"Annuitisation and alternatives"

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Summary

This paper seeks to explore ways in which the release of funds from pension accumulations can be controlled. It addresses first the reasons for the need or desire for governments to impose any such restrictions, and aims to set out criteria for judging any regime imposed. It considers the current situation in various countries as to controls.

The paper then discusses compulsory annuitisation, to the extent that this is made possible by a well-established annuity market. Other possible annuity products are described for possible use in cases where there are no insurers or others offering conventional annuities for life. Alternatives to annuitisation in controlling the release of funds from such accounts are discussed, and all proposals are judged against the suggested criteria.

Key words: Annuities, Pensions, Taxation, Compulsion

"L'achat des rentes viagères et les alternatives"

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Résumé

Cet article a pour but d'examiner les moyens de contrôler la libération de l'argent des fonds de retraite. Il traite en premier lieu des raisons pour lesquelles les gouvernements ont besoin d'imposer, ou veulent imposer, ce genre de contrôle, et vise à présenter les critères pour juger un tel régime imposé. Il décrit la situation actuelle quant aux régimes de contrôle dans divers pays.

Ensuite, l'article traite de l'achat obligatoire des rentes viagères dans la mesure où l'existence d'un marché de rentes viagères bien développé rend cela possible. L'article décrit d'autres produits viagers possibles en l'absence de sociétés d'assurances ou d'autres compagnies fournissant des rentes viagères classiques. L'article examine les alternatives à l'achat des rentes viagères comme moyen de contrôler la libération des fonds provenant de telles caisses de retraite et toutes propositions seront jugées à la lumière des critères proposés.

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All views expressed in this paper are my own, and not those of the Government Actuary's Department or of any other organisation.

Annuitisation and alternatives

1 – Introduction

1.1 Pension provision of any kind can be seen as dividing adult life into two stages – the first during which rights are accumulated and the second over which a pension is received. Privatisation of elements of old-age pensions and pre-funding lead to particular focus on the two different phases, as they represent a building up and then a running down of assets. The first phase, the accumulation phase, has been the subject of much attention, with the effects of pension savings on capital markets and elsewhere being widely studied. Perhaps less widely studied, at least until recently, has been the second stage, the "decumulation stage" or "pension stage", when the accumulated assets are used to provide retirement income (see Banks and Emmerson 1999).

1.2 The build up of rights followed by their use is a feature of all pension systems, and the accumulation of assets is a feature of all funded systems. However, this paper will concentrate mainly on the situation of defined-contribution accounts, whether in the form of individual contracts or in collective occupational pension arrangements, such as have been introduced in many countries as part of recent pension reforms. In arrangements not based on the defined-contribution principle there automatically exist mechanisms for spreading the risks which are faced in the income stage,

- amongst pensioners,
- between pensioners and those of working age, or
- between members of the arrangement and the sponsors of the arrangement.

With a system of individual accounts such automatic risk-sharing arrangements at the pension stage do not generally exist.

1.3 Immediate annuities for life (payout annuities in common US terminology) are, in essence, a way for the market to pool the risk of living longer than average amongst all pensioners who purchase them. References to annuities henceforth will be to immediate annuities for life. In addition, such annuities in their traditional form offer protection against most aspects of investment risk and against the risk of longevity increasing more rapidly than anticipated. These last two risks are held by the seller of the annuity, who may seek protection against the first by suitable investment where possible, but who may well find that the second risk cannot be laid off in the market (see Wadsworth *et al*. 2001). Where annuities are sold in a free market they are subject to selection problems as for other insurance products – these problems may be reduced where annuitisation is compulsory.

1.4 Papers that have been written on annuities have tended to concentrate on economic analyses of the annuity markets in certain countries, particularly the UK (see, among other works, Brown, Brown 2000, Finkelstein and Poterba 2000, James and Vittas 1999 (2), Kapur and Orszag 2000, Milevsky 2001, Murthi, M Orszag and P Orszag 1999 (1) and (2), Murthi, M Orszag and P Orszag 2001, M Orszag 2000, M Orszag 2001, P Orszag 1999). Such analyses have investigated the extent to which annuities offer an optimal asset to pensioners, the price people are prepared to pay for protection against longevity risk, and the extent to which selection problems and problems posed by high costs are real. Less has been written on the role of annuities in supporting general government pension policy, and the possible use of alternatives to annuities in supporting such policies. Walliser 1999 presents arguments that governments should require annuitisation to cover a

certain minimum income, and allow freedom of use of accumulated funds in excess of the cost of that minimum annuity while James and Vittas 1999 (1) recommends a more pragmatic evolutionary approach. Valdes-Prieto 1998 rejects certain arguments for compulsory annuitisation without favouring a particular alternative. Yermo 2001 considers the development of annuity markets in selected OECD countries.

1.5 Section 2 covers the reason why governments should want to control the flow of funds from individual accounts during retirement, and section 3 uses some of these ideas to generate criteria for judging different regimes for such control. Section 4 considers briefly the current state of annuity requirements around the world, in particular whether annuitisation is, at least in part, compulsory for those with defined-contribution funds. Section 5 describes alternative methods of producing income in retirement, while section 6 judges those methods against the criteria developed in section 3. Section 7 presents a few conclusions.

2 – What interest could governments have in controlling the pension fund in the "income phase"?

Alleviation of poverty amongst elderly people

2.1 Governments establish pension systems, whether unfunded, funded, or funded and based on individual accounts, in order, by-and-large, to ensure that their citizens have an income in old age. They will almost certainly have an interest in seeing that the system guarantees that the majority of members of the system have sufficient income throughout old age to avoid poverty, which might well be the case in the absence of such systems. In many cases there may be a means-tested (unfunded) safety net payable to those without sufficient resources from the funded system or elsewhere, and an explicit aim of government policy may well be to prevent old people from falling back onto this safety net if different management of pension assets before or during the pension stage would have prevented this. In other cases a minimum income may be provided from a social security system, with pensions from individual accounts giving the possibility of providing higher retirement incomes to those who have higher earnings or who wish to make higher savings during their working lives.

2.2 Clearly, one particular danger is that of out-living assets, and annuitisation should prevent this by offering insurance against longevity. In addition annuities can generally be written so that income can also be provided to the dependants of the initial annuitants after their deaths for specified periods or for the remainder of the dependants' lives.

2.3 In addition, annuitisation allows the maximisation of income over the lifetime of a pensioner compared with other methods of managing the release of assets from an individual account. Mitchell 2001 summarises earlier research explaining how annuities can maximise utility over the lifetime of pensioners (in the absence of bequest motives) by allowing income to be drawn at a faster rate via annuities than when incomes are drawn from arrangements where individuals carry their own mortality risks. Intuitively, if individuals carry their own mortality risks, on death those individuals will need to have funds remaining in their arrangements in order to meet the contingency of further survival – with annuitisation such funds are not needed, as cross-subsidy between those with longer and shorter survival times occurs (see also World Bank).

2.4 Hence requiring annuitisation plays a twin role in alleviating poverty among pensioners, both by ensuring that the possibility of outliving assets is eliminated and by ensuring that retirement income is not reduced artificially by the need to avoid outliving pension assets in arrangements where the mortality risk is self-managed and/or self-insured. One criticism of annuitisation from some quarters is that it leads to regressive cross-subsidy from poorer pensioners to richer pensioners as poorer pensioners tend to have lower life expectancies. In the UK some annuity providers offer higher annuities to those who may be expected to have lower than average life expectancy, either on the basis of actual health status, potential predictors of health status (smoking, obesity) or other factors such as manual as opposed to non-manual employment and residence in areas with lower than average life expectancy.

2.5 In addition, traditional forms of annuitisation generally remove investment risk from the pensioner, to a very large extent eliminating the possibility that poor or disastrous investment performance could reduce or remove entirely retirement income, which could happen in self-managed, self-invested arrangements. Even with forms of annuitisation where some investment risk is

retained by the annuitant (described further in section 5) the choice of underlying assets on offer may well be constrained so as to reduce considerably the probability of any very severe loss of income. With annuitisation there is the possibility of failure by the annuity provider, but this risk can be very considerably reduced by a strong regime of prudential supervision of annuity providers (generally insurance companies), perhaps backed up with some compensation arrangement in the event of provider insolvency.

2.6 Pensioners seeking to protect themselves against the risk of investment failure in a self-managed arrangement for generating income in retirement could seek protection by investing very cautiously. The extent to which annuity providers also invest cautiously, in order to hedge the investment risks that they have assumed, has been a reason for some people to criticise annuities. However, such criticism must be tempered by consideration of the effect that alternatives to annuitisation would have on self-investment patterns during retirement, where income protection may well be accorded a high priority.

2.7 Thus annuitisation, by transferring both mortality and, in its traditional form, investment risk away from pensioners, offers a very powerful protection against two possible reasons why income may not be sustained for the whole of retirement. Alternatives to annuitisation which seek to control the flow of funds from pension arrangements may be able to achieve a similar effect, and this will be explored later in this paper.

2.8 Inflation (rises in the cost of living) may pose a serious problem for those living on incomes fixed in money terms, which will include pensioners with conventional annuities fixed in money terms. Increasingly annuities are being offered which increase in line with rises in the cost of living index. Some governments issue "index-linked" bonds, where the coupon and redemption proceeds increase in line with increases in a cost of living or similar index, which allow annuity-writers to match liabilities under index-linked annuities, at least insofar as such bonds are of the necessary duration. In inflationary times an index-linked annuity will provide better protection to a pensioner than a conventional annuity, and may well also offer better protection against devaluation in the real value of retirement income than self-managed arrangements, especially where inflation is unanticipated.

The role of tax relief

2.8 In many countries, it may be possible for individuals to choose how much they pay into defined-contribution accounts, perhaps with prescribed minima and maxima, or it may even be that paying into such an account is entirely voluntary. The former may happen either where such accounts are the prime method of state pension provision, or where such accounts act as top-ups to other forms of provision, whether state or occupational. Voluntary accounts often exist as top-up arrangements. Where such provision, or the amount of such provision, is voluntary, there are very often tax privileges attached to the making of provision or additional provision.

2.9 A typical form of such tax privileges is to allow contributions to such accounts to be deducted from income before taxes on income are levied, with the resulting pensions being subject to income tax. In addition, investment return within funded pension arrangements is often tax free, or subject to tax at a lower rate than investment return on assets outside pension funds. Such arrangements are often categorised as "EET", the first E indicating that contributions are exempt from tax, the second E indicating that investment return is exempt from tax, with the T indicating that

the eventual pensions are taxed (see Whitehouse 1999). Other variants of tax treatment of pension arrangements can be categorised using the same terminology. In addition, sometimes contributions to pensions are exempt from social security taxes that are levied on other income from labour.

2.10 Where tax relief is available for contributions to pension arrangements but tax is charged on the eventual pensions, this might be thought to be tax neutral. However there are several reasons why even pure EET systems can have a tax cost, over and above the cost implied by exempting or partially exempting investment return from taxation. One such reason is “tax band shifting” in a background of increasing marginal rates of income tax. Tax relief on contributions paid into arrangements, often offered at the full marginal rate experienced by workers, is likely to be at a much higher rate than the average rate of tax paid on pensions in retirement. Where, as in the United Kingdom (see below), a disproportionately large amount of pension contributions are made by or on behalf of higher rate taxpayers, who may well not pay tax at such a high rate in retirement, tax band shifting can prove quite substantial and therefore expensive.

2.11 Another reason for a tax cost arising from the treatment of pension funds is the possibility of some tax-free withdrawals, even though income payments in retirement are taxed. In the United Kingdom it is possible, broadly, to take one quarter of the fund in an individual (personal) pension arrangement as a tax-free lump sum at retirement. Sometimes such withdrawals are subject to high tax charges, designed to be punitive, but in other cases withdrawals on certain events are tax free.

2.12 In the United Kingdom, where funded pension provision is well established, the cost of tax privileges to non-state pension provision (for both defined-benefit occupational plans and defined-contribution arrangements) is quoted at between £11 billion and £12 billion a year in recent years (Inland Revenue 1999). Although there is some considerable debate over whether this is calculated in the most appropriate method for such a cost, the amount is, at around 1.5% of GDP, very substantial, and really needs to be justified in terms of achieving the over-riding policy objective of alleviating poverty in old age (or a combination of that and other policy objectives). Such justification would be easier if it was possible to show that the tax privileges were predominately directed towards those likely to be poor during retirement.

2.13 However in the UK this does not appear to be the case – although no breakdown of the recipients of this tax privilege by wealth or income is available, study of occupational pension provision shows that membership of a pension arrangement is almost always more likely for high earners compared to low earners (Lunnon 1998 and ONS 2000). In addition, since in the UK contributions to and benefits from pension arrangements are often related to income, not only do a higher proportion of better-off people appear to enjoy membership of such arrangements, but also they will have larger benefits (and therefore have enjoyed more tax relief) than less well-off members of such arrangements. And, as covered in paragraph 2.10 above, where tax relief on contributions to such arrangements is available at a tax-payers’ highest marginal rate, those paying tax at higher rates under progressive income tax scales will find that tax relief is also more valuable. As such it seems likely that the effect of tax relief on pension funds in the UK is very regressive. Evidence from the United States of America seems to suggest that there too the proportion of better-off tax payers making pension contributions is higher than for less well-off tax payers, and that, as may be expected, they make larger contributions on average (author’s analysis of figures from Internal Revenue Service website).

2.14 Where costly tax relief is given in order to encourage greater levels of pension provision (with the aim of ensuring that more people make a higher level of provision and thus face a reduced probability of poverty in old age), the government may be held legitimately to have an interest in ensuring that such tax-privileged pension saving is indeed used to provide income in retirement. Without such arrangements there are various other possibilities for the use of the funds – they could be used for:

- discretionary expenditure before retirement, possibly jeopardising income in eventual retirement
- discretionary expenditure at the time of retirement, when lifestyle changes (such as the desire to move house) may make expenditure especially attractive, or during retirement
- expenditure on health care during retirement, especially during the last years immediately before death – this may be held to be an entirely acceptable use of tax-privileged funds, although such an argument has not found favour in the United Kingdom, with its National Health Service providing most health care free to pensioners and non-pensioners alike
- bequests.

The widespread diversion of tax-privileged pension fund monies away from the provision of basic retirement income towards purposes such as these has two potential problems. First, for those with barely adequate funds for a retirement income, it could lead to poverty in old age, running counter to the prime objective of government in this area. Second, it could lead to wealthy people taking much greater advantage of the tax privileges attached to voluntary "pension" saving, investing money into pension arrangements when the money was intended for one or more of these non-pension purposes. Without wishing to suggest that there is anything incorrect in seeking to save to fund discretionary lump sum purchases later in life or to provide bequests, such saving in an environment endowed with tax-privileges designed to encourage pension provision will be classified as an "abuse" of those tax privileges – it is normally possible to make such saving in non-pension environments, albeit without the tax privileges.

2.15 It can be argued that tax-neutrality is retained by taxing lump sum distributions from pension funds, whether during the pensioners' lifetime or at death, possibly at a rate designed to reflect both any tax relief on contributions paid to the arrangement plus the advantages of any tax privileging of investment return in the arrangement. This can imply really quite high tax rates, especially for those who have enjoyed tax relief on contributions at high rates of income tax. It may not be possible to distinguish the rate of income tax at which tax relief was given originally, so an overall average rate may need to be chosen as the basis for the tax on lump sum distributions. In addition arguments may be presented as to the socially useful purposes to which lump sum distributions can be used (house purchase, payment of children's education costs, payment of medical expenses), and such arguments may also lead to lower than tax-neutral rates of tax on lump sum distributions. Hence even with the taxation of lump sum distributions there may be a (considerable) tax cost. In addition, there will always be tax deferral, which will serve, other things being equal, to increase the government's borrowing needs. In fact the whole EET approach to the taxation of pension arrangements can be seen as an exercise in tax deferral by the government (see MacLeod 1991). Any slowing of the release of funds from pension arrangements increases the extent of tax deferral, which would tend to represent a cost to government considering its position on a cash basis.

2.16 A requirement to annuitise pension funds during retirement ensures that the funds are properly used to provide a reasonably stable income during retirement, rather than for any of the

other purposes described in the paragraph 2.14. Thus a requirement to annuitise, or other similar controls on the release of funds from pension accounts, should seek to prevent widespread over use of the tax privileges that are often attached to pension fund saving by better off people looking to save towards (lump sum) discretionary expenditure later in life or towards bequests.

Government control versus personal liberty and economic efficiency

2.17 In some cultures a high regard is paid to the rights of property ownership, and it may be felt that for the government to impose controls on amounts saved by individuals (whether or not such amounts have been augmented by tax privileges) is inimical. However, in countries where saving in funded pension arrangements is voluntary, there exists generally the option to make similar savings outside the pensions system (albeit without the same tax privileges). Where people can choose between tax-privileged accounts with controls on the use of fund imposed and non-tax privileged funds without such controls, arguments against such controls would seem to be weakened.

2.18 Where controls on the use of pension funds might serve to constrain the choice of investment for the funds involved, economic arguments may be put forward suggesting that such controls lead to a sub-optimal allocation of capital in the economy as a whole (as touched on in paragraph 2.6). This paper will not repeat those arguments, but will refer to them in later stages when the effects of different controls are considered.

3 – Criteria for judging regimes

3.1 Based on the discussion in section 2, the main criteria for judging systems for controlling the release of funds from pension funds will be

- the role of such controls in ensuring that pensioners have a reasonably secure income throughout retirement (and this will be taken as including also the periods of the lives of any dependants after the pensioners' deaths where this is desired)
- the role of such controls in ensuring that money saved in pension arrangements is actually used for retirement income, and in ensuring that tax revenues are not unduly deferred
- the extent to which such controls inhibit asset allocation and thus may lead to a sub-optimal allocation of capital within the economy as a whole (it will be assumed that there are not other controls on the investment of pension funds such as a requirement to hold at least a proportion in government bonds)
- administrative ease, including problems posed for pensioners as they age, and problems for insurers with regards to taking on risks and (anti-)selection.

The issue of whether such controls inhibit personal freedom will not be used as a criterion for judging regimes, for the reasons outlined in paragraph 2.17. There could, of course, be a range of other points arising from other concerns of governments, but these will not be considered here.

3.2 Under the heading of the role which different methods of control may have in ensuring security of income, consideration will not be given to whether the initial level of income provided by the accumulated funds at the date of retirement is adequate. This is really a matter for those who set contribution rates to defined-contribution accounts, whether compulsory contributions or, under a system where contributions are voluntary, individually tailored contributions. In performing such calculations much will depend on the rate of return (likely to be net of either price or earnings increases rather than gross) assumed, which in turn will often depend on the assets likely to be held, and their expected level of risk. Where defined-contribution accounts represent the second or third tier of pension arrangements, and flat-rate or other social security pension is provided which covers basic income requirements in retirement, the income security criterion may be considered less important, and perhaps more weight should be given to other criteria.

3.3 One element which will determine the security of income in retirement is the financial soundness of the institutions with which the funds are invested. Where an annuity is purchased, the key issue will be the soundness of the annuity provider (of course, where some investment risk is retained by the annuitant as mentioned in paragraph 2.5, the performance of the underlying assets will also be important). In the case of non-annuitisation the soundness of the investment manager (if any) will be important in the absence of firm protection for investors' money in the event of manager failure. Again, the role of good prudential supervision of life insurance companies and other investment companies is too large to be considered fully in this paper. In addition to the security provided by a sound regime of prudential supervision, it is also possible in many cases to access credit rating agencies' assessments of the soundness of such companies.

3.4 Where the income in retirement is not guaranteed as it would be with a conventional annuity, but is dependent on some assets (whether held directly or indirectly by the pensioner, or used by the annuity provider to determine the income from an investment-linked annuity), consideration will not be given in this paper to the level of risk arising from the actual assets held. The choice of assets is

too great, and the characteristics of the risk/return trade-off for different asset classes in different investment markets too varied, for full consideration.

3.5 One requirement for the establishment of reasonably sound companies selling annuities will be the need for such companies to hold considerable reserves in the absence of holding matching assets (which may or may not be available). The need generally to hold (mainly government issued) fixed interest stock or to establish substantial reserves in order to back conventional annuity business will be considered in judging annuities against the third criterion in paragraph 3.1. Similar judgements will be made in respect of alternatives to annuities, on the assumption that pensioners seek a good degree of security of income, as alluded to in paragraph 2.6.

4 – Current annuitisation requirements around the world

4.1 ISSA 2001 gives information about the annuitisation or other requirements for complementary occupational pension plans (that is excluding defined-contribution or other account-based approaches which are considered part of the state system as in certain Latin American countries, and excluding to a large extent individual voluntary pension arrangements). The same source gives information on the taxation of occupational pension arrangements. A summary of the information is given in the appendix.

4.2 From the information in the appendix, it can be seen that there are a wide variety of approaches for annuitisation requirements in respect of defined-contribution occupational arrangements. The information is summarised approximately in the table below.

Annuitisation requirements and tax treatment of defined-contribution occupational pension plans

Tax treatment	Form of benefits: Mainly or entirely annuity	Form of benefits: Mixture of annuity and lump sum	Form of benefits: Mainly or entirely lump sum
EET or largely so	**Austria** **Brazil** **France** **Netherlands** **Sweden**	**Canada** **Denmark** **Ireland** **Israel** (pension plans) **Italy** (but tax treatment is complicated) **Norway** (considering fixed-term annuity as broadly equivalent to a lump sum) **Portugal** **South Africa** **Spain** **United Kingdom**	**Belgium** **USA**
Contributions and investment income taxed (broadly), benefits exempt		**France** (some arrangements)	**Hong Kong** **Israel** (provident funds) **New Zealand**
Other			**Luxembourg** (contributions, investment return and benefits all tax exempt)

4.3 The information in the table above suggests that the granting of tax relief on an EET basis to defined-contribution occupational pension arrangements is quite strongly correlated with having an requirement to annuitise at least a substantial part of the pension fund on retirement. Conversely countries which do not offer any tax inducements for such pension provision do not impose

annuitisation requirements – to do so would put “pensions” savings at a distinct disadvantage to other forms of savings, which may be treated the same in tax terms but which would then have much greater flexibility in terms of use of the proceeds. Indeed, it could be asked in what sense savings plans which do not require annuitisation at retirement are really pension plans at all – it would seem that their only qualification for consideration is that the proceeds are generally only available at or after a certain age. Conversely, in the absence of compulsion, it is perhaps hard to see what benefits for savers so-called “pensions” saving which did not attract EET or more generous tax treatment would have over other savings arrangements which might have greater flexibility in allowing access to the saved funds.

4.4 What has not been considered here is the availability of annuities for life in the various markets represented by the different countries (Yermo 2001 addresses this to an extent). Of course the availability of annuities and annuitisation requirements may go hand-in-hand. Some countries may feel that it is not possible to impose annuitisation requirements because there is currently no market for such annuities, while in other cases imposing an annuitisation requirement on a pension system may be felt to be a necessary and sufficient condition for the creation of an annuity market. This issue is explored in Vittas 1998.

5 – Other ways of producing income in retirement

5.1 The basic principle of providing income from an individual retirement fund is to invest in some asset and withdraw a combination of investment return and the underlying capital over the remainder of the future life. A pensioner faces two substantial risks – longevity risk and investment risk. In describing different approaches a key feature will be the extent to which the pensioner insures one or both of these risks with another party.

5.2 Purchasing a conventional annuity represents the ultimate in risk transfer from the individual pensioner to other institutions (the annuity provider in the first instance, though it may be possible for the provider to lay off some of the risk by reinsurance and/or suitably hedged investments). In obtaining the guarantees that the risk transfer represents, the purchaser of the annuity is in effect "locking into" investment conditions that prevail at the time of retirement – such locking in may be considered undesirable where investment conditions fluctuate so that pensioners with similar funds but who purchased annuities at different times obtain very different pensions. Other annuity-type products seek to allow the pensioner to retain some of the investment risk (investment-linked annuities, described more fully below), and even, in some cases, some of the mortality risk – thus in part moving away from the "locking in" problem. Within the UK a life annuity or annuitisation does imply some considerable element of risk transfer away from the pensioner, and, in particular, a considerable element of pooling of the mortality risk arising within a given cohort of pensioners.

5.3 The most obvious alternative to annuitisation is permitting pensioners to choose investments themselves with no protection from either investment or mortality risks. This paper will refer to this approach as "income drawdown", as this term is in common usage in the UK – in Chile the term "programmed withdrawal" is used. Where this is the approach to generating retirement income, a government may wish to impose some controls on the release of funds from the account, with a view to going some way to meet the criteria described in section 3.1. This paper will discuss possible regimes for such controls, and aim to evaluate them against those criteria.

5.4 In addition to the two main alternatives (compulsory annuitisation and "income drawdown"), there is the possibility of combining the two approaches. Within the UK context a number of combinations either are used currently or have been proposed as alternatives (largely with the aim of allowing greater choice for pensioners who can afford to take greater risks).

5.5 The range of alternatives which will be considered is:

Annuitisation

A1 Conventional annuities (whether fixed in money-terms or escalating in line with some index such as an index of consumer prices or earnings – not investment-linked)

A2 Investment-linked annuities – see paragraph 5.6

A3 "Pseudo-annuity" products, where there is little, if any, insurance of the investment risk, and only partial insurance of the mortality risk, but at least pooling within a single age cohort – see paragraph 5.7

Combination approaches

B1 Requirement to secure a certain minimum income with an annuity, with income draw-down permitted on funds remaining after annuity purchase – see paragraph 5.10

B2 Income drawdown, but with requirement to annuitise if fund is or falls below a given level – see paragraph 5.11

B3 Requirement to annuitise before a certain age, but the possibility of using income drawdown before that age (the current approach in the UK) – see paragraph 5.12

Income drawdown – see paragraph 5.13 *et seq*

C1 Income drawdown with controls based on age or interest rates or both

C2 Income drawdown with more arbitrary controls

C3 Income drawdown with no controls

Where the usual option available is a return to the pensioner of the accumulated account as a lump sum at the date of retirement, this will be considered alongside the situation of income drawdown with no controls (although where the return is made without a tax charge, clearly this has fiscal implications in an otherwise EET tax regime – in fact making it an arrangement where all stages of pension funding are tax exempt!). In the extreme case income drawdown without controls would permit the taking of the whole fund as a lump sum on retirement, thus justifying this treatment of the two approaches as equivalents. Valdes-Prieto 1998 notes that the International Labour Organisation recommends against lump sum distributions.

5.6 Investment-linked annuities have been available in the UK for a number of years. They are available on both a with-profits basis (implying a very considerable degree of guarantee by the annuity provider) and on a unit-linked basis. "Unit-linked" annuities offer investment in an open unitised fund with income provided at regular intervals by the sale of a fixed number of units (the fixed number being determined at outset by reference to the number of units bought on purchasing the annuity and the life expectancy at time of purchase). For more details see Hadfield 2001 and Annuity Bureau 2001, especially www.annuity-bureau.co.uk/annuity-profit.html and www.annuity-bureau.co.uk/annuity-unit.html. In the USA unit-linked annuities have been available for a number of years from the TIAA-CREF (Teachers Insurance and Annuity Association College Retirement Equities Fund) organisation, and are called CREF annuities (Valdes-Prieto 1998).

5.7 The main proposal considered under the heading A3 is that contained in the Wadsworth *et al*. 2001. This is for a product that they call an "annuitised fund". A product based on this concept is being introduced by one insurance company in the UK. This would be a unitised fund, with a choice of investment options (with a range of risk levels), in which pensioners would hold units. Maximum and minimum income levels would be calculated for a given period, and income between these levels taken by cancelling the appropriate number of units – in this respect it would be similar to investing in an income drawdown fund with controls. The maximum and minimum limits would be set with a view to expected future mortality, and this could be changed between reviews, reflecting changes in future mortality. However members of the "annuitised fund" would, in effect, pool their own mortality risks by seeing the units held in respect of members who died redistributed among those still alive by means of "survival credits". (There would seem, therefore, to be a strong incentive to withdraw the maximum income possible while alive to avoid "losing" too many units to other members of the fund on death.) It is this ability to choose the level of income drawn, and the self-

insurance of the risk of unanticipated increases in longevity within a cohort that distinguishes this proposal from unit-linked annuities as in option A2. Annuitisation with a conventional annuity would be needed at some certain (high) age, say 85, as by this point the risk of fund depletion by those who live longer than their life expectancy would be very high.

5.8 One insurance company in the UK offers another product which might also be held to fall under the broad heading of A3. This involves purchasing an annuity for five years, or life if shorter, with the properties desired (increases/indexation, benefits for dependants on death, etc) with part of the fund, leaving the remainder of the fund invested in assets thought likely to give real growth. After five years another temporary annuity is bought (with the properties perhaps being adjusted to reflect changing circumstances), again leaving the remainder of the fund invested elsewhere. Again complete annuitisation is required at age 85. More details can be obtained from www.annuity-bureau.co.uk/annuity-new.html (see Annuity Bureau 2000).

5.9 Both the products described in paragraphs 5.7 and 5.8 are held to be more attractive than conventional annuities for annuity providers, as they avoid the giving of long-term guarantees about mortality and investment return. In addition they permit investment in a mixture of shorter-term bonds (which may give better yields than long-term bonds, especially currently in the UK) and equities. They are also, presumably, more attractive from the point of view of those who wish to sell financial advice to pensioners throughout their retirement.

5.10 The options outlined above as B1 and B2 are designed to ensure that the pensioner is required to annuitise at least broadly to an extent to cover the minimum income that would be payable to retired people on a means-tested basis. Approach B1 requires such annuitisation at retirement – the pensioner would be required to buy an annuity which should exceed the means-tested benefit throughout retirement. This approach was recommended generally in Walliser 1999, and specifically for the UK in McDonald *et al*. 2000. (In McDonald *et al.* 2000 allowance was made for the means-tested benefit to increase more rapidly than the indexation in line with prices required on the pension – so an annuity rather bigger than the means-tested benefit at retirement was stipulated). Within the UK, however, the cost of such a minimum annuity is rather greater than the current average defined-contribution fund at retirement – hence it may well be that few of those reaching retirement at the moment in the UK would see this as a relaxation of the annuitisation requirement. (Since much defined-contribution pension provision is fairly recent in the UK, the relative size of the average fund may be expected to rise in future, and the data on average defined-contribution funds may be distorted by people holding more than one small fund, or holding a small defined-contribution fund in addition to a defined-benefit pension).

5.11 Approach B2 requires annuitisation when and if the self-managed fund falls below the level needed (after consideration of any other income sources) to buy an annuity of a minimum annual amount at the age in question – this may well be at retirement age where the funds at retirement are typically small. Full details are given in Gray *et al.* 2001, where the approach is called a "personal distribution plan". In some sense it is the opposite approach to that of permitting commutation of small pensions for lump sums.

5.12 In the UK there is a system which permits drawdown from defined-contribution pension funds from retirement until age 75, by which time an annuity must be purchased. This is the system

considered in B3. In order to guard the fund against depletion there is an upper limit on the income that can be drawn each year: in order to prevent undue deferral of income (and thus tax), there is also a lower limit. The maximum is broadly the income that could be obtained by buying a single-life non-increasing annuity from a reasonably competitive insurance company. The minimum income is 35% of the maximum. The maximum and minimum income for an individual are reviewed every three years. Because of the reference to the income from an annuity, the maximum and minimum are related to both the age of the pensioner and the prevailing market conditions as well as to the size of the fund. The approach "steers" the maximum income that may be taken towards its ultimate level, given the eventual need to buy an annuity.

5.13 Pure income drawdown arrangements (options C1, C2 and C3) could require the drawing of amounts which were stipulated in law, or allow the drawing of an income between a maximum and minimum which were stipulated in law. The Chilean defined-contribution system permits a type of income drawdown called "programmed withdrawal" as an alternative to annuitisation. The amount that may be drawn is fixed based on life expectancy and investment returns – there is no flexibility to withdraw larger or smaller amounts, so what this option offers pensioners is the opportunity to enhance investment return at the cost of insurance against mortality and investment risks rather then choice over timing of income. For more details see Muñoz 1996. The Chilean approach of allowing drawdown only of a single fixed amount will be considered as equivalent to having upper and lower limits on drawdown but setting these two limits to be equal.

5.14 When considering income drawdown more generally, an approach similar to that in the UK or Chile, with limits or fixed income based on both life expectancy and current market conditions could be used. It would also be possible to consider controls based on

- life expectancy but not current interest rates,
- current interest rates but not on life expectancy, or
- a completely arbitrary basis.

An example of a completely arbitrary basis would be to permit drawing-down of between 4% and 12% of the fund value each year, or exactly 8% of the fund each year. Such limits are generally considered to be set as proportion of fund size, and to be reviewed regularly.

5.15 An alternative to limits set as a proportion of the fund at the time of the review could be to express a minimum income in terms of a cash sum, equal perhaps to some minimum income level for pensioners. Although this might lead to fund exhaustion in the short to medium term, this might delay the need for the government to pay any means-tested benefits, as opposed to the situation where a pensioner constrained to draw only a small income might need to rely partially on a means-tested benefit. The maximum would need to be consistent with the minimum in this case. Setting a maximum in cash terms would prevent those with large pension funds using their funds entirely as retirement income, and could lead to the position where such money was forced to remain in the tax advantaged environment until it fell into their estates at death – counter to the policy objective.

5.16 Failure to review maxima and minima or fixed limits could lead to fund depletion where poor investment performance combined with drawing down of significant amounts leaves the fund not properly able to sustain that level of income. Conversely it could lead to the fund growing to such an extent that there is little chance that it would all be used to provide income before death. However reviews can be administratively complex and expensive, and confusing or worrying for the pensioner

(possibly also associated with the need to obtain additional expensive financial advice). The ideal frequency for reviews of maximum and minimum income limits on income drawdown arrangements could be the subject of another paper.

6 – Ways of controlling the release of funds

6.1 Consider each of the options identified in paragraph 5.5 against the criteria set out in paragraph 3.1:

Option A1 – Annuitisation with conventional annuities (whether fixed in money terms or escalating in line with some index)

Does it ensure that pensioners have a reasonably secure income throughout retirement?

Yes. By definition a life annuity should pay an income for life. It is usually possible to structure the annuity so that it continues after the death of the person originally insured until the death of specified dependants, possibly at a lower rate.

Potential problems may arise in high-inflation environments with a non-increasing annuity – the real value of the regular payments may quickly become worth much less than at outset, leading to pensioner poverty. Index-linked annuities can generally overcome this problem; like conventional annuities these will generally require the existence of appropriate matching assets (index-linked government bonds). However, where offered the choice between index-linked and non-index-linked annuities individuals may prefer a higher initial income rather than the prospect of future increases or indexation. They may well under-estimate the possible effects of even moderate rates of inflation over longer periods (for instance 5% a year inflation will halve the value of a fixed income after approximately 14 years).

Another possible problem is the failure of the annuity provider. This is a matter for the supervisory/regulatory regime in the jurisdiction concerned. In some cases there may be compensation regimes to ensure that policyholders do not suffer (the full effects of) provider failure.

Does it ensure that money saved in (tax-advantaged) pension arrangements is actually used for retirement income?

Yes. By definition the amount in the pension fund is released smoothly over the remaining lifetime of the pensioner when an annuity is purchased. There is no scope for "dipping into the pot" to make one-off substantial purchases – health-related or otherwise – or to use the (tax-advantaged) pension fund as a source of bequests. Nor are there problems for the government from undue deferral of tax revenue.

The lack of scope for taking lump sums may be regarded as a weakness by those pensioners who want to use their (pension) savings for purposes other than providing a retirement income. However, to the extent that such people have decided that their pension fund is more than sufficient to provide their desired retirement income, there should be scope for them to save out of their annuity income to fund large purchases or bequests, to borrow against future annuity income, and/or to buy life insurance to provide bequests. In addition, where people who are saving voluntarily for a pension today perceive that they may have more in their pension funds at retirement than they need to have to purchase their desired size of pension annuity, there is generally the option for those people to switch to investments outside the (tax-advantaged) pensions environment.

Does it inhibit asset allocation?

Annuity providers will generally seek to invest in assets which minimise the need to establish reserves to support their book of annuity business. Usually this will imply investment in government (and possibly high-grade corporate) bonds in the currency in which the annuity is denominated. For

index-linked annuities such investment will generally be in index-linked bonds. Thus annuitisation constrains investment away from investment in equities and inhibits overseas diversification in investment. However this needs to be considered against the portfolios that individual pensioners would have chosen themselves in the absence of annuitisation – these may well be similarly conservative, especially for pensioners with small pension funds who cannot afford to take risks.

How easy is it to administer?

Annuitisation should be very simple. On the investment side there is no need to allocate assets to individual accounts, merely to invest assets covering the whole portfolio of annuity business. Making regular payments of the same amount should be very simple (index-linked or increasing payments may be marginally more difficult). In some societies there may be problems with preventing fraud of the nature of non-reporting of deaths – although this will often apply to other methods of managing retirement income as well. In addition the annuity provider will need to monitor its mortality experience, comparing that with the basis on which the business was written, and adjust rates as necessary.

For the pensioners' point of view, receiving a regular pension payment would appear to minimise complexity. This may be important for older pensioners who in some circumstances may find more financial matters challenging. Where there is a competitive market for annuities, some "shopping around" will be needed before the annuity is purchased – within the UK the regulator (the Financial Services Authority) is currently encouraging this to promote competition in the market.

Compulsory annuitisation will reduce the scope for adverse selection in the annuity market.

Option A2 – Annuitisation with investment-linked annuities

Does it ensure that pensioners have a reasonably secure income throughout retirement?

Much will depend on the nature of the investment link (whether "with profits" or more directly "unit-linked") and the underlying investments.

With "with profits" annuities as currently written in the UK, bonuses will be declared each year, increasing the annual rate of payment by perhaps 4% to 10% depending on investment returns earned by the with-profits fund (and in some cases on changes in expected mortality of annuitants). However it is possible for annuitants to "anticipate" at least some of these bonus declarations when the policy is purchased – this gives a higher initial income. In many policies up to 5% a year of the bonus may be anticipated – if the full amount had been anticipated the range of annual increases would be between –1% and 5% given the bonus rates quoted above. Thus there is the possibility of small falls (although it is understood that one company writing such annuities guarantees that these cannot happen), and of small increases which may well not match increases in prices levels.

It is understood that the funds supporting "with profits" annuities hold a fairly conservative mixture of bonds (government and corporate) and some "blue chip" equities, thus aiming to provide a fairly low-risk moderate investment return. The annuity provider is, of course, aiming to match the high level of guarantees in its liability, while at the same time offering some prospect of investment returns better than those underlying a conventional annuity.

In a unit-linked annuity security of pension income more clearly depends on the performance of the underlying assets. As for with-profits annuities a certain level of growth can be anticipated, with higher growth giving a higher initial income, but the prospect of lower increases/larger decreases in future. Generally there are no guarantees that pension income will not fall, but, depending on the underlying investments it is, perhaps, unlikely to fall too significantly.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
By and large yes, for the same reasons as given for conventional annuities. Both types of investment-linked annuities described aim to produce a regular income, with no possibility of substantial capital withdrawals or bequests. Again there is little scope for tax deferral.

Does it inhibit asset allocation?
The investment portfolios held by providers of with-profits annuities will usually contain a mixture of bonds and equities. As such they may approximate to the economically efficient portfolio for pensioners with moderate levels of risk averseness towards their retirement income. However writing with-profits annuities, as with any with-profits business with a high level of guarantees, requires the writer to hold substantial capital. Where, as is often the case in the UK, this capital has been built up over many years within mutual insurance companies, there may be few questions asked about whether this is an optimal use of capital for owners of the insurance company (in the case of mutual companies the policyholders who enjoy the guarantees made possible by the reserves).
Unit-linked annuities may permit a level of choice as to the fund into which investments are made. In the UK there is even the possibility of self-invested unit-linked annuities (mainly recommended for younger pensioners), where the pensioner chooses the underlying investments directly. To the extent that individual pensioners are able correctly to choose their preferred risk/reward level, this should lead to an economically efficient investment allocation.
For both types of policies there should be the possibility of some investment in assets denominated in a currency other than the one in which the annuity is paid.

How easy is it to administer?
Such products will be more complicated to administer than conventional annuities. With-profits annuities will require analysis of investment returns and determination of bonus rates. In the UK with-profits policies are in general increasingly criticised as being subject to "actuarial wizardry", arcane and hard for lay investors to understand. Unitised investment products require constant tracking of the prices of underlying investments, and recalculation of unit prices, as well as tracking the investors' holdings.
In addition, unit-linked annuities may require complicated financial decisions to be made by pensioners about the choice of funds on an on-going basis. This may, in turn, imply the need for (expensive) professional advice over the entire remaining lifetime of the pensioner.

Option A3 – "Pseudo-annuity" products
Does it ensure that pensioners have a reasonably secure income throughout retirement?
For the product described in paragraph 5.7, the security will be as for a unit-linked annuity covered under option A2 above, with the additional risk that survival credits will be smaller than anticipated. Because income levels will be set between limits separately from the actual unit price at any one time, income levels will generally remain steady over reasonable periods. For the product described in paragraph 5.8, the protection will be less, as the performance of the non-annuitised assets over five year periods between each annuity purchase may well not have tracked changes in annuity prices (but within each five year period the income is guaranteed). The product should offer better protection than with a unit-linked annuity after the switch into a conventional annuity at age 85.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
Substantially yes in both cases, as income must be drawn reasonably steadily in both cases. For the product described in paragraph 5.7 there is no possibility of making bequests with the funds on death, as these are used to provide the survival credits to other pensioners. For the product described in paragraph 5.8, some of the non-annuitised portion of the fund falls into the pensioner's estate on death.
Both these products allow the pensioner to defer income until later in retirement, and thus defer the tax that the government will receive on the pension income.

Does it inhibit asset allocation?
In both cases there should be a mixture of (government) bonds and real assets held by or on behalf of pensioners. With the "annuitised fund" the fund(s) will hold a variety of assets – in fact the proposal is that there should be a variety of funds with different risk levels and that the pensioner should be able to choose amongst them. With the product described in paragraph 5.8, the pensioner will have a choice of assets in which to invest the non-annuitised portion of the fund (but moving away from the assets used to back annuity products in the investment of the non-annuitised fund leads to mis-matching risks at the next annuity purchase date). Using the principle outlined for option A2 with respect to unit-linked annuities, this should lead in the direction of an optimal asset allocation.

How easy is it to administer?
Both these options are considerably more difficult to administer than conventional annuities. For the annuity provider there are very considerable complexities with the option described in paragraph 5.7. The option described in paragraph 5.8 may be seen as somewhat simpler, as it is a combination of two simple existing products (fixed term annuity and unit-linked investment bond).
Both products require the pensioner to make decisions throughout retirement (at least at five-yearly intervals in the case of the product described in paragraph 5.8). As noted in paragraph 5.9, this may well require pensioners to obtain on-going financial advice during retirement.

Option B1 – Annuitisation to provide minimum income, drawdown permitted on remainder
Does it ensure that pensioners have a reasonably secure income throughout retirement?
Yes, for at least the minimum retirement income level – and as the two proposals required an index-linked annuities, this would provide protection against inflation as well. Income above this minimum level is as secure or as risky as the pensioner decides, and also subject to any restrictions on drawdown proposed.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
This depends more or less on the regime of controls applied to the fund above the annuitised amount. Where there is very considerable flexibility in the use of this fund, the potential for abuse of tax privileges (for instance by over-funding a pension with a view to taking out a large lump sum early in retirement, or enjoying tax-free investment returns on amounts which are intended as bequests) exists. However, some possibility for tax privileges to end up applying to bequests always

exists, for it must always be possible to leave amounts in the fund at death (maximised by taking low withdrawals from an income drawdown arrangement).
Tax can be deferred to the same extent that income can be deferred in respect of the nno-annuitised portion of the fund.

Does it inhibit asset allocation?
In the proposal for the UK as originally made (McDonald *et al.* 2000), the requirement for the purchase of an index-linked annuity could have lead, in the UK situation at least, to a substantially increased demand for index-linked government bonds (there are few index-linked corporate bonds in the UK at present). This could be held to skew investment unnecessarily. The investment of the non-annuitised funds would, presumably, follow pensioners' desired asset distributions (possibly even displaying a higher risk appetite than if the annuity covering a minimum income hadn't been required).

How easy is it to administer?
Overall this would depend on the regime for controlling the release of income from the non-annuitised funds. The administration of the annuity, and of the fund management of the non-annuitised funds should not, of themselves, be problematical. Annuity providers are still subject to investment and longevity risks in respect of the annuity covering the minimum income. Compulsory annuitisation of a set annual amount of pension with little annuitisation of higher amounts may serve considerably to reduce anti-selection in the annuity market.
Pensioners would need to take on-going decisions about the investment of the non-annuitised funds.

Option B2 – Income drawdown but requirement to annuitise if fund falls below minimum level
Does it ensure that pensioners have a reasonably secure income throughout retirement?
It should do, by ensuring that an annuity is bought when the fund falls below the level that can secure a pre-defined minimum income (when combined with other income) for life. Some controls on drawdown would presumably be needed to ensure that the whole fund is not taken as one cash lump sum before the annuity is purchased. While the fund remains above this level it should, by definition, be able to produce an income considered sufficient, although there is, of course, no requirement for the pensioner to take this income. The system specified the purchase of an index-linked annuity, thus providing inflation protection, and the trigger for annuity purchase would also be index-linked through linking to a minimum retirement income (as in B1) which was index-linked.
Danger might arise if the investment of the non-annuitised fund was mismatched from the potential liability of annuity purchase. In this case sudden falls in the value of the assets in the "personal distribution plan" might trigger annuity purchase at a time when the annuity which could be bought was lower than the minimum specified – in some ways the arrangement can be viewed as forcing annuity purchase at the worst possible time. Much would depend on the frequency of checks of the value of the drawdown fund against the cost of the minimum annuity.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
Again this depends more or less on the regime of controls applied to the non-annuitised fund. Where there is very considerable flexibility in the use of this fund, the potential for abuse of tax privileges

(for instance by over-funding a pension with a view to taking out a large lump sum early in retirement or enjoying tax-free investment returns on amounts always intended to be used as bequests) exists. Similarly the possibility of tax deferral exists here as with other income drawdown arrangements.

Does it inhibit asset allocation?
This should allow many pensioners very considerable freedom of investment with their entire pension funds in retirement. The pensioners who are constrained in their investments by having to buy annuities are those with smaller funds, who, economic theory would dictate, should generally be holding the same less risky assets as used to back annuity products.

How easy is it to administer?
Again this would depend on the regime for controlling the release of income from the non-annuitised funds. The administration of the annuity, and of the fund management of the non-annuitised funds should not, of themselves, be problematical. The problem will be determining when the purchase of the annuity will be triggered, if at all, as both the value of the non-annuitised fund and the cost of an annuity covering the required minimum income will vary from day-to-day, possibly by substantial amounts, and almost certainly not in a correlated way. Annuity providers are still subject to investment and longevity risks in respect of the annuity covering the minimum income for those who need them, but these will tend to be older pensioners, so insurers will be on risk for mortality risk for less long.
As with earlier options, pensioners would need to take on-going decisions about the investment of the non-annuitised funds.

Option B3 – Requirement to annuitise at or before a certain age, but drawdown permitted until that age
Does it ensure that pensioners have a reasonably secure income throughout retirement?
This depends on the regime adopted for controlling the release of funds from the drawdown arrangement, and also the age set as the maximum for annuitisation. The less strict the controls, the greater the risk of fund depletion and thus failure to provide an adequate income. The higher the maximum age of annuitisation, the less easy it is to manage the drawdown arrangement (the mortality risk becomes more unpredictable).
There is also an element of asset risk, with falls in asset values between reviews resulting in a lower maximum income at the next review.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
This depends on the rules controlling the drawdown arrangement and the somewhat arbitrary factor of whether death happens before or after annuitisation. As this latter factor is outside the control of the pensioner (!) it can be assumed that the over-funding of the tax-privileged pension fund to provide bequests is, in fact, discouraged by the eventual annuitisation requirement. Tax deferral will be constrained by any limits on amounts drawn and will not be possible after the highest age for annuitisation.

Does it inhibit asset allocation?

During the drawdown period, there is scope for considerable investment freedom. This is the system that is in place in the UK currently, and experience shows that a wide variety of investment choices are made, although generally there is an element of equity investment. (Investing in risky assets, with a probability of exceeding the investment return on the fixed-interest securities used to back annuities, is thought to be necessary to overcome “mortality drag” – that is the loss of the mortality risk pooling inherent in annuities.) Thus most investment policies are mismatched against annuities, and therefore the annuity which can be purchased eventually is uncertain (this also affects the results of the controls applied on drawdown in the UK, see below).
From the age at which annuitisation is compulsory pensioners will be holding most of their investments in gilts or corporate bonds (unless they choose an investment-linked annuity), but such assets may be those which economic theory would dictate as optimal for income generation for those of that age.

How easy is it to administer?
The fund management of non-annuitised funds and the provision of annuities do not impose any new administrative problems. In the UK the administation of controls on the maximum and minimum income that can be taken from drawdown arrangements and the requirement to annuitise completely at a given age have proved somewhat contentious – it may well be that any form of drawdown is sufficiently complicated that very intensive explanation must be given to pensioners adopting this route. Having a maximum age for ending drawdown by switching into an annuity should avoid problems with very elderly people having to make unnecessary judgements about their financial affairs.

Option C1 – Income drawdown with controls based on age or interest rates or both
Does it ensure that pensioners have a reasonably secure income throughout retirement?
Controls which impose an upper limit on the amount of income which can be taken based only on prevailing interest rates should ensure that the fund is never depleted, or is depleted only slowly (where withdrawals greater than interest rates/investment returns were permitted). Such a maximum would not, however, allow the full enjoyment of maximum income over the course of retirement, as some fund would always remain on death.
However, where the maxima are based on factors including life expectancy, managing the fund at very high ages becomes nigh on impossible – such factors would imply that a high proportion of the fund could be taken each year, which would leave those who survive with ever-shrinking funds. (This is just a very severe example of “mortality drag” as discussed in B3 above, and can be seen as the price for abandoning the risk pooling inherent in annuities). Fund exhaustion or severely reduced income at the oldest ages would be very likely.
There is also asset risk to be taken into account, although, with regular reviews, this should lead to adjustments in future income.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
Any maximum on income drawn should protect against large amounts being taken from the fund for discretionary expenditure during retirement. However, as noted above a maximum based only on prevailing interest rates should always leave some fund on death.

The scope for abuse of tax privileges by seeking to over-fund a pension fund with a view to leaving bequests will be determined by the setting of the minimum limit on the income that can be drawn. Pensioners taking only the minimum income, provided that minimum is sensibly defined, would always be able to leave considerable sums in their pension fund at death. A minimum which is based at least in part on life expectancy would be expected to fall towards zero as a pensioner aged, perhaps increasing scope for a pensioner with a strong bequest motive to maximise the fund remaining at death.
If there is a fixed income rather than the choice of taking an income between limits, there is no opportunity for deferral of tax revenue.

Does it inhibit asset allocation?
Pensioners should be completely free to choose funds which match their own risk-reward trade-off preferences. This should lead, in some sense, towards an optimal asset allocation.

How easy is it to administer?
The fund management and application of the maximum and minimum limits on income which can be drawn from an arrangement should be no more difficult than under the UK system at present – however, as noted in B3, this is not completely trouble-free.
Pensioners would have to consider investment decisions and decisions on how much income to draw, and possibly face unpredictable changes in income as a result of shifts in the maximum and minimum limits at review all the way through retirement.
If an annuity market remained for risk-averse pensioners, it would be subject to high degrees of anti-selection.

Option C2 – Income drawdown with arbitrary controls
Does it ensure that pensioners have a reasonably secure income throughout retirement?
Provided a maximum is set, fund depletion as a result of "over-drawing" should be avoided. However, there may well be gradual run-down in the fund as the pensioner ages (unless an income lower than the rate of investment return earned is being taken). As limits are unrelated to economic conditions, drawing down income at the rate of an arbitrarily set maximum may cause fund run-down where investment returns are low. There is, of course, still asset risk.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
A maximum should also prevent a single large drawing of income to fund discretionary expenditure during retirement. Any minimum should prevent the whole fund being retained for bequest purposes, although a typical minimum which seemed to offer pensioners a choice by being rather below the maximum would hold out considerable scope for over-funding their pensions in the knowledge that most of the fund could be bequeathed. Tax deferral would tend to be a problem for the government.

Does it inhibit asset allocation?
Complete freedom of asset allocation would appear to be possible.

How easy is it to administer?
The application of arbitrary limits would appear to be simple. Pensioners, though, would again need to take investment decisions about their source of retirement income throughout their lives.
Again the annuity market would seem to be threatened by severely increased anti-selection.

Option C3 – Income drawdown with no controls (or, equivalently, a lump sum)
Does it ensure that pensioners have a reasonably secure income throughout retirement?
No. Pensioners could easily spend their entire retirement funds shortly after retirement, falling back on means-tested benefits in later years. (Anecdotally this happens in Australia fairly regularly, although the most common destination of expenditure is said to be a nicer home, which may provide a bequest – see Valdes-Prieto 1998 and Yerma 1999.) In the absence of complete withdrawal of funds at retirement, both asset risk and the risk of misjudging the correct rate of withdrawal could cause fund depletion or exhaustion, leading to falls in or even elimination of retirement income.

Does it ensure that money saved in (tax advantaged) pension arrangements is actually used for retirement income?
No. Pension funds can be used for discretionary expenditure at any time during retirement or for bequests.

Does it inhibit asset allocation?
No.

How easy is it to administer?
Really very simple, although prudent pensioners will be faced with the problem of managing their assets over their remaining lives without any guidance from limits on drawdown. Pensioners might choose to buy annuities (once money had been removed from the tax privileged environment and was indistinguishable from other sources of funds), leading to a reasonably competitive annuity market, although with considerable anti-selection problems.

7 – Conclusions

7.1 The primary aim of government policy in regulating the decumulation phase of pension arrangements, as of policy in regard to pensions altogether, should probably be the avoidance of pensioner poverty. As part of the general policy on pensions, tax relief may be given on contributions to and investment in pensions, in order to encourage additional pension provision. Where this is done, another aim of policy in the decumulation stage may be ensuring that pension funds are indeed used for income in retirement. Governments may also be concerned about the efficient allocation of investment within economies and other effects (protection of vulnerable old people from having to make complex decisions being one such).

7.2 Conventional annuities provide a solution for providing income in retirement that scores highly against the first two and the last criterion. However traditional forms of annuitisation score less well against the criteria of not constraining investment (although this needs to compared with the assets that pensioners would have chosen if self-managing retirement income generation). New forms of annuitisation, under which some of the investment risk is retained by the annuitant, do better in this respect, and can be associated with only modest weakening of income protection. “Pseudo annuity” products may also have some of the same features, while at the same time trying to appeal to pensioners who have negative feelings about some properties of traditional annuities.

7.3 Conversely arrangements whereby income is drawn from a non-annuitised fund (drawdown) tend to offer protection neither against fund depletion and possible exhaustion, nor against the risk that wealthy individuals will over-fund their pensions, taking advantage of expensive tax privileges, with a view to using the funds to provide for things other than retirement income, such as bequests. Mixed systems with some requirements to annuitise and some availability of drawdown also seem to have these disadvantages compared to the requirement for complete annuitisation.

7.4 The extent that these conclusions differ from those offered in Valdes-Prieto 1998, James and Vittas 1998 (1) and Walliser 1999 can be explained largely by the consideration of the role of annuitisation in constraining the cost of tax privileges granted to pensions, by discouraging wealthier people saving for bequests or substantial discretionary expenditure in the tax-privileged pensions environment.

7.5 Empirical evidence from around the world suggests that “EET” tax treatment of pension arrangements is very frequently found with at least some annuitisation requirement, while countries where there is no tax privileging of pension funds tend not to require annuitisation.

7.6 Further work could be carried out:

- on the analysis of potential for annuity and “pseudo annuity” products which were attractive to pensioners and did not constrain investment freedom,
- on the development of annuity markets in countries where defined-contribution pension arrangements have been developed recently, and the extent to which the absence of long-dated (government) bonds denominated in the relevant currencies leads to onerous reserves being needed by potential annuity providers,
- into possible controls on drawdown where drawdown was considered an attractive option, including optimal frequency of reviews, and

- into the use of drawdown in controlling the release of funds from pension accounts in circumstances other than old age where this was desirable as part of social security privatisation.

Appendix

Annuitisation requirements and taxation regime for complementary occupational pension plans

Source: "Complementary Occupational Pension Plans", taken from "Social Security Worldwide: Complementary and Private Pensions Database", published by the International Social Security Association, Geneva, 2001.

Country	Annuitisation or other requirements in respect of defined-contribution occupational plans
Austria	Arrangements must provide an annuity for life (and in the case of all types of plans excluding defined-contribution insured plans annuities usually continue for surviving dependants, albeit at a lower rate). A lump sum is only permitted if the "vested benefit amount" (broadly the capital value of the pension) is less than 120,000 Austrian Shillings (= US$7,800 or € 8,721 at December 2001). Taxation treatment of pension arrangements are broadly EET.
Belgium	Lump sums payments are more common than annuities. Tax treatment is EET, with annuities taxed and lump sums subject to a flat-rate tax of either 10% or 16.5%
Brazil	Pensions with "adjustments" – increases in payment - are the most common form on distribution from both "open plans" (that is insurance companies offering defined-contribution pensions policies) and "closed funds" (that is employer-sponsored pension funds, some of which are on a defined-contribution basis). Tax treatment offers exemption for contributions (up to 12% of earnings), generally taxation at a low rate on investment return – some new-style plans, *Plano Gerardor de Beneficios Livros*, are exempt from such taxation entirely – with benefits taxed as income.
Canada	Defined-contribution Registered Pension Plans can offer either a lump sum or a pension, but any lump sum may be transferred to a "lock in" option, that is still in the pension tax environment, broadly with the requirement to purchase an annuity at a certain age. Otherwise no reimbursement in cash to plan members is available after vesting. Tax treatment generally EET.
Denmark	Defined-contribution occupational pension plans may provide either a pension and a lump sum, or a lump sum only. However lump sum-only plans are subject to less favourable tax treatment in terms of exemption of contributions and are very rare. Tax treatment is otherwise generally exemption for contributions, some taxation on investment returns and taxation of pensions as personal income and of lump sums at a flat-rate 40%.
France	Occupational schemes may generally provide only a pension, unless this is below a certain limit. Tax treatment for funded supplementary schemes is generally EET. Some schemes established under a different law may provide a pension and/or a lump sum, but tax treatment for these is more TEE than EET.

Country	Annuitisation or other requirements in respect of defined-contribution occupational plans
Germany	Lump sums generally only permissible from supplementary plans (which until recently have not been permitted to be entirely defined-contribution in any case) if the pension benefit is below a certain limit.
Hong Kong	Benefits are almost always paid as a lump sum (as this is exempt from tax, while any pension benefits are taxed). Investment income is generally exempt from tax, but employee contributions are paid from taxed income (except mandatory minimum contributions to certain types of plans).
Ireland	Defined-contribution occupational plans generally offer a pension after a lump sum based on the final rate of earnings has been taken. Tax treatment generally EET.
Israel	Pension funds (either defined-contribution or defined-benefit) generally pay a pension, with the possibility of total commutation to a cash lump sum of very small pensions, and commutation for a cash lump sum of up to 25% of the pension for larger pensions, provided this does not reduce the pension below the minimum salary. Contributions are broadly tax exempt (receiving a tax credit up to a limit) and 35% of any pension is exempt from income tax – lump sum benefits are entirely exempt. Provident funds have contributions from taxed earnings but tax-exempt lump sum benefits.
Italy	Benefits from (defined-contribution) supplementary occupational plans from employees are payable as pensions, but with the possibility to take up to 50% of the retirement entitlement as a lump sum. However favourable tax treatment is only granted if the lump sum does not exceed 33% of the retirement entitlement. Contributions are exempt up to a limit, and (net) investment income taxed at 11%, with pension benefits taxed after deducting amounts on which tax has already been paid.
Luxembourg	Recent changes permit various new types of defined-contribution pension funds. Some may offer only a lump sum at retirement, some may offer a pension that can be commuted to a lump sum. Tax treatment for accruals after 1 January 2000 is that contributions, investment income and benefits are all exempt from taxation.
Netherlands	Benefits from occupational plans may only be payable as pensions. For insured plans (that is group plans established by employers for their employees with an insurance company) annuities must be purchased from insurance companies. Tax treatment is EET.
New Zealand	Defined-contribution plans offering lump sums are the most common form of occupational pension plan. Contributions are made from taxed income, investment income is taxed at a flat rate of 33%, with benefits, whether lump sum or pension, being paid tax free.
Norway	Benefits from defined-contribution occupational plans must be in the form of an annuity, but this may either be for life or for a fixed term of at least 10 years. Tax treatment is generally EET.

Country	Annuitisation or other requirements in respect of defined-contribution occupational plans
Portugal	Defined-contribution benefits are growing in popularity for occupational pension plans. Benefits generally are taken as pensions, except that the entire benefit based on any employee's contributions and 1/3 of benefits based on employers' contributions can be taken as a lump sum. The entire pension may be commuted for a lump sum if it falls below a certain limit. Broadly the taxation of plans is EET, but pension income is only taxed if, once combined with social security pensions, it falls above a limit, and benefits derived from contributions which were not eligible for tax relief are also partially exempt from tax. Lump sums are also subject to tax.
South Africa	Defined-contribution occupational pension plans can pay up to 1/3 of the benefits as a lump sum, while the remainder must be used to buy an annuity. Tax treatment is generally EET, with lump sum benefits partially taxed at the member's average rate in the last two years. The part of the lump sum exempt from tax is determined according to the member's earnings and service, and any distributions from lump-sum provident funds.
Spain	Benefits from defined-contribution plans, whether occupational plans or individual voluntary plans, can provide at age 65 a lump sum, a pension, or a combination of the two. The tax treatment is broadly EET, with taxation on lump sum disbursements if they exceed 40% of the accrued pension rights.
Sweden	Benefits from all types of occupational pension plans can only be paid as a pension. Contributions are not taxed, investment income is taxed at 15% and benefits are taxed.
Tunisia	No defined-contribution occupational plans.
United Kingdom	Defined-contribution plans, whether occupational or individual (personal pensions) can generally pay a mixture of pensions and lump sums – the pension ultimately being obtained by buying an annuity. The size of the lump sum available is generally ¼ of the fund at retirement for individual plans, and 2¼ times the initial rate of pension in occupational plans. As an alternative to immediate annuity purchase at retirement, the pension fund less lump sum can be put into "income drawdown", which permits income withdrawal, between specified annual limits; an annuity must be bought at age 75 at the latest (for more details see section 5). Tax treatment is broadly EET, with lump sums tax-free, and limits on earnings on which contributions can be paid.
United States of America	Plans set up specifically for pension provision (as opposed to profit-sharing plans, employee stock ownership plans, etc), can pay either an annuity or a lump sum at retirement. The market in immediate life annuities is not particularly well developed. Lump sum disbursements are often available on leaving service with employer. Taxation treatment is broadly EET, though some plans require employee contributions to be paid from taxed income, with the benefits resulting from these contributions paid free of tax. Lump sums tend to be taxed as income, with lump sum distributions taken before 60 subject to additional tax.

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