

Long-term Care: A Suitable Case for Social Insurance

Nicholas Barr

Abstract

There are potentially large welfare gains if people can buy insurance that covers the costs of long-term care. However, technical problems – largely information problems – face both the providers of insurance and potential buyers. These problems on both the supply and demand sides of the market suggest that the actuarial mechanism is not well suited to addressing risks associated with long-term care. This line of argument underpins the article's main conclusion – that social insurance is a better fit.

Keywords

Long-term care; Social insurance; Risk; Residential care

The Backdrop

This article discusses the finance of long-term care (LTC), including care in a person's own home (domiciliary care) and residential care, including nursing care. I argue that there are welfare gains from being able to insure LTC expenditures, but the mechanism of actuarial insurance is not well suited to the risks associated with needing long-term care.

The remainder of this section explains why the ability to insure is beneficial and how the actuarial mechanism works. The next two sections discuss in turn the technical problems facing providers of long-term care insurance and the information problems facing individuals looking to buy such insurance, that is, problems on both supply and demand sides of the insurance market. The following section considers a range of solutions, including finance from general taxation and social insurance. The final section offers some strategic conclusions.

Why insurance?

In the right circumstances, insurance has powerful advantages, both in efficiency terms and from a moral perspective.

Address for correspondence: *Nicholas Barr, Department of Economics, London School of Economics and Political Science, Houghton Street, London, WC2A 2AE. Email: N.Barr@lse.ac.uk*

Efficiency arguments. To illustrate the potential welfare gains from insurance, assume that high-quality long-term care costs €30,000 per year, that one in six people needs long-term care and, if so, needs it on average for two years. Thus the typical person needs long-term care for one-third of a year, at a cost of €10,000.

In principle, there are two ways in which a person could seek to finance such costs.

- Actuarial insurance: if it is possible to buy insurance at an actuarially fair price (and ignoring transaction costs), a person has to save enough to cover the *average* duration, e.g. one-third of a year = €10,000.
- Self-insurance: in a world with no insurance, a person who seeks security must save enough to cover the *maximum* potential duration of long-term care, e.g. 20 years at €30,000 per year = €600,000.

Thus the welfare gains from insurance are large and obvious: a person who is risk-averse does not have to set aside €600,000, but instead pays insurance premiums which (in present value terms) total €10,000. A core conclusion is that insurance dominates self-insurance.

Moral arguments. The philosopher John Rawls (1972) argues that in a just society the rules are made by people who do not know where they will end up in that society, that is, they are made behind what he called the Veil of Ignorance. Insurance can be interpreted as an example of solidarity behind the Veil of Ignorance: a person who joins a risk pool does not know in advance whether or not he will suffer a loss and hence have to make a claim. Insurance thus has moral appeal.

How actuarial insurance works

The easiest way to see how actuarial insurance works is by example. Suppose that there are 100 of us, that we decide to fly to Rome to see a football match, that each of us has a suitcase worth €1,000, and that on average 2 per cent of suitcases get lost. Thus each of us faces a potential loss, L , of €1,000, which occurs with a probability, p , of 2 per cent. In those circumstances, it would be possible to collect $2\% \times €1,000 = €20$ from each of the 100 people, i.e. €2,000 in total; in Rome, we would find which two people had lost their suitcase, and pay each €1,000 in compensation.

More formally, the actuarial premium for the i th individual, π_i , is defined as:

$$\Pi_i = (1 + \alpha) p_i L \quad (1)$$

where $p_i L$ is the individual's expected loss, and α is the loading the insurance company charges to cover administrative costs and competitive profit; π is the price at which insurance will be supplied in a competitive market. For the purposes of this article, insurance is actuarial if, as in equation (1), the premium is based on the risk of an event occurring and the size of the resulting loss.

The intuition of this mechanism is straightforward. Insurance premiums are high where the probability of loss is high (a young car driver) or where the potential size of the loss is large (driving a Rolls Royce).

This, broadly, is the way in which actuarial insurance operates. Thus far there is no need for state intervention. A rational risk-averse person facing a known risk will buy insurance, which the market can and will supply.

Problems for Insurers

Technical problems on the supply side

Insurance along the lines of equation (1) is efficient only if a number of conditions hold. Where they fail, actuarial insurance may be inefficient or impossible.

Individual risk, not common shock. Insurance requires that the probabilities in equation (1) are independent, that is, that there are a predictable number of winners and losers. This applies to car accidents (if I crash my car, this does not affect the likelihood that you will crash your car). With a common shock, in contrast, if one person suffers a loss, so does everyone else. If I suffer 5 per cent inflation this year so, broadly, does everyone else. Actuarial insurance generally cannot cope with common shocks.

Risk, not certainty. Insurance is a device to accommodate risk. Thus p_i in equation (1) must be less than one. If $p_i = 1$, it is certain that the insured person's car will be stolen, and the insurance premium will exceed the insured loss. There is no possibility of spreading risks, hence no gain from joining a risk pool. The problem arises in two ways with medical insurance. First is old age: the probability of elderly people requiring medical care is high. A separate problem is pre-existing medical conditions: actuarial insurance can cover *potential* problems, but not *actual* problems, that is, medical problems which the individual already has at the time that he/she applies for insurance. Pre-existing medical conditions are generally uninsurable.

The two conditions just discussed relate to the fundamental nature of insurance as a device for sharing risk. The remaining conditions reflect information problems in insurance markets.

Risk, not uncertainty. The insurer needs to estimate p_i in equation (1) with reasonable precision in order to calculate a premium. Insurance can cope with risk (where the probability is known) but not with uncertainty (where it is not).¹ There are various circumstances in which the probability might not be well known.

- Where the insured event is rare (e.g. early satellite launches), estimates of the probability will have a large variance.
- Where the problem is complex. Actuarial insurance against future inflation is impossible because the probability of different levels of future price increases cannot be predicted.²
- Where the insured event has a long time horizon.

A further condition is that all participants – both buyer and seller of insurance – must be equally well informed. The failure of this condition – asymmetric information – creates two further potential problems: adverse selection and moral hazard.

Adverse selection. Efficient insurance requires that high-risk individuals pay a premium calculated from equation (1), based on a high probability of loss, P_H , and low-risk individuals pay a premium based on their low probability, p_L . With automobile insurance, someone who is twice as risky pays roughly twice the insurance premium.

Adverse selection arises where the buyer can conceal from the insurer the fact that he is a bad risk, and is thus an insurance-market manifestation of ‘lemons’ (Akerlof 1970). The problem is not that people differ in their riskiness, but that the insurer is less well-informed than the buyer about the applicant’s riskiness. The individual knows he is a ‘lemon’ (i.e. a bad risk), but can conceal the fact from the insurer, hence the description of adverse selection as ‘hidden knowledge’. The problem can arise if health care is an important part of employer benefits: firms with the best health-care packages will tend to attract workers with health problems, thus reducing the firm’s competitiveness.

Moral hazard. A second class of asymmetric information, moral hazard, arises where the insured person can influence the insurer’s expected loss, $p_i L$ in equation (1), without the insurer’s knowledge (hence moral hazard is sometimes described as ‘hidden action’). The problem arises in two ways, concerning p_i and L , respectively.

1. *Endogenous probability:* here individuals can manipulate the probability of the insured event at little or no cost to themselves. If people are insured they might drive less carefully. My extra spending on maintaining the brakes on my car reduces the probability that I will have an accident. But the insurer cannot monitor such expenditure and so will reduce my premium not by the (significant) decline in the probability that I will have an accident but by the (much smaller) decline averaged across all the drivers it insures. Thus the main beneficiaries of my spending on safety are other insured people who now pay slightly lower premiums. Given this externality, individuals face incentives to underinvest in preventive activities. Moral hazard causes inefficiency, since people take less care than if they had to bear the full loss themselves.

A second manifestation of endogenous probability arises where insurance is concerned not with an undesirable event that is beyond the individual’s control but with a desirable event that the individual can choose, the standard example being voluntary pregnancy. Individuals face no psychic cost, and can control the probability, p_i , in equation (1). This situation is very different from an unwelcome exogenous event – the problem insurance is meant to address. Cases of this sort are generally uninsurable for individuals.³

2. *Endogenous L* (the ‘third-party payment problem’): here the individual can influence the size of the insured loss, L . The intuition is straightforward –

contrast the amount of champagne people drink if they pay for it themselves with their consumption of champagne provided free by the airline. Similarly, if the insurer pays all medical costs, both doctor and patient can act as though health care were free, even though its social cost is positive, and generally large. Moral hazard in this form leads to inefficiently high spending.

The problem of moral hazard is fundamental: the more complete the cover and the lower the psychic loss from the insured event, the less individuals have to bear the consequences of their actions and the less, therefore, the incentive to behave as they would if they had to bear their losses themselves.

One way of seeking to reduce the problem is through inspection of damage before meeting a claim, for example with automobile repairs. An alternative is to use incentive mechanisms, by sharing the cost between the individual and the insurer: frequent claimants (e.g. accident-prone car drivers) pay higher premiums; deductibles require the insured person to pay the first € X of any claim, coinsurance to pay the first x per cent. None of these approaches, however, faces the individual with the full marginal cost of any loss.

In analytical terms, adverse selection and moral hazard are both examples of imperfect information. If the insurer could read the thoughts of insureds there could be no hidden knowledge or hidden action.

Problems with long-term care insurance

When considering long-term care insurance it is helpful to distinguish two probabilities:

- p_1 is the probability that a person will need care at some stage in his/her life;
- p_2 is the probability distribution, *given that a person needs care*, of different durations of that care.⁴ If we assume that once someone needs care they will do so for the rest of their life this probability equals remaining life expectancy at the time a person first needs care.

When applied to long-term care, equation (1) becomes:

$$\Pi_i = (1 + a) p_{1i} L(p_{2i}) \quad (2)$$

where p_{1i} is the probability that the i th person will need long-term care at some stage, and $L(p_{2i})$ is the cost of care conditional on the person's remaining life expectancy at the date he or she first needs care.

To what extent does long-term care conform – or fail to conform – with the conditions in the previous section?

Independence. Probabilities of needing long-term care may not be independent. If a medical advance prolongs life to the point where more people end up needing care (i.e. an increase in p_1), the result is to increase the probability of needing long-term care for *all* policy-holders. This outcome would arise, for example, with dramatic progress in addressing cardiovascular disease and

cancer, but much less in addressing dementia, since more people would live to ages where dementia arises. Similar issues can arise with p_2 , for example, a medical advance that increases the average life expectancy of people in care.

Uncertainty. This is a problem for both (a) the relevant probabilities and (b) the costs of care. Each requires discussion.

Case 1: buying insurance when young. Let us start with a young person wanting to buy insurance. Insurers have a broad idea of p_1 and p_2 for today's frail elderly. What they need to know, however, are the relevant probability distributions for *future* cohorts.

Over the medium term, neither probability is known, since each can change over a long time horizon (a person aged 30 buys a policy under which he might not make a claim for 60 years).

- p_1 might get smaller because medical advances help people to care for themselves (e.g. tablets that deal with arthritis) or because of technical advances with the same effect (e.g. cheap robots doing household chores for housebound arthritics). On the other hand, medical progress, by extending life, might increase the likelihood of requiring care.
- p_2 might get smaller because medical advances keep people out of care for longer, so that remaining average life expectancy at the time care starts is less. On the other hand, if medical progress extends the duration of dependent life, the probability might increase.

Thus the relevant probabilities cannot be known far in advance, and even the direction of change is unknown. Over such a long time horizon, the issue becomes one of uncertainty rather than risk.

Case 2: buying insurance at the time a person needs care. There is a tension between encouraging people to buy a policy at a younger or an older age. With younger people, the range of uncertainty facing the insurer is greater but so are the gains to the individual from risk-pooling. With older people, uncertainty is less but, since some people now have a high probability of requiring care, the opportunity of risk-pooling is reduced.

The limiting case arises where a person takes out insurance only when he/she needs care. In this case, there is no uncertainty about p_1 , which equals one. Nor is there a major problem about p_2 which, at its simplest, is the person's remaining life expectancy, that is, his/her longevity risk. In this case, long-term care insurance is equivalent to buying an annuity that pays € X per year for the rest of a person's life, where € X is the annual cost of care.

How do the two cases compare? Let us return to the earlier example, where care costs €30,000 per year and one in six people needs long-term care and, if so, needs it on average for two years. Thus, ignoring transaction costs:

- Buying insurance when young: if the probabilities are known, a representative person needs care for one-third of a year, and so can buy insurance for €10,000, i.e. one-third of €30,000.

- Buying insurance when care is first needed: a person entering long-term care typically needs it for two years, so that the relevant annuity costs €60,000, i.e. two years at €30,000 per year. A deferred annuity (e.g. one that pays for care only after the first two years, but thereafter for life) would be cheaper because insurance cover is only partial.
- With no insurance, the person has to save for (say) 20 years, i.e. €600,000. This is true whether we are talking about simple private savings or such devices as a long-term care savings account, and whether or not there are tax incentives towards such saving activities.⁵

In comparing these options, the welfare rankings are clear: Case 1 is superior to case 2, which is superior to no insurance. Wider risk-pooling dominates narrower risk-pooling; and insurance dominates self-insurance.

Thus far we have discussed uncertainty about p_1 and p_2 . Uncertainty about the annual cost of care, L , is a separate problem. It is well known that the relative cost of services rises over time.⁶ But over the long term, the ability to predict the costs of care becomes questionable. Will costs rise because the cost of skilled labour rises? Or will expensive labour be partially replaced by cheaper capital (e.g. robots for some tasks) or by cheaper pharmaceutical drugs? As with uncertainty about the relevant probabilities, there is doubt even about the direction of change.

For both reasons – uncertainty about the probabilities and about costs – there is a considerable ‘funnel of doubt’ about total future spending on long-term care. The UK Royal Commission’s sensitivity tests suggest that the total could vary by a factor of two (£21 billion to £39 billion) in 2031, and by a factor of nearly three (£28 billion to £76 billion) in 2051 (UK Royal Commission 1999; table 5.1; see also Nuttall *et al.* 1995). In the face of such uncertainty, voluntary private insurance becomes highly problematical.

Adverse selection. As with medical insurance, the person buying insurance, knowing that s/he is a bad risk, might be able to conceal that fact from the insurer. Irrespective of reality, the efficiency of insurance markets suffers when insurers *think* adverse selection is a reality. Evidence from the USA (Sloan and Norton 1997) suggests that adverse selection, whether real or perceived, is a problem.

Moral hazard. This arises in two ways. A person who has insurance that covers all the costs of long-term care is more likely to demand care since the cost to him or her (at the time of use) is zero. This is the third-party payment problem familiar from medical insurance. There is an extensive literature on the range of instruments – incentive or regulatory – that seek to contain costs in such circumstances.

Incentive-based mechanisms to contain spending include:

- cost-sharing via deductibles (where the individual pays the first € X per year) or co-payments (where the individual pays x per cent of the costs);
- preferred providers, whereby suppliers are chosen on the basis of competitive bidding;

- prospective payment mechanisms like health maintenance organizations or diagnosis-related groups.⁷

Regulation of spending includes:

- controlling the price that providers can charge;
- imposing an annual budget cap. This can take the form of a global annual budget for a hospital. Or the cap can be at the level of the individual physician. Or the cap can be on reimbursement of all physicians, for example by retrospectively reducing agreed fees if physicians prescribe a greater volume of treatment than planned.

Long-term care faces most of these problems. In particular, if the insurance company pays all the costs, a person is more likely to request care and/or to request luxurious accommodation.

In contrast, a second aspect of moral hazard is very different from medical care. The third-party incentive increases the likelihood that a person will demand care. But in this case, the incentive applies not only to the policyholder but also to his or her family. Insurance cover changes the balance of probability between care from family members and care by others. To guard against being put into residential care against one's will, it could therefore be rational not to insure (Pauly 1990; Sloan and Norton 1997).

Thus insurers are imperfectly informed, and so design policies which reduce their exposure to risk in several ways. To guard against uncertainty, premiums err on the side of safety. There is a cap on the total payout per year (though not usually on the number of years), thus limiting L in equation (2). Insurers attempt to counter adverse selection by requiring full disclosure of an applicant's medical history, where a failure to disclose a 'relevant' fact invalidates the policy even where the insurer has not specifically asked for the fact. Attempts to guard against moral hazard include contracts which offer cover against tightly-defined criteria, rather than for a more general need for care.

Problems for Individuals

Alongside these supply-side problems are problems from the perspective of individuals. Insurance policies for long-term care are both long-term and complex. As a result, consumers face many of the problems now widely recognized from the economics of information and behavioural economics. The following questions illustrate the problems individuals face in choosing an insurance policy in a competitive system.

What type of care is covered? Does the policy cover only residential care, or also domiciliary care; is a person entitled to residential care on the basis of general infirmity or only if he or she has clearly defined, specific ailments? How will the answers to these questions change with advances over the years in medical technology?

On what financial basis is care provided? Can the insurer increase premiums if a person becomes more risky (i.e. if p_1 or p_2 rises); is there a ceiling on the monthly cost of care; is there a maximum duration over which benefit is

payable? Will those figures change over time in line with changes in prices, changes in wages, or changes in the cost of care?

How well specified is the contract? Can insurers change the basis of cover; does the wording make clear the circumstances in which an individual can make choices; what arrangements deal with any disagreements between the policy-holder and the insurer?

Complications arise, further, because people may not know how much cover they actually have. If public funding becomes more generous, people with extensive private insurance end up with an inefficiently large amount of cover. Conversely, cuts in public funding may leave people under-insured; and if such under-insurance occurs relatively late in life, additional private cover is expensive.

In the face of such complexities, Burchardt and Hills (1997: ch. 6) found that even their academic study could not unearth the data necessary for proper assessment of policies, calling seriously into question the ability of individuals to make informed choices. At a minimum, there is need for regulation to ensure that all policies cover at least a basic package.

Strategic Policy Directions

Private, actuarial insurance works well for risks that conform with the conditions discussed earlier, for example, automobile insurance and burglary insurance. But that does not mean that the mechanism can be applied uncritically to other areas. The conclusion of earlier discussion is that the mechanism faces major technical problems when applied to long-term care. Given the range of problems facing both sides of the market, the conclusion of the UK Royal Commission on Long Term Care (1999: 93), should not be surprising:

Left to grow without intervention, there seems little reason to think that private insurance will become more important in the UK than it has become . . . in America. At present only 4%–5% of Americans have taken out long-term care insurance, while 10%–20% could afford to do so and 80%–90% could not afford the cost in any event.

Social insurance as a response to information problems

In his classic article, Kenneth Arrow (1963) argues that, where markets fail, other institutions may arise to mitigate the resulting problems: ‘the failure of the market to insure against uncertainties has created many social institutions in which the usual assumptions of the market are to some extent contradicted’ (1963: 967). This line of argument contrasts with that of Hayek (1945). Both Arrow and Hayek started from the assumption of asymmetric information. To Hayek the fact that different people know different things is an argument *in favour* of markets. He argued that (as with skill differences) the market makes beneficial use of such differences by allowing gains from trade.

Arrow shows that the market is an inefficient device for mediating certain important classes of differences in knowledge between people. Nor is his view

idiosyncratic. When discussing unemployment, Lucas (1987: 62) reached an identical conclusion:

Since . . . with private information, competitively determined arrangements will fall short of complete pooling, this class of models also raises the issue of *social insurance*: pooling arrangements that are not actuarially sound, and hence require support from compulsory taxation. The main elements of Kenneth Arrow's analysis of medical insurance are readily transferable to this employment context. (emphasis in original)

Social insurance thus derives from two sources. The need for insurance arises because, at least in Western countries, the risk of needing long-term care is to some extent a social construct (the greater the fragmentation of extended families and the more widespread women's labour-market activity, the greater the likelihood that family support for the frail elderly will be insufficient).⁸ Second, on the supply side, information failures and the inability of actuarial insurance to address common shocks provide both a theoretical justification of and an explanation for institutions such as social insurance.

Conventional social insurance mimics private institutions: benefits are conditioned on an implicit or explicit contributions record and on the occurrence of a specified event such as reaching pensionable age. Administration can be by the state at national or subnational level; or administration can be hived off to institutions such as friendly societies or trades unions.

Social insurance, however, differs from private insurance in two important respects. First, because membership is generally compulsory, it is *possible* (though not essential) to break the link between premium and individual risk. Second, the contract is usually less specific than private insurance, with two advantages: protection can be given against risks which the private market cannot insure, or cannot insure well (this article argues that long-term care is one); and the risks can change over time. Atkinson (1995: 210) points out that

the set of contingencies over which people formed probabilities years ago may have excluded the breakdown of the extended family, or the development of modern medicine, simply because they were inconceivable.

Thus social insurance, in sharp contrast with actuarial insurance, can cover not only risk but also uncertainty.

The rest of this section discusses three approaches to financing long-term care: taxpayer finance; social insurance during working life, that is, *ex ante* social insurance; and social insurance *ex post*, for example a single premium paid out of a person's estate.

Taxpayer finance

Some countries (Germany) finance health care through social insurance, others (the UK) mainly through general taxation, with no explicit contribution. Analogous options exist for long-term care. Germany, as discussed in

Rothgang (this issue), uses social insurance. Scandinavia mainly uses tax finance; so does England, though parsimoniously, and Scotland.

It is not surprising that the stress point for this approach is fiscal pressures. The argument against taxpayer finance of long-term care is less one of principle than that of the practical politics of maintaining salience in the competition for public funds. Health care is better placed in this context, since many of its users are articulate and well-connected. It is no accident that social care, not health care, is sometimes described as the ‘Cinderella service’.

Social insurance during working life

The approach. This strategy extends existing mandatory social insurance. Workers pay a higher social insurance contribution during working life to finance long-term care. In this approach:

- social insurance covers the costs of (a) meeting clinical need, and (b) providing good-quality ‘hotel’ care.
- the individual meets the extra costs of hotel care above that provided by the social insurance arrangements – the purpose of social insurance is to finance good-quality care but, given resource constraints, not gourmet food or life in a stately home.

This article makes no attempt to set out the detailed workings of this strategy, and so offers no definition of the boundary between ‘good-quality’ and ‘higher-standard’ hotel care.⁹

Public pensions take no account of the fact that women on average live longer than men, and the requirement to use unisex life tables has been extended to mandatory private pensions in many countries, including the EU and North America. There are several reasons for adopting this approach for long-term care. First, if insurance is mandatory, there is little or no distortionary effect from charging men and women a premium based on joint probabilities; in particular, adverse selection is not a major problem. Second, there are obvious political difficulties from imposing on women a significantly higher contribution rate than men, all the more since the differential is, and is likely to remain, much larger than for pensions. Finally, the use of unisex tables can be defended as a simple value judgement.

The advantages of this approach are those of social insurance, outlined earlier. First, the system can adjust to changing realities, that is, can address uncertainty. If the incidence of dementia increases sharply the system can accommodate the change, for instance by increasing social insurance contributions. Second, any restrictions on cover have democratic legitimacy, for example legislative change to tighten eligibility rules as a response to medical advances that prolong people’s independence.

The German system. Germany has a system of this sort, whereby workers pay an extra 1.95 per cent on their social security contribution.¹⁰ The system pays three different levels of benefit, depending on the extent of the person’s

incapacity, and offers three types of benefit: in-kind domiciliary care, cash to allow a person to buy his or her own domiciliary care, and residential care. There are additional benefits, for example for adapting a person's house or to cover the costs of respite care.

These arrangements, it can be argued, have the following advantages:

- The system covers the entire population.
- Contributions, at 1.95 per cent of income, are based on ability to pay.
- The system provides help for informal carers through the cash benefit and also by paying the pension contributions of anyone who provides informal care for at least 14 hours a week.
- The contribution mechanism offers some protection against demographic change, in that the additional 1.95 per cent contribution is paid not only by workers but also by pensioners.
- The system widens and deepens the market for care.
- Restrictions on benefit have democratic legitimacy.
- The system is based on an existing administrative mechanism.

For an update of the reform in the German long-term care insurance system see Rothgang (this issue).

Social insurance ex post

It has been proposed (Lloyd 2008) that long-term care could be financed via social insurance, with the premium paid as a lump sum either at age 65 or out of a person's estate. The idea behind this proposal is twofold: as a person gets older, the range of uncertainty about the probability of needing long-term care (p_1 in equation (2)) becomes smaller; and if a person can buy insurance for a single premium payable out of his or her estate, the cost of long-term care does not impinge on his or her living standard during working life or in retirement, but can frequently be taken from housing wealth.

This approach faces a number of questions.

Should membership be voluntary? There is ample evidence from the pensions literature, drawing on lessons from the economics of information (Barr and Diamond 2008: box 4.2) and behavioural economics (2008: box 9.6), that when choices are complex, people make bad choices or no choice at all. Many people realize that they need to save more for their old-age security and intend to so do – but somehow it never happens. In Sweden, workers are required to choose the provider of the private element of their pension, there being over 750 such providers; workers who make no choice are allocated to the default fund; in 2005, some 90 per cent of new workers in Sweden made no choice and were placed in the default fund (Sweden Ministry of Finance 2005: 36).

It would take courage to argue that voluntary choices about long-term care insurance would be any better. The issue is complex, as explained earlier, and people tend to procrastinate.

Compulsion makes politicians nervous, but has significant economic advantages:

- It recognizes the evidence from behavioural economics that people do not always make decisions in their own self-interest.
- It avoids adverse selection, since good risks cannot opt out and bad risks cannot choose to buy inefficiently large amounts of cover.
- A system that is compulsory allows some redistribution; thus it is possible to charge a contribution of x per cent of earnings, respecting ability to pay.

The political problems of compulsion should not be exaggerated. First, contributions for long-term care are smaller than for pensions, since the probability of needing long-term care is lower than that of reaching pensionable age and, where a person needs care, the average duration is less than the average length of time for which a person receives a pension (in the terminology of equation (2) both p_1 and p_2 are smaller for long-term care than for pensions). Second, the pill of compulsion can be sweetened if it is possible to top up the benefits from the compulsory system with privately financed benefits.

An option intermediate between voluntarism and compulsion is to allow self-insurance or only partial insurance for (say) the first two years of needing care; the mandatory social insurance system would pay the costs beyond two years.

Prepayment or post-payment? Should a person pay the single premium at (say) age 65 or be allowed to pay retrospectively out of his/her estate? There are two questions. First, should a person be allowed to *decide* later whether or not to insure? The answer is clear: insurance works only behind the Veil of Ignorance, that is, people have to precommit. Allowing a person to decide later whether to insure creates insoluble problems of adverse selection, since the only people who buy insurance are those who find that they need long-term care – the system degenerates into self-insurance through the insurance equivalent of Gresham's Law.¹¹

A different question is whether a person should be allowed to *pay* later. The economic answer is that, so long as the decision to participate has been made earlier, allowing people to pay later is compatible with insurance; what is necessary is a premium whose present value equals the average cost of care.

The political answer, however, is different. Allowing people to pay retrospectively is political dynamite, because many people do not understand the idea of insurance. People may not need long-term care, but when they die the single premium is a claim on their estate. And what if the payment absorbs their entire estate? What about a person who chooses to pay on his/her 65th birthday and dies three weeks later? What about the incentives for a person to give away his or her entire estate?

Conclusion

Earlier discussion suggests powerful analogies with health care: delivery can be public, private or mixed; on finance there is a strong case for relying mainly on public finance. These conclusions are technical rather than ideological.

More specifically, the analysis in this article suggests robust conclusions about the finance of long-term care.

- Self-finance (i.e. financing long-term care out of personal savings or a long-term care savings account) is an inferior solution. Where someone is risk-averse the possibility of pooling risk is welfare-enhancing.
- Actuarial private insurance, for technical reasons – largely connected with information failures in insurance markets – is badly suited to the risks involved in long-term care, in particular the risk that a person will need such care (p_1 in equation (2)).
- Taxpayer finance is implausible in the English context; it is also implausible elsewhere, given competing fiscal demands connected with population ageing, notably rising spending pressures for pensions and health care, and given global competitive pressures. These long-term trends are all quite separate from the current economic crisis.
- *Ex post* social insurance: a mandatory system in which people pay a single premium at (say) age 65 or out of their estate could work in economic terms, but the political difficulties are likely to be insurmountable. This is all the more the case, since the gain from an *ex post* system, as opposed to an *ex ante* system, is very limited.
- *Ex ante* social insurance: there is a strong case for extending social insurance to provide mandatory cover for long-term care. Social insurance is able to address the major insurance-market problems discussed earlier, is well understood politically, and in administrative terms piggybacks on to existing arrangements. Such a system should be large enough to cover all, or almost all, the costs of a good standard of care, covering both clinical needs and ‘hotel’ costs. Topping up should be an option, either from private saving or through supplementary private insurance, if that is available on terms that people are prepared to pay. Topping up can be defended both because people have very different tastes, and as a political price for a mandatory system that covers everyone. As with other elements of social insurance, and increasingly with private insurance, the system should be based on unisex probabilities.

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Notes

1. More formally, with risk the probability distribution of outcomes can be estimated with a relatively small variance; with uncertainty, the variance is large.
2. The government can issue indexed bonds to deal with inflation; that, however, is not actuarial insurance, but tax-financed state intervention to assist private insurance.
3. The problem can sometimes be sidestepped in group schemes, where the insurer can impose a pooling solution.

4. Thus p_2 abstracts from the probability of needing care (i.e. p_1); once a person needs care, p_2 addresses the probability distribution of different durations of care.
5. It is well not to get too enthusiastic about tax incentives. Lessons from behavioural economics explain why tax incentives do not have a major effect on pension saving; but such incentives are expensive and can easily be regressive.
6. The relative price effect (in the context of medical care also referred to as excess medical inflation) measures the extent to which the prices of services tend to rise faster than prices generally. There are two reasons: the price of labour tends to rise faster than the general price level (i.e. real earnings rise); second, services like health care and education have a higher-than-average direct labour content (see Baumol 1996). The argument applies at least as much to care services.
7. For fuller discussion, see, for example, Barr (2001: ch. 4, section 2.2).
8. On retirement as a social construct, see Hannah (1986).
9. In this simple case, co-payments are zero or 100 per cent. It is possible to envisage intermediate options, with different rates of co-payment depending on (a) policy-makers' views about how essential a particular service is, and (b) the extent of the person's dependence. Given potential problems of transparency and hence political sustainability, such a policy is best regarded as a potential future agenda item.
10. Since 2004, a person who has never had any children pays an additional 0.25 per cent.
11. According to Gresham's law, bad money drives out good. If insurers cannot distinguish high- and low-risk buyers, the people who buy insurance will tend to be the bad risks, pushing up insurance premiums and driving out the good risks, who do not find it worth insuring at the higher price.

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