The taxation of life annuities under adverse selection

A. Dírer

Laboratoire d’Economie d’Orléans (LEO – UMR 6221 CNRS), and Paris School of Economics. Address: rue de Blois – BP 6738, 45067 Orléans Cedex 2, France

1. Introduction

Concerns about the future of public pension systems have led many governments to promote the development of private life annuity products by means of tax incentives. Whitehouse (1999) shows that most developed countries exempt from income tax either the contributions during the accumulation period or the benefits during the payout phase. Antolin et al. (2004) find that the first option is the most common in 17 OECD countries. Both options alter the post-tax rate of return to annuities, albeit in a different way. As individuals generally pay a lower marginal income tax rate when retired than during their working life, a tax-deferral policy tends to push up the rate of return. Yet observed tax treatments are difficult to assess on the grounds of economic principles.

These tax exemptions raise a number of important policy issues which are more broadly related to the debate on the taxation of savings. Should the government tax or subsidize returns to annuities? Should the taxation be progressive in order to redistribute income? Considering that developed economies already achieve redistributive goals through personal income tax, can a tax on annuities play any complementary role? Regarding savings, the literature generally concludes that taxation should be avoided. This statement can be traced back to the influential paper by Atkinson and Stiglitz (1976). They show that indirect taxation is unnecessary when a government can use a non-linear income tax and utility functions are weakly separable between goods and leisure. In particular, the redistribution objective is better achieved by an income tax alone. Since a tax on savings is equivalent to a commodity tax which varies over the life cycle of the agent, this finding extends to the taxation of savings as well.

Few studies exist however which look at whether this result applies to life annuities. Private annuity markets are indeed a distinct segment of the capital market. The return involves the expected mortality rate of the annuitants. Since this is generally not observed by insurance companies, it leads to an adverse selection problem. Moreover, average longevity tends to increase with income (see, for example, Deaton and Paxson, 2001). Both of these elements are grounds for analyzing annuity taxation separately.

This paper studies how annuities should be taxed in a Mirrlees-type model in the presence of adverse selection and a positive link between income and longevity. The government is able to address the adverse selection problem by implementing a progressive marginal tax rate on annuities. This amounts to subsidizing small annuities (purchased by low incomes) and taxing large annuities (purchased by high incomes). Numerical simulations suggest that the taxation is significant and becomes more pronounced as annuities get older.
these circumstances, the government could restore actuarial fairness by setting a corrective tax schedule for annuities.

A second argument for annuity taxation comes from redistribution purposes. It relies on the fact that, as the rich are more likely to reach old age, they benefit from a longer flow of annuities on average. A government could then reduce life cycle inequalities by taxing annuities insofar as they signal consumption by high incomes.

The first argument considered in isolation implies a progressive taxation of annuities. The second line of reasoning (annuities as luxury goods) is shown to produce a positive yet regressive tax schedule. The model cannot therefore determine whether the overall effect leads to a progressive or a regressive tax. Next, I turn to a calibrated version of the model. Numerical results show that the marginal tax rate increases with annuity size to offset inequality in survival rates. This amounts to subsidizing small annuities (purchased by low incomes) and taxing large annuities (purchased by high incomes). Moreover, the progressivity of the tax schedule increases as annuitants get older, since the rich derive greater expected utility from annuities consumed in very old age than annuities consumed at the beginning of retirement.

This is not the first model to address the issue of annuity taxation. Sheshinski (2006) applies the theory of optimum commodity taxation to the pricing of annuities and shows that, under utilitarianism and symmetric information, a negative correlation between survival probabilities and incomes leads to the subsidization of individuals with high survival probabilities. The results are, however, less clear-cut with adverse selection and a positive correlation between survival probabilities and incomes leads to the subsidization of individuals with better longevity prospects. The annuity market with unobservable survival rates leads to the subsidization of individuals with better longevity prospects. The annuity market equilibrium is defined as in Abel (1986) by assuming that insurers cannot offer different annuity rates of return based on quantities purchased. In addition, it is assumed that insurance companies offer separate contracts for each retirement period.

Let us define the (pooling) rate of return \( Q_i \) between date 1 and date 1 for a consumer still alive after i periods. In order to fund consumption \( c_i \) at age i, the insurance company collects the sum \( (c_i + t_i(c_i))Q_i \) from individual w during the working period and delivers the annuity \( a_i = c_i + t_i(c_i) \) at age i. From the company's point of view, it is liable to pay out the expected sum \( p_i(c_i + t_i(c_i)) / R^{i-1} \) where \( R \) is one plus the safe rate of return. The zero profit condition in the insurance market with unobservable survival rates leads to the equality of the two expected cash flows for the entire market:

\[
\int_w (c_i + t_i(c_i)) / Q_i \pi_i dF(w) = \int_w (c_i + t_i(c_i)) \pi_i / R^{i-1} dF(w)
\]

This defines the price of annuities in a pooling equilibrium. It is the rate of return divided by the weighted average of the population's survival probabilities \( E(\pi_i) \), the weights being the (equilibrium) demands for annuities:

\[
Q_i = R^{i-1} / \int_w (c_i + t_i(c_i)) \pi_i dF(w) = R^{i-1} / E(\pi_i)
\]

Given market rates of return \( Q_w \), the consumer's program is given by:

\[
\max U(C, L, w)
\]

\[
\sum_{i=1}^{n} (c_i + t_i(c_i)) / Q_i = wL - T(wL)
\]
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات