seems to be similar. Researchers at the University of Canberra have found that more than half of all bequests in Australia are less than A\$20 000 (Kelly and Harding, forthcoming).

As I have just mentioned, Henning argues that for developing countries the dynastic model is a better approximation. I would like to leave you with two comments. First, it seems to me that an open issue is whether the observed bequests in the developing countries are the result of intergenerational altruism or not. Instead, they could be the result of constraints brought about by low levels of financial development. For example, an individual who owns a family-based firm which is not publicly traded is simply unable to draw down wealth 'continuously' to finance consumption. Alternatively, observed bequests could perhaps be related to a relatively skewed income distribution, with most bequests accounted for by a few very wealthy households. To the extent that observed bequests are not the result of intergenerational altruism, then I suspect that ageing will stimulate the development of financial markets and financial instruments in the developing world.

My final comment is the following. Henning acknowledges an important point. Namely, that the macroeconomic effects of ageing are likely to depend on household behaviour in a fundamental way. However, a shortcoming in the literature that models the impact of ageing on macroeconomic developments is that, so far, it has largely ignored departures from fully rational and fully informed behaviour. Henning does talk about one example – a world of fixed saving rates. Other departures from these assumptions may be asymmetric information (which could contribute to market inefficiencies) or myopic behaviour, which could mean that households don't save enough for retirement.

These issues are important to consider since they lead to market failure, which is the reason why policy-makers may need to respond to population ageing. I have no doubt we'll be discussing these issues further.

References

- Kelly S and A Harding (forthcoming), 'Don't Rely on the Old Folks' Money: Inheritance Patterns in Australia', *Elder Law Review*, 4, University of Western Sydney.
- Kulish M, K Smith and C Kent (2006), 'Ageing, Retirement and Savings: A General Equilibrium Analysis', Reserve Bank of Australia Research Discussion Paper No 2006-06.