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Longevity the Ultimate Risk for Ageing Populations, says John Piggott

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Life expectancy has been increasing for many decades, and most rapidly in the last 50 years. Life expectancies are expected to continue climbing over the next 50 years. As people age, they are less able to earn a living and must live off their savings. These are increasingly likely to be inadequate as life spans increase. Most persons underestimate how long they will live and the savings required to get them there.

John Piggott, research dean at the Australian School of Business, University of New South Wales, and director of the Australian Institute of Population Ageing Research, spoke on "Confronting the Ultimate Risk: Longevity in the 21st Century" at a seminar on the future of silver security organised by the Sim Kee Boon Institute for Financial Economics, Singapore Management University.

According to Piggott, the United Nations shows the world population pyramid did, in fact, look like a pyramid in 1950. Most of the population was in the lower age groups, and it tapered off steadily for older age groups. By 2005, UN data shows that the global population pyramid was looking more "boxy". Old-age groups at the top of the pyramid had expanded.

Japan has one of the world's oldest populations, making it ideal as an indicator of the world's future age distribution. In 2005, Japan's population was "fattest" in the middle. The age group which has grown the most and is now the largest is 50 to 59 years. All ages above 59 years had increased more rapidly than those below.

The UN estimates that by 2050, the 75 to 79 year age group will be Japan's largest. The problem is that without a substantial increase in savings by this group, younger age groups will be required to support them.

Solutions to Longevity Risk

While there are no easy solutions, the most promising appears to be longevity insurance, annuities, variable annuities and reverse mortgages. So far, none have proven very popular. Information asymmetry and adverse selection have reduced the efficiency of annuities and reverse mortgages markets. Phased withdrawals have met with the most success. They serve as a disciplined savings plan by requiring annuitants to withdraw savings in fixed amounts at pre-set intervals. Otherwise, a risk is that retirees would spend down their retirement wealth too quickly.

As Piggott noted, "Life expectancy is increasing everywhere. In most OECD countries, male life expectancy over 75 has increased 12% since 1960. In Asia, life expectancy has moved from 41 in 1950 to 61 in 1980. In China, for males, it has moved from 39 in 1950 to 61 in 1980. For females, it has moved from 42 in 1950 to 67 in 1980." During this time, he said, fertility rates also dropped. These two factors have combined to increase the expected "dependency ratio" (wage earners divided by retired population) from 23% today to 42% in 2030.

Piggott pointed out that the solutions typically fit into five categories and there are problems with each of them:

- 1) Personal resources. Piggott said: "Savings are often inadequate because many persons fail to save enough, retire too early and lack insurance. In addition, most wealth is locked into the family home."
- 2) Family resources. In Asia especially, it is common to view the children as one's pension. With increased labour mobility, however, the parents and grandparents may be left behind. There are also cultural changes regarding the responsibility of caring for the aged.
- 3) Work longer. This seems to be a natural and easy solution. There may be institutional constraints, however, such as company policies to retire at a certain age such as 62 or 65. Another problem is health issues and vigour, which often decline in later years.
- 4) Social Security. As Piggott notes, "Most countries have defined benefit schemes. These are typically underfunded, which places a stress on the country's revenues. In some countries, like the US, social security payments are nearly certain to be reduced in the future."
- 5) Occupational pension plans. The "defined benefit" plans of many companies are under stress or insolvent (because liabilities exceed assets, especially in the currently depressed stock markets).

A Picture of Mixed Success

Of course, it takes a burden off governments if it can switch to a "defined contribution" scheme. It means

employees will get back what they contribute to their retirement plan, with interest. The government does not need to fund it.

As Piggott observed, "In the last 20 years, 19 countries have switched their retirement schemes from defined benefit to defined contribution. They include Chile, Switzerland, Netherlands, Australia, Argentina, Columbia, Denmark, Peru, Uruguay, Hungary, Kazakhstan, Bolivia, Mexico, El Salvador, Poland, Hong Kong, Sweden, Latvia and Dominican Republic."

Singapore's CPF scheme has always been a defined contribution plan. It means there is no over or under-funding for the government to worry about. In contrast, US Social Security is a defined benefit plan. It specifies how much employees will receive over their lifetime. Payments are tied to their contribution but there is no one-to-one correspondence and persons who live longer will receive more.

Many will take out more than they put in, and this has led to under-funding of the US Social Security system. It will be remedied by reducing payouts or increasing contributions, possibly from taxpayers. Of these two choices, reducing payouts is the more popular, and is being implemented now. The "full retirement" payout age has been increased from 62 to 65 and there are incentives for retirees to wait longer for their pension, up to age 70.

A natural solution to the problem of a retired person receiving a defined contribution payout and not spending it wisely is phased withdrawals. No matter how payouts are staggered, however, they almost certainly will not coincide with the retiree's life span.

Because they have no longevity insurance element, phased withdrawals fail to deal with the problem of longevity risk. It is usually dealt with in other ways, the most typical being reliance on relatives and subsistence pensions.

Taking care of elderly relatives is a centuries-old solution. It may be less relevant today because of increased migration, causing many children to live away from their parents. As for subsistence pensions, most western governments provide them and it has become the ultimate safety net for long-lived retirees.

Another solution is reverse mortgages. Since most retirees have most of their wealth tied up in their houses, a logical solution is to sell. The problem is that will leave them without a place to live. As Piggott noted, "Reverse mortgages allow the retiree to mortgage their home and draw a gradual pension on the mortgage." At death, the home may be sold with the sale proceeds split between the lender and beneficiaries. Or the beneficiaries can buy back the home at death of the retiree. The retired borrower also has the option to "change his mind" and pay off the mortgage early, before death.

Interest rates on reverse mortgages are typically close to personal lending rates and about 50 % higher than conventional mortgage rates. Reverse mortgages have met with mixed popularity. Piggott provides the data: "The US has the largest potential reverse mortgage market with 6.7 million households. The actual number of reverse mortgages was about 40,000 in 2004. The number of reverse mortgage lenders was about 200." He notes that, "The scheme received a boost in 1989 with the Home Equity Conversion Mortgage (HECM) program. It provides lenders with mortgage insurance in case the loans exceed the property values."

Smaller reverse mortgage markets exist in Australia, Canada and the United Kingdom. They do not enjoy government sponsorship similar to HECM. In Singapore, the only reverse mortgage lender, NTUC Income, stopped issuing reverse mortgages in 2008. The Singapore government, however, has offered a similar program for low income groups -- a reverse mortgage scheme for 3-room flats.

On the demand side, reverse mortgages have not met with much success, possibly because many retirees perceive them as taking away their home and/or denying them the chance to leave a bequest to their beneficiaries. On the supply side, many lenders have shied away, citing longevity risk since the property cannot be sold until the borrower dies.

There is also the risk outside the US (where HECM provides free insurance against this risk) that the home price may fall below the mortgage value. When the loan is sold "without recourse", which is common, the lender must take a loss. If sold "with recourse", there is an unpleasant administrative problem of repossessing a home from an elderly customer.

Annuities Offer Promise

Annuities would seem to be a logical solution to the problem. The retiree gives a fixed sum which purchases a gradual payout over the retiree's lifetime. An uncommon variation is for the amount that is left over at death to be returned to beneficiaries.

More typical and less costly is for the amount remaining at death to go to the common pool used to pay other annuitants. The problems have been moral hazard and adverse selection. Persons who are healthy will find the annuity too expensive. Those who are not healthy will buy, pushing up costs to the insurer.

According to Piggott, "This information asymmetry is remedied somewhat by medical exams, although it is usually not


enough and adverse selection remains. It is similar to the adverse selection problem in health insurance.”


An alternative is variable annuities. They are analogous to defined contribution plans and they push the longevity risk to the buyer. The annuity received depends on payouts of stock and bond investments. A subtle variation is Group Self-Annuitisation (GSA), which is a variable annuity that adjusts to unanticipated changes in mortality rates.

Dividends paid to annuitants reflect (i) investment performance as well as (ii) mortality experience of all annuitants. Piggott points out, however, that “In practice, there are few adjustments from mortality changes. Payments mostly reflect the investment experience, very much like variable annuities.”

An Under-served Market

Longevity insurance products are under-produced. There is an enormous need for products which allow investment risk exposure combined with longevity insurance, said Piggott. The most hopeful directions seem to be some sort of variable annuities and reverse mortgages although the market is telling us there may be obstacles since they have not yet caught on with annuitants.

 [back to top \(#top\)](#)

 [back to top \(#top\)](#)

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