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**RETIREMENT PROVISION ISSUES FOR
EMPLOYERS AND EMPLOYEES**

by

Nigel Bodie MA, FIA, APMI

CONTENTS

1. Introduction
2. The Aspirations of Employees
3. The Employer's Approach - Final Salary
4. The Employer's Approach - Money Purchase
5. Transfer Values
6. Conclusions
7. Acknowledgements and Bibliography

Appendix A - Extract from IR "Benefits on Early Retirement"

Appendix B - Tax and National Insurance Arrangements 1988/89

The opinions in this paper are totally my own and do not necessarily reflect the views of my partners.

RETIREMENT PROVISION ISSUES FOR EMPLOYERS AND EMPLOYEES

"Half of all employees are in occupational pension schemes 90% of them paying two-thirds of the last year's income at maturity. As the percentages have not changed much over 20 years (53% in 1967, 52% in 1983), it is reasonable to suppose that, by the return of the century, a majority will retire on two-thirds of their final salary. Think what that means just from everyday experience of wage and salary levels today, without projecting the possibility of economic growth at 2%-3% compound. But the new joker in the pack is the inheritance factor. The founding parents of the property-owning democracy are moving on. It is only a matter of time before approaching 70% of the population inherit the value of their parents' home."

"It is immaterial in which precise year this happens. The average two-child family will inherit in middle age half a house each from two sets of parents. What we have to decide is whether they should invest those proceeds and secure their retirement; or be encouraged to blow it and expect other taxpayers to support them once they've done so. The answer, to me, is self evident. Any government, by the time we reach the millennium, will be reconsidering the nature and role of the National Insurance Fund and the state retirement pension. I believe we shall move towards collecting less from individuals in their working life on the basis that we will recycle funds back to them from the state in retirement."

(C) Michael Heseltine/Sunday Times 13 Nov 1988

1.

INTRODUCTION

(1.1)

A leading politician has suggested that, in future, a majority of all employees can expect to retire on a two-thirds pension from their employers, together with a pension from the State and, in many cases, the proceeds of the sale of their parents' houses (provided they have not "blown" their inheritance in a middle-aged spending spree). The purpose of this paper is to address three questions :-

- (a) is the traditional concept of a two-thirds pension from an occupational pension scheme an appropriate target for which to aim, taking into account the availability of State pensions, and how many people can achieve this target in practice?
- (b) how should employers attempt to structure their pension arrangements in order to assist their employees in planning for their retirement?
- (c) how should employees decide between the various alternatives that are now available to them, not only when they join a new employer but also when they have a choice of benefits on leaving their previous employer?

(1.2)

These are all topics about which books can and have been written. In a paper such as this, it is only possible to give an indication of the principles that need to be addressed. Particular attention will therefore be given to pension schemes where the Normal Retirement Age ("NRA") is equal to State Pension Age ("SPA"), although the question of early retirement will be raised in a later section in connection with the application of Revenue Limits. Considerations of space will also constrain the discussion to male retirement, although it is intended that the principles set out will be capable of application to females as well.

2.

THE ASPIRATIONS OF EMPLOYEES

(2.1)

A number of hypotheses can be advanced about the aspirations of employees for their life in retirement. In terms of finance, it is likely that a significant drop in their income between the last few years of employment and the succeeding years will cause a number of these aspirations to be unfulfilled. An occupational pension is one of the means by which saving for retirement takes place.

(2.2)

Within one household, there may well be two bread-winners. If this is the case, they may have become accustomed to the standard of living generated by this dual income. It is therefore appropriate for each to have attempted to secure a satisfactory measure of "replacement income" for his or her retirement. In the majority of cases, we are here concerned with husband/wife households. In practice, the coverage for females in occupational pensions has historically been very poor and there is a significant probability that this aim will not be met at the present time. In one sense the situation is improving, in that more part-time employees (who tend to be predominantly women) are becoming eligible for pension scheme membership. On the other hand, voluntary membership of schemes may result in a low take-up rate, with a consequent lack of provision in later years.

(2.3)

It is therefore crucial that the primary bread-winner in the household secures adequate retirement income on his or her own account. This will then cater for the situation where there is only one source of employment income and will also go some way towards covering the case of the dual-income households. For the rest of this Section, the position of the single bread-winner will be considered.

(2.4)

A number of factors change as a result of retirement. For example, National Insurance contributions are no longer payable. In addition, if the employee has been in an occupational pension scheme, these contributions cease.

(2.5)

There are also changes in Income Tax arrangements when the age of 65 (for males and females) is reached. For people under this age, the married tax allowance for 1988/89 is £4095; for couples over 65, this increases to £5035. However, this higher allowance is only applied where the total taxable income is less than £10600; it is steadily reduced to the standard married allowance at a rate of income of £12010. Nonetheless, a large number of retired households will be more favourably taxed than when they were working.

(2.6)

One major financial factor about which it is impossible to generalise is the question of housing, which accounts for a major part of household expenditure. For those who live in rented accommodation of one form or another, there will be little change in the level of their financial commitment before and after retirement. On the other hand, those who aim to own their house by the time they retire will save on mortgage payments.

(2.7)

Certain general statistics are available which will help to indicate the extent of the problem. Table 1 is an extract from the Family Expenditure Survey (1984), which covered a total of 7081 households. This illustrates the dichotomy that arises after retirement between owner-occupiers and those continuing to rent.

TABLE 1		
Housing by type of tenure	Age of Head of Household	
	50 and under 65	65 and under 75
Rented unfurnished		
Local Authority	624	419
Other	73	83
Rented furnished	11	5
Rent-free	32	21
Owner-occupied		
In process of purchase	506	52
Owned outright	593	481

(2.8)

Of course, the size of the payments made by those who are in the process of purchasing their house may well have become relatively insignificant by the time retirement is reached. If so the transition from mortgage-payer to home-owner may make little difference to the total outgoings on housing.

(2.9)

As would be expected, the Survey also shows a clear correlation between income level and expenditure on housing. However, there is a distinction between gross and net expenditure, where the latter makes allowance for the various grants available to lower income units. This can mean that the cost of housing for the lower paid is substantially reduced; as these are the groups who are least likely to be home-owners, the transition between work and retirement may also have little impact upon the net contribution to housing.

(2.10)

This last concept should be treated with considerable caution. The Survey from which these figures are drawn relates to the days before the replacement of Rates by Poll Tax. Whichever form of local taxation is applied, payments under the system will not change as a result of retirement. It is widely believed that Poll Tax will bear most heavily upon the lower income units, and will therefore increase housing costs for these groups compared with the higher-income home-owning classes.

(2.11)

Overall, it is impossible to come to any definite conclusions about the differential effects of housing costs before and after retirement. However, the indications are that the lower paid are least able to contemplate a reduction in their disposable income as they will tend to be those in rented accommodation without the security of an additional form of saving in the shape of a house as is the case with the higher-paid.

(2.12)

Other changes taking place between employment and retirement are even more subjective. The requirement to travel to work ceases; the need for travel does not. No-one would wish an old-age pensioner to have to spend all of his or her time sitting at home. Increased leisure time will make for new forms of expenditure. In addition, a retired employee does not have a heated office or factory to be in during working hours. The cost of home care will loom large for the more elderly, although this may be offset by a reduction in other demands on income. A company car forms part of the remuneration package of a substantial minority of employees, particularly among the higher-paid, which is lost at retirement; this is presently a valuable benefit, although changes in the taxation system may soon bring this to an end.

(2.13)

An employee approaching retirement is likely to become accustomed to the standard of living derived from his employment. A subsequent reduction in this level arising from inadequate pension arrangements may make such an employee feel that the "system" has failed him. From the points made in the preceeding paragraphs, certain financial matters change as a result of retirement, such as National Insurance and pension scheme contributions and tax allowances. These may be accounted for explicitly in comparing pre- and post-retirement income. On the more subjective matters raised, it is suggested that, although expenditure patterns will change after retirement, it would be unwise to assume that a reduction in disposable income would pass unnoticed.

3.

THE EMPLOYER'S APPROACH - FINAL SALARY

(3.1)

Key (1984) identifies a number of corporate objectives covering both the design and financing of pension schemes in the context of a choice between a final salary and a money-purchase arrangement. These may be summarised as follows:-

- (a) to assist with the recruitment and retention of staff
- (b) to provide a benefit to employees retiring after long service with the company which is sufficient to provide a reasonable standard of living
- (c) to concentrate resources on employees who stay with the company until retirement
- (d) to be seen to treat all members equitably
- (e) to operate a scheme which will be understood by its members
- (f) to operate an administratively efficient scheme
- (g) to concentrate resources on employees who are concerned about their pension benefits
- (h) to apply effective cost control.

In this Section the effectiveness of final salary schemes in meeting these objectives is discussed.

(3.2)

In the first place, the employer must "target" his work-force. It may be that the long-serving member is the one who will contribute the most to the welfare of the Company. On the other hand, in some businesses job mobility is regarded as a positive advantage; advertising might be such a case. This will help to determine the balance between retirement benefits and early leaver benefits.

(3.3)

The loss of benefits associated with early withdrawal from a final salary pension scheme has been the subject of much comment, and it is certainly a factor which an employer will need to consider in designing his pension arrangements. In order to do this in a systematic fashion, it is necessary to draw up an analytical framework to establish the loss of benefits that an early leaver suffers compared with the employee who remains with one employer throughout his working life.

(3.4)

Haberman (1985) sets out the following examples. Three male members are assumed to have the following career histories:-

X : enters pensionable employment at 25. One employer. Retires at 65.

Y : enters pensionable employment at 25. Transfers at 45. Two employers. Retires at 65.

Z : enters pensionable employment at 25. Transfers at 35, 45 and 55. Four employers. Retires at 65.

All periods of employment are assumed to be pensionable in schemes providing 1/60th of final salary for each year of service. In the absence of any revaluation of deferred pensions, the following table sets out the total benefits from all schemes emerging at retirement for each of the career histories noted above:-

Annual Rate of Earnings Growth	Relative Size of Pension at Retirement		
	X	Y	Z
1.0 %	100	91	87
2.5 %	100	81	72
5.0 %	100	69	56
7.5 %	100	62	46
10.0%	100	57	40

(3.5)

If it is assumed that all pension schemes are contracted out and allowance is now made for the effect of GMP revaluation, the following figures apply to someone on national average earnings:-

Annual Rate of Earnings Growth	Relative Size of Pension at Retirement		
	X	Y	Z
1.0 %	100	94	92
2.5 %	100	86	81
5.0 %	100	75	68
7.5 %	100	67	59
10.0 %	100	62	52

(3.6)

If allowance is now made for deferred pensions in excess of GMPs to increase at a rate equal to price inflation, the following table emerges:-

Annual Rate of Growth		Relative Size of Pension at Retirement		
Earnings	Prices	X	Y	Z
1.0 %	0.0 %	100	94	92
2.5 %	0.5 %	100	88	84
5.0 %	3.0%	100	87	83
7.5 %	5.5 %	100	86	81
10.0 %	8.0 %	100	86	81

This reflects most closely the current position for post-1984 benefit accruals subject to revaluation on early withdrawal.

(3.7)

Similar patterns emerge at other levels of earnings, although for the higher paid the relatively small GMP tends to reduce the pensions paid to Y and Z rather more than in the above examples. However, at the rates of benefit achieved with the more generous treatment of the early leaver in (3.6), it is doubtful whether quite so much concern would have been expressed at the plight of the early leaver under final salary schemes. It is not so much a design fault of such arrangements that job changers are significantly penalised; rather, there has been a lack of will on the part of employers to provide such generous revaluation to deferred pensions. The alternative of providing favourable transfer arrangements which enable previous service to be substantially maintained, as in the public sector "Club", is another means of reducing the early leaving penalty which has also not taken off in the private sector.

(3.8)

It is hard to be too critical of employers in the circumstances. The author has been present at discussions between companies and Trades Unions, and also at consultative committees whose duties are to propose benefit changes to their employers; the improvement of early leavers' benefits has consistently taken second place to improvements to the arrangements for "stayers". An employer is unlikely to grant generous treatment to early leavers if he does not receive much credit for it from his work-force.

(3.9)

By the use of Haberman's analytical framework, it is possible to draw up a picture of the working lifetime of the employer's "target" employee, and in particular to establish the effective period of pensionable service this individual will have achieved at retirement. As an example, if the employer is prepared to grant revaluation of deferred pensions as in (3.6), and regards example Y as a suitable target employee for whom he wishes to provide generous treatment, then the effective period of pensionable service is

$$40 \text{ years} \times 86\% = 34.4 \text{ years}$$

For the sake of argument, it will be assumed in the following examples that the employer chooses an effective period of pensionable service of 35 years. In addition, it will be assumed that job changers take transfer payments to the pension scheme of their new employer in return for a service credit so that all their pension arrangements are held under one roof.

(3.10)

It would be interesting to test the validity of the above approach in practice, bearing in mind that the treatment of early leavers has, until very recently, been more along the lines of (3.4) than (3.6). However, Haberman found that the available statistics on this subject are sparse. The Occupational Pensions Board (1982) reported a survey by a "leading life office" covering 39,000 members of over 1800 occupational pension schemes retiring during the 11 years up to 30 April 1982. This provided some data on periods of service (but not necessarily pensionable service) with the last employer, although not with previous employers.

Service with last employer (years)	Distribution of members
Over 30	25 %
21 - 30	21 %
11 - 20	29 %
6 - 10	18 %
Up to 5	7 %

These figures are reasonably consistent with those obtained by the New Earnings Survey (1979) for males; females were found to have significantly shorter periods of service. Relating this evidence to other surveys concerning career patterns, Haberman draws the conclusion that a range of 3 to 7 job changes per career would not be unreasonable.

(3.11)

It will be noted that almost half the retirees completed over 20 years with their last employer. This suggests that career pattern Z (i.e. 4 job changes) would be more accurate if these changes took place at ages 30, 35, 40 and 45, giving 20 years in the final job. This paper assumes a period of 35 years for the effective period of pensionable service for a "target" employee whom the employer wishes to favour; given the perceived pre-disposition of most employers towards longer serving employees, this also appears plausible. In practice, each employer will need to have regard for the circumstances of his own industry.

(3.12)

Having determined the model employee for his pension scheme, the employer will need to consider the design of that scheme. If it is to fit in with the aspirations of the employee in return for a "full career", this is likely to involve the establishment of a retirement pension that will give full replacement of that individual's net income at or near retirement. In the following examples, net income whilst in employment is defined as pay after tax and the deduction of National Insurance and pension scheme contributions. Retirement income is assumed to encompass both occupational

pensions and benefits payable under the State scheme (basic State pension and State Earnings Related Pension), being subject solely to income tax. The tax and National Insurance structure applicable to 1988/89 has been used.

(3.13)

There is some debate over the correct basic State pension to take into account. If the member is assumed to be the only bread-winner within a family unit, then it would be correct to use the married rate of pension. On the other hand, a number of households receive two incomes near retirement; given the low level of pensions secured by females in the past, it is unlikely the full replacement of both incomes will be achieved. The fact that substantial numbers of women interrupt their careers to bring up families means that this situation is expected to continue. It can therefore be argued that the difference between the single and married State pensions is needed to make up for this loss. For single people, of course, there is less debate. Stewart (1983) goes into these points in more detail. For the present purposes it will be assumed that the single State pension is appropriate.

TABLE 2

Salary	Take-home pay	Target gross pension	Target pension as % of salary	Total pension	Pension as % of target
£ 6000	£ 4836	£ 4836	81%	£ 5632	116%
£ 10000	£ 7406	£ 8196	82%	£ 7965	97%
£ 14000	£ 9976	£ 11915	85%	£ 10299	86%
£ 18000	£ 12696	£ 15563	86%	£ 12632	81%
£ 22000	£ 15546	£ 19363	88%	£ 14965	77%
£ 26000	£ 18200	£ 22902	88%	£ 17299	76%
£ 30000	£ 20480	£ 26579	89%	£ 19632	74%

(3.14)

The first example is based on a not uncommon type of scheme which provides 1/60th of the final year's salary for each year of pensionable service. Employees are required to contribute at the rate of 5% of salary. The scheme is contracted out of SERPS, and the employee is assumed to have secured a full basic State pension. Table 2 summarises the results for our 35-year member at different final salary levels.

(3.15)

The first feature to note is that the target pension as a percentage of salary rises as salary increases. The second point is that the actual pension from scheme and State provides more than the target at lower salaries and less at higher levels.

(3.16)

This sort of distribution can be defended. In the first place, the lower paid are least able to accept a reduction in their living standards, so a bias in that direction is reasonable. Allied to this point is the fact that, whilst State pensions are linked to prices, occupational pensions (particularly in the private sector) may not be. Therefore, even if there is an element of over-provision at the outset, this is likely to be eroded over time as the occupational pension fails to keep up with inflation. Pension increase policy is another issue the employer should consider when designing his scheme. Finally, it may also be the case that those employees at the higher levels of remuneration in this table will come under the heading of Management and therefore subject to separate pension arrangements.

(3.17)

Nonetheless, it may be felt that the range of replacement income displayed above is unacceptably wide. A simple amendment to the scheme is to re-define pensionable salary as salary in excess of the Lower Earnings Limit (LEL). This reduces the base upon which both benefits and contributions are calculated, and biases the previous result against the lower paid. In view of the 35 year service period, a faster rate of accrual of benefit might therefore be appropriate; a rate of 1/50th gives rise to Table 3.

TABLE 3

Salary	Take-home pay	Target gross pension	Target pension as % of salary	Total pension	Pension as % of target
£ 6000	£ 4916	£ 4916	82%	£ 4840	98%
£ 10000	£ 7486	£ 8303	83%	£ 7640	92%
£ 14000	£ 10056	£ 12043	86%	£ 10440	87%
£ 18000	£ 12776	£ 15669	87%	£ 13240	84%
£ 22000	£ 15626	£ 19469	88%	£ 16040	82%
£ 26000	£ 18264	£ 22987	88%	£ 18840	82%
£ 30000	£ 20544	£ 26685	89%	£ 21639	81%

(3.18)

The introduction of a flat-rate offset to pensionable salary has resulted in a more even distribution of emerging pensions against the target levels. In addition, the employee is marginally better off in terms of take-home pay at all levels of salary. However, at higher incomes the problem of Inland Revenue limits is about to arise. With a maximum pension of two-thirds of salary and a basic State pension (assumed equal to the LEL) of £2132, the maximum total pension is, for example

$$2/3 \times £30000 + £2132 = £22132$$

which is 74% of salary and 83% of the target - certainly not enough within the terms of reference established in the preceding paragraphs.

(3.19)

The use of an offset biases the pension scheme in favour of the higher paid. The fact that the pensions emerging are relatively larger for the lower period reflects the fact that the basic State pension is at a flat rate. The first question is whether a company pension scheme should be biased in one direction to offset a perceived Government bias the opposite way. This is for individual employers to decide. A second, and more practical point, is that employees and Trades Unions will see a relatively high contribution (as a percentage of total pay) going towards the higher paid.

(3.20)

One of the anomalies of Revenue Limits is that both the basic State and SERPS pensions are excluded from the test against two-thirds of final salary. Therefore, one means of increasing the total package of benefits at retirement for the higher paid would be to participate in SERPS. However, it would only make a meaningful contribution if such individuals had been "contracted in" for extended periods of time. If promotion to Management status occurs at older ages and results in a move from a contracted out scheme to one that is contracted in, the amount of SERPS pension accrued towards the end of an employee's working life will not significantly enhance his pension entitlement. It is therefore necessary to consider whether it is possible to encompass all employees within a contracted in scheme.

(3.21)

As SERPS limits its coverage of earnings to pay between the Lower and Upper Earnings Limits (£2132 and £15860 in 1988/89), the value of the Scheme is greater for the lower paid. Further, as participation entails the payment of full rate National Insurance contributions, it would be sensible to reduce the level of benefits provided even by the scheme in (3.17), in order to keep costs within bounds for both the employer and employee. On the other hand, as earnings above the UEL are excluded from SERPS, the level of occupational provision must be enhanced at higher salary levels.

(3.22)

The following scheme description attempts to cover all the above points:-

Pensionable salary:	salary above the LEL
Member contributions:	3% of salary between the LEL and UEL 6% above the UEL
Pension fraction:	1/70th of the last year's salary between the LEL and UEL 1/45th of the last year's salary excess of the UEL

The results for the "target" member are set out in Table 4. Levels of take-home pay are comparable with the previous examples, and the distribution of pensions against targets is more even.

TABLE 4

Salary	Take-home pay	Target gross pension	Target pension as % of salary	Total pension	Pension as % of target
£ 6000	£ 4897	£ 4897	82%	£ 4840	99%
£ 10000	£ 7447	£ 8251	83%	£ 7640	93%
£ 14000	£ 9997	£ 11951	85%	£ 10440	87%
£ 18000	£ 12691	£ 15557	86%	£ 13406	86%
£ 22000	£ 15511	£ 19317	88%	£ 16517	86%
£ 26000	£ 18093	£ 22760	88%	£ 19628	86%
£ 30000	£ 20349	£ 26361	88%	£ 22739	86%

(3.23)

As an alternative which would lower the cost to the employer, the following benefit structure could be applied :-

Pensionable salary:	salary above 1.5 times the LEL
Member contributions:	4% of salary between 1.5 times the LEL and UEL 6% above the UEL
Pension fraction:	1/70th of the last year's salary between 1.5 times the LEL and UEL 1/45th of the last year's salary in excess of the UEL

The results for the "target" member are set out in Table 5. This scale results in slightly lower take-home pay (except at the £6000 level), but gives rise to an almost flat rate distribution of pensions against targets.

TABLE 5

Salary	Take-home pay	Target gross pension	Target pension as % of salary	Total pension	Pension as % of target
£ 6000	£ 4900	£ 4900	82%	£ 4307	88%
£ 10000	£ 7420	£ 8215	82%	£ 7107	87%
£ 14000	£ 9940	£ 11853	85%	£ 9907	84%
£ 18000	£ 12620	£ 15462	86%	£ 12873	83%
£ 22000	£ 15440	£ 19222	87%	£ 15984	83%
£ 26000	£ 18037	£ 22684	87%	£ 19095	84%
£ 30000	£ 20293	£ 26266	88%	£ 22206	85%

(3.24)

This type of scheme, although more difficult to communicate to members compared with the previous contracted out schemes because of the benefit and contribution structure, has certain administrative advantages. The second scheme in particular offers the possibility of encompassing all but the highest paid within one arrangement and with a uniform coverage of the target pension. No communication with the DSS for contracting-out purposes is required. The benefits for early leavers are easy to calculate and are not subject to split rates of revaluation. On retirement, no restrictions need be placed upon commutation to allow for coverage of the GMP. The calculation of pension increases is much more straightforward than for a contracted-out scheme which must allow for up to 3% per annum increases on post-1988 GMPs plus whatever increases it wishes to provide on the excess over the total GMP.

(3.25)

It will be noted that the levels of replacement for the lower paid under the second arrangement are significantly below 100%. In order to correct for this it is necessary for a second anomaly to be exploited.

(3.26)

For the 1988-1993 quinquennium, the abatement to National Insurance Contributions for contracted out schemes is 5.8% of Relevant Earnings, i.e. between the Lower and Upper Earnings Limits. This applies across the board to males and females, irrespective of age. In the calculations leading up to this abatement, the Government Actuary assumed that investments would give a long term yield of 8.5% per annum, representing an excess of 1.5% per annum over the rate at which GMP entitlements earned during the period would be subsequently reviewed, in line with earnings. It was also assumed that contracted out schemes would have to provide increases at the rate of 3% per annum on these GMPs whilst in course of payment. After building in a loading for expenses of 7% of the net cost, the calculated abatement came to 5.02%. The Government then decided to add a contingency loading of 7.5%, giving an abatement of 5.40% and then added a further arbitrary margin of 0.4% to give the abatement of 5.8% now in force. This 0.4% margin was described as providing "a further cushion against any additional cost arising from the implementation of the Social Security Act 1986"; it is the stated intention that this margin should be included only for the period 1988-1993.

(3.27)

Based on the assumptions in (3.26), Table 6 indicates the cost of providing one year's accrual of GMP at the ages shown, expressed as a percentage of Relevant Earnings. Clearly, it would be possible to exercise an option against SERPS by contracting out males up to the age of 49 and females up to the age of 39 as, based on the economic assumptions adopted, the cost of providing a GMP is less than the abatement in the National Insurance Contributions permitted by the Government. However, occupational pension schemes are not permitted to discriminate in this way, and must (broadly speaking) be wholly contracted in or wholly contracted out. Since SERPS was introduced, the majority (in terms of numbers of employees covered) of pension schemes have found that, given the age, sex and salary distribution of their membership, the balance of financial advantage favoured contracting out.

TABLE 6

Age	Men	Women
%	%	%
16-19	2.2	2.9
20-24	2.2	3.0
25-29	2.4	3.5
30-34	2.8	4.2
35-39	3.4	5.2
40-44	4.3	6.6
45-49	5.4	8.7
50-54	7.1	10.9
55-59	9.0	12.5
60-64	10.5	-

(3.28)

The Government has been eager to encourage contracting out, as evidenced by the augmentation of the contracting out abatement. Furthermore, where employees would otherwise have been contracted in, a further incentive payment of 2% of relevant earnings has been made available for individuals contracting out of SERPS via an Appropriate Personal Pension Scheme (APPS) for the period 1988-1993.

(3.29)

A facility has also been extended to members of contracted in pension schemes which permits individual members to contract out of SERPS through a "minimum only" APPS. In addition, even though National Insurance Contributions do not qualify for income tax relief, basic rate tax relief will be added to the employee's share of the abatement when the contributions are passed by the DSS to the personal pension provider. This means that, even in the case of an arrangement which does not qualify for the 2% incentive, a total contribution of 6.47% of relevant earnings can be made available to an individual wishing to contract out via an APPS.

(3.30)

Some of this will be absorbed in expenses and commission; in addition, the DSS will not pass the contributions across until after a particular tax year's National Insurance Contribution record has been finalised, which may well not be until several months into the following tax year, so there is a further deduction in terms of loss of interest. Nonetheless, there is a clear incentive for younger members of contracted in occupational pension schemes to improve their benefits by contracting out via an APPS, taking advantage of the option against SERPS in a way which is not available to schemes as a whole.

(3.31)

It was pointed out in (3.27) that most occupational schemes have found it financially advantageous on balance to contract out. Some companies have introduced contracted in Senior Executive schemes on the grounds that this inevitably biases the age distribution towards the older end of the scale, thereby exercising a modest option against the State whilst increasing the total package of retirement benefits. However, the relevance of the financial argument has been largely negated by the facility for individuals in a contracted in scheme to contract out via an APPS (3.29).

(3.32)

The basis for calculation of the abatement outlined in paragraph (3.26) may be regarded as conservative. It is, after all, similar to the basis used for the assessment of whether an occupational pension scheme has an inadmissibly large surplus; this was described in the Inland Revenue Press Release associated with the 1986 Budget as being designed to test those pension schemes which are "excessively over-funded". On balance, it is perhaps likely to be the case that more optimistic economic assumptions about the future can be adopted. As an indication of the extent to which individuals may improve their pension provision by contracting out via an APPS, Table 7 indicates the pension emerging as a GMP under SERPS and under an APPS on the assumption that investments earn a rate of return of 9% per annum whilst salaries increase at 7% per annum and pensions in course of payment receive increases at 3% per annum. Expenses have been deducted as 6.5% of each premium plus 0.75% of the fund each year. The 2% incentive payment has been ignored in view of its stated temporary nature.

TABLE 7

**Pension earned over 5 years expressed in
terms of 1988 salaries**

Age at Outset	Earnings = £6000 pa		Earnings = £10000 pa	
	GMP	APPS	GMP	APPS
	£	£	£	£
25	79	150	161	306
35	97	135	197	274
45	129	121	262	245

(3.33)

At present, younger employees benefit substantially from the fixed rate contracting out rebate, which reflects the faster rates of accrual under SERPS among older individuals. As the rebate falls over time, in step with the diminishing average accrual rate, so this advantage will become less pronounced and the improvement to the benefits set out in (3.23) will be smaller.

(3.34)

This far, the discussion has been in terms of what the employer would like to provide for his target employee in an ideal world. Cost is likely to impose constraints upon these aims, and may well test the company's approach to its early leavers. To illustrate this point, consider the simple example of an employer whose target employee can complete 30 years effective pensionable service, and who wishes to provide a scheme based on 1/45ths of final salary. When the costs have been calculated, it is found that they need to be trimmed by one sixth. Two solutions are:-

- (a) reduce the accrual rate to 1/54th and impose a maximum period of pensionable service of 30 years. This maintains the balance between job changers and stayers because the long service employee cannot improve his benefits by time-serving; both receive 30/54ths of final salary,
- (b) reduce the accrual rate further to 1/60th and increase the maximum period of pensionable service to 40 years; this reduces the target employee's benefits to half salary at retirement, whilst the time-server receives two-thirds.

The employer pays his money and takes his choice.

(3.35)

We have so far been considering retirement at State Pension Age. Certain difficulties arise when NRA is earlier than SPA, and these are compounded when retirement precedes NRA. The principal difficulty is that the basic State pension is not payable until SPA.

(3.36)

Again it is helpful to simplify the pension scheme design in order to concentrate on the principles involved. Assume that the scheme is contracted out and provides a pension of two-thirds of final salary at retirement. Taking an average target replacement ratio of gross pension to gross salary of 0.85, clearly between NRA and SPA a two-thirds pension is inadequate. It also gives rise to a rather unhelpful series of cash flows, whereby the total pension from all sources increases at SPA.

(3.37)

Inland Revenue Practice Note 6.33 states that "it has, however, been accepted that where the pension begins before the pensioner reaches SPA the annual rate of the pension may be varied with a greater amount being paid up to SPA, so that the pensioner's total income from the occupational and the State schemes taken together remains roughly constant throughout retirement. In this type of case, the pension is regarded as within the Inland Revenue maximum limit if the actuarial value of the aggregate retirement benefits, exclusive of the value of any pension increases contingent on, or designed to offset, rises in the cost of living, does not exceed the actuarial value of a level life pension of $\frac{2}{3}$ (or the relevant lower fraction) x final remuneration."

(3.38)

Therefore, there is a facility for an individual to "re-arrange" his occupational pension using this Level Income Option. However, to the extent that the original pension plus the basic State pension after SPA is all required to secure the appropriate level of replacement of income, the existence of a shortfall before SPA must mean that living standards cannot be maintained. The LIO merely redistributes the existing level of benefits in order to create a more useful income flow.

(3.39)

Table 8 illustrates the effect of exercising the LIO for normal retirement ages of 62 and 60 for males, assuming that they are members of a contracted out scheme providing a pension of two-thirds of final salary, and allowing for a single person's basic State pension of £2140 per annum.

TABLE 8**Gross pension : Gross salary**

Salary	NRA 60	NRA 62
	%	%
£ 6000	86	91
£10000	78	81
£14000	75	77
£18000	73	75
£22000	72	73
£26000	71	72
£30000	70	72

(3.40)

If the position on normal retirement before SPA is not encouraging, the question of early retirement from a scheme with NRA equal to SPA is even worse. In this case, it is not even possible to pay a two-thirds pension unless the individual has completed 40 years service. This means that the figures from the previous table cannot be achieved, even though they already fall short of the desired target.

(3.41)

Practical experience confirms the difficulties encountered in theory above. In cases where companies have been prepared to offer generous early retirement packages, they have often been frustrated by the imposition of Inland Revenue limits. Appendix A to this paper reproduces part of a discussion paper circulated by the Inland Revenue (1987), which sets out very clearly many of the difficulties involved. The Revenue presented four options for changes in practice; however, they were all framed in the context of a maximum two-thirds pension whereas a substantial part of the problem can be attributed to the absence of the basic State pension on early retirement.

(3.42)

Two remedies are possible. The first of these, which only scratches the surface of the problem, relates to the basis of calculation set out in (3.37), which specifically excludes a provision for pension increases. The effect of this is to increase the discount rate, thereby increasing the value of immediate pensions compared with deferred benefits. This means that it is necessary to surrender a relatively large proportion of post-SPA pension in order to secure an immediate temporary pension. This seems an unnecessary restriction, particularly now that a statutory valuation basis exists for the purposes of the Finance Act 1986, which only allows pension increases to be taken into account to the extent that they are justified by actual practice. It would be reasonable to allow the calculation of the Level Income Option to be performed on the statutory basis, with pension increases where appropriate.

(3.43)

A major contribution to a solution of these problems could be made by more advantageous treatment of temporary pensions. Where the basic State pension has to be deferred to SPA, if an employer is prepared to fund a temporary pension up to the level of the single person's State pension, the value of this benefit could be excluded from the assessment of Revenue limits. It can be argued that schemes which have an NRA earlier than SPA create this anomaly themselves, and that the real hardship is borne by those who are made redundant or otherwise compelled to leave employment before NRA. A diluted form of the proposal would therefore be to exclude temporary supplements between early retirement and NRA from the assessment of Revenue limits. The effect of this dilution would be in practice to prohibit the payment of temporary supplements to managers and executives, whose pension schemes often have retirement ages earlier than the ages at which the generality of employees retire.

(3.44)

Of course, the anomaly-exploiting contracted in schemes considered earlier also provide a practical solution to the problem. Again, this arises because the total quantum of benefits provided can be greater than that for a contracted out scheme. This would enable an individual member to surrender more post SPA pension under the LIO because he would start to receive not only a basic State pension but also a SERPS pension and the proceeds of a minimum APPS. He would be prepared to surrender more pension in order to provide a higher temporary supplement on early retirement.

(3.45)

No consideration has yet been given to the definition of pay for pension purposes, and in particular whether fluctuating elements such as overtime, bonuses and commission should be included. Table 9 reproduces certain statistics for all full-time employees in the sample from the New Earnings Survey (1985). The first column is a "snapshot" and summarises the distribution of weekly earnings by age; this implies that a peak is reached at age 45. However, this may be criticised in that historical accidents of recruitment and other aspects of the underlying experience may have biased this picture. The second column is more of a "movie" and reflects the increases in earnings over the previous year at various ages as they relate to specific individuals i.e. it is a cohort analysis. This shows that older employees tend not to increase their earnings as fast as the average. The Survey also breaks these patterns down into manual and non-manual employment; the results are not sensitive to this division. Employers considering a pension scheme based on total earnings should bear this point in mind contributions are likely to be paid on remuneration that does not count for pension at retirement.

TABLE 9

Age range	Average earnings £ p.w.	Increase over previous year %
18 - 20	110.1	19.3
21 - 24	147.5	13.6
25 - 29	186.2	11.8
30 - 39	221.0	9.2
40 - 49	226.2	8.0
50 - 59	211.4	6.5
60 - 64	194.4	6.0
18 and over	197.3	9.4

(3.46)

It is now time to draw some conclusions about final salary schemes. Returning to the criteria of (3.1), it is possible to establish pension schemes which provide target employees with a reasonable standard of living in retirement. Such an effective arrangement will help with recruitment and retention of employees. This may involve relatively simple schemes which discriminate between levels of pay (e.g. staff/management) because of the constraints imposed by the Revenue, or more complex schemes capable of covering the whole work-force. Retirement before State Pension Age can create serious problems. The administration of contracted out schemes has become increasingly difficult in the last 5 years, and the availability of individual options against the State combined with an improved quantum of retirement benefits has increased the attractiveness of contracted in arrangements. Effective cost control of a final salary scheme is already known to be difficult. The introduction of voluntary membership of schemes has helped to concentrate resources on employees who are concerned about their pension benefits.

(3.47)

Points (c) and (d) raised by Key relate to the relative treatment of employees with different career patterns. Table 10 gives an indication of the distribution of contributions to a final salary scheme (employee plus employer). Effectively, it assumes that it is possible to select from the outset whether a new entrant will become an early leaver, death in service, ill-health or normal retirement, and shows the contribution rate required to fund their respective benefits. The benefits are 1/60th of final salary, payable from SPA; all pensions are increased in line with prices. The ill-health benefit allows for the crediting of all service that would have been completed up to SPA. On death in service, half the ill-health pension is payable, plus a lump sum of twice salary.

TABLE 10

Age	Overall	Withdrawals	Deaths in Service	Ill-health Retirements	Normal Retirements
	(1)	(2)	(3)	(4)	(5)
	%	%	%	%	%
20	20	6	23	26	20
25	20	6.5	24	26	20
30	20	7	25	26	20
35	20	8	26	27	19
40	20	9	27	27	19

(3.48)

Just as the joint rates of contribution of column (1) are average rates appropriate to all members, the rates of contribution set out in columns (2) to (5) are the average rates appropriate for all members ultimately provided with the particular type of benefit concerned. These averages hide variations in the contributions required to provide the benefits in individual circumstances.

(3.49)

Clearly, resources are concentrated on groups other than early leavers. While this satisfies (3.1.c), it will be argued that it fails (3.1.d). One solution adopted by a number of employers has been to introduce some sort of underpin, effective generally for early leavers at the younger range of ages, which guarantees to increase the value of the benefit granted to some minimum value. An example would be to grant a pension at least equal in value to twice the member's contributions plus interest. If members were to contribute at 5% of salary, this would increase the cost in respect of withdrawals in Table 10 to 10% throughout, with consequent higher costs to the employer.

(3.50)

Again, it is for the employer to select his scheme. If he has adopted the target employee approach, he will already have an acceptable structure - at least in his eyes, because costs are concentrated on the older, longer service employees, allowing for an appropriate number of job changes. However, even with a well designed scheme, early leavers are likely to feel cheated.

(3.51)

As an alternative, a number of employers have opted for defined contribution schemes, which can appear fairer if they provide the same contributions as a percentage of salary to all employees. These certainly offer more effective cost control, and are easy to understand. The next Section considers these arrangements in more detail.

4.

THE EMPLOYER'S APPROACH - MONEY PURCHASE

(4.1)

Under current legislation, money purchase schemes operate within different frameworks - group personal pension, simplified schemes etc. For the main purposes of this Section, we will ignore the technical distinctions between these and concentrate on the basic principles of such schemes.

(4.2)

Defined contribution arrangements certainly satisfy a number of the criteria drawn up in (3.1). They are reasonably clearly understood by employees, are straightforward to administer and offer limits on cost to the employer. Depending on the precise contribution arrangements, they can be seen to be equitable between members - certainly among members of the same age, whether they are leavers or stayers. As with final salary schemes, voluntary membership will help to concentrate resources on employees who are concerned about their pension benefits. In addition, unlike a period such as the the mid-1970's, money purchase schemes today do not have any stigma attached to them in the eyes of the generality of employees and new recruits.

(4.3)

In their simplest format - a given percentage of salary for each year of service - such arrangements do not concentrate resources on employees serving long periods to retirement. In order to provide reasonable increments in benefits, it may be appropriate to introduce a graded scale of contributions, increasing with age; this can appear discriminatory, but is designed to result in a more even accrual of benefits, as the cost of pensions generally increases with age. This concept is well accepted by the public, and is not likely to cause feelings of inequitable treatment.

(4.4)

The final question therefore is whether such schemes provide a reasonable standard of living for the member's retirement. Clearly, in return for a total level of contributions equal to those paid by employers and employees to final salary schemes, the total payout in terms of benefits will also be the same, although the distribution between the beneficiaries will be different. The main problem is associated with uncertainty.

(4.5)

It is well known among actuaries that the level of pension emerging from a defined contribution scheme depends on the money paid in, investment returns during the member's working lifetime, and upon the market values of investments and annuity rates at the precise moment of retirement. One of the side-effects of the Stock Market crash of 1987 was that the public came to appreciate the critical importance of these points.

(4.6)

This only brought home a fact that was already evident from studies of the 1970's and 1980's. Table 11, taken from an unpublished paper, shows the result of accumulating 20 years' contributions of 10% of earnings for retirements at the end of the calendar years indicated. The member is assumed to be male with a pattern of earnings that reflects changes in National Average Earnings. Pension increases of 5% per annum are guaranteed; no deductions for expenses have been made. All investments are in equities up to retirement, and the cost of annuities is determined by the yields on medium-dated Gilts. A 50% widow's pension is assumed.

TABLE 11

Date of Retirement 31 December	Accumulation expressed as a multiple of final year's earnings	Pension as a percentage of final year's earnings	
		Retirement at 65	Retirement at 60
1970	3.282	27	24
1971	4.068	28	24
1972	3.888	31	28
1973	2.222	22	20
1974	0.908	13	12
1975	1.836	21	19
1976	1.574	19	17
1977	2.063	20	18
1978	1.867	21	20
1979	1.791	23	21
1980	2.047	24	22
1981	2.081	28	26
1982	2.441	24	22
1983	2.895	27	24
1984	3.589	34	31
1985	3.890	36	33
1986	4.474	41	37
1987	4.384	38	34

(4.7)

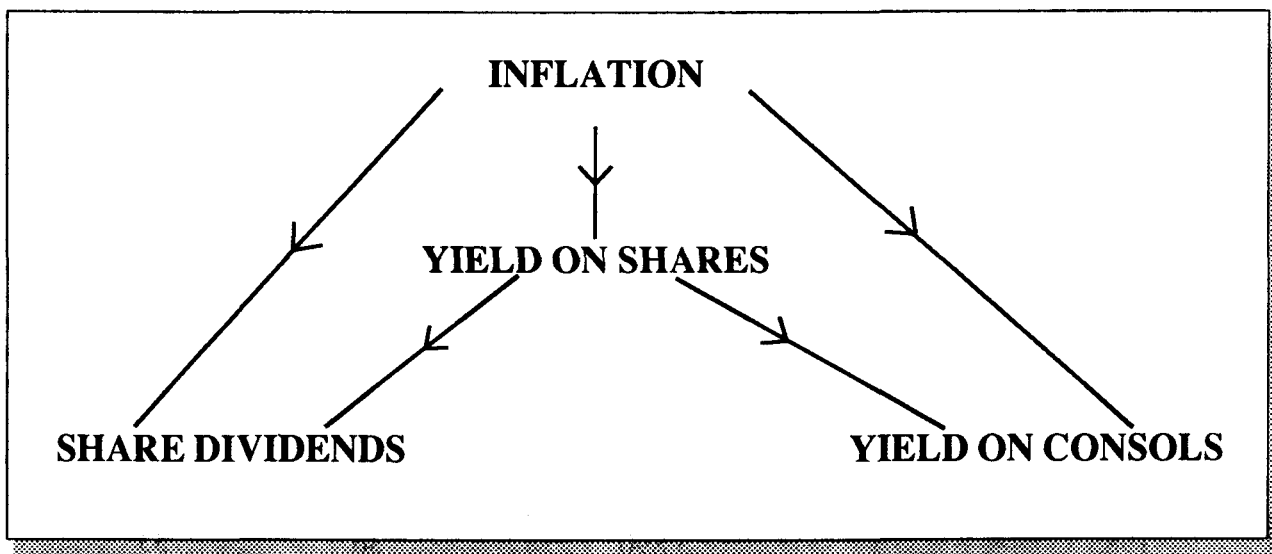
As can be seen, there is considerable uncertainty regarding the outcome of money purchase arrangements when the benefits are expressed in terms of final salary. However, these results can hardly be said (in a statistical sense at least) to be independent, as successive years contain 19 of the 20 years making up the previous figure. In order to devote more attention to the uncertainty aspect, we will need to consider an alternative approach.

(4.8)

Traditional actuarial techniques adopt a deterministic approach. In other words, a set of assumptions about the future behaviour of economic and demographic variables is adopted, and no deviation from these values is contemplated, although clearly alternative bases can be employed to illustrate the sensitivity of the results to such variations. However, if anything is certain about economics, it is that no one indicator maintains a constant value throughout time, even though fluctuations may occur about a particular trend line.

(4.9)

It is at this point that stochastic techniques can be used to advantage. Wilkie (1985) sets out an model which enables the user to establish a set of central deterministic assumptions about the future courses of price inflation, dividend growth and the yields on equity and fixed interest investments, and then investigate the impact of fluctuations about these trend lines. By way of summary, the following diagram illustrates the links between the various parts of the model, with the arrows indicating the direction of influence:-



The course of inflation is entirely described in terms of its own previous values and random fluctuations about a trend (i.e. high inflation in one year is expected to lead to high inflation in the next year, allowing for a tendency to return towards the norm). This feeds through directly to the yield on equities, and also to dividends and fixed interest yields, each of which also has its own random fluctuations about the trend.

(4.10)

One of the main purposes of this model is to allow the actuary to carry out large numbers of simulations of future economic scenarios. These can be used to amplify the traditional deterministic result of an investigation by indicating confidence limits for the answers obtained. One further use of the model is to suggest in a deterministic fashion the course taken by economic variables in future in the absence of exogenous shocks to the system when those variables are starting at values that do not correspond to the long-term levels to be adopted. This is done by setting all the random elements in the model to zero, an approach which is used later in this Section.

(4.11)

Another feature of the model is that it is possible to adopt long-term assumptions that are not the same as those used by Wilkie in his 1985 paper; its function is to describe fluctuations around trends rather than to define the trends themselves. The main values adopted by Wilkie were that:-

- (a) the force of inflation would be 5% per annum (equal to an annual rate of 5.13%);
- (b) the running yield on equities would be 4.28%;
- (c) dividends would grow in line with inflation;
- (d) the yield on long-dated Government fixed-interest securities would be 8.5%.

None of these variables is a direct input to the model; they are instead derived from underlying parameters.

(4.12)

The author has taken advantage of the facility described in paragraph (4.11) to amend certain of these assumptions - in particular, the parameters describing the yields available on fixed-interest and equity investments, which have been increased by 0.5% and 0.25% respectively. This has given rise to a long-term fixed-interest yield of 9.0% and a yield on equities of 4.55%. The other assumptions are unchanged.

(4.13)

As a simple demonstration of the use of the technique, an investigation into a money purchase pension has been carried out. The particular example is of a 25 year old male paying 10% of his salary into a personal pension, with a retirement age of 65. As regards future salary escalation, it has been assumed that this exceeds price inflation by 1.75% per annum. The pension secured is assumed to provide increases of 3% per annum in payment. Expenses have been simplified, and are represented by a deduction of 1% of the fund in each year.

(4.14)

It is also necessary to adopt a model for future investment policy. As the terms upon which annuities may be purchased depend upon the yields available on fixed-interest securities, it would be prudent to bias the investment strategy towards such assets as retirement approaches. Therefore, one policy would be to adopt a high, fixed level of exposure to equities when the member is a long way from retirement, as these will not only offer a higher average rate of return but also exhibit a closer correlation to movements in the member's salary; as retirement approaches, so the proportion in fixed-interest would increase as a precautionary matching measure up to 100% at the point of retirement.

(4.15)

Whilst this is a suitable general strategy, it would be inappropriate to assume pre-determined asset mixes irrespective of actual market conditions. For the purpose of this investigation, a dynamic investment strategy has been adopted which seeks, in an approximate way, to reflect the discretion that could be exercised by an investment manager subject to the overall policy constraints set out in the previous paragraph.

(4.16)

The manager is assumed to be given limits to the exposure to equities and fixed-interest investments he may adopt that are dependent on the term to retirement. The values taken for this example are:-

Years to retirement	Maximum exposure to	
	Equities	Fixed-interest
More than 25	100%	25%
16-25	95%	30%
11-15	90%	35%
6-10	85%	40%

At five years from retirement, the proportions are fixed at 50%/50%, with a linear increase in the fixed-interest level to 100% at retirement. Investment strategy is assumed to be reviewed every five years; this length of period has been chosen purely to reduce the amount of computing time.

(4.17)

In order to determine the policy for any quinquennium, the starting conditions are read into the stochastic model and a deterministic view of the next five years is calculated using the procedure set out in paragraph (4.10). The investment returns over that period, taking account of re-invested income, are then calculated. A final refinement is to assume a certain bias towards equity-style investments by adopting the maximum equity exposure unless fixed-interest are expected to out-perform equities by 5% over the period.

(4.18)

Readers will have to accept the author's promise that this approach was chosen in its entirety before the results of experiments with real-life conditions were known. Working in complete tax years (so that contracted-out abatements may be incorporated more easily in other simulations), computer runs using actual investment conditions at the start of each tax year between 1979 and 1988 show that this strategy would have resulted in the maximum equity exposure in every year with the exception of 1987.

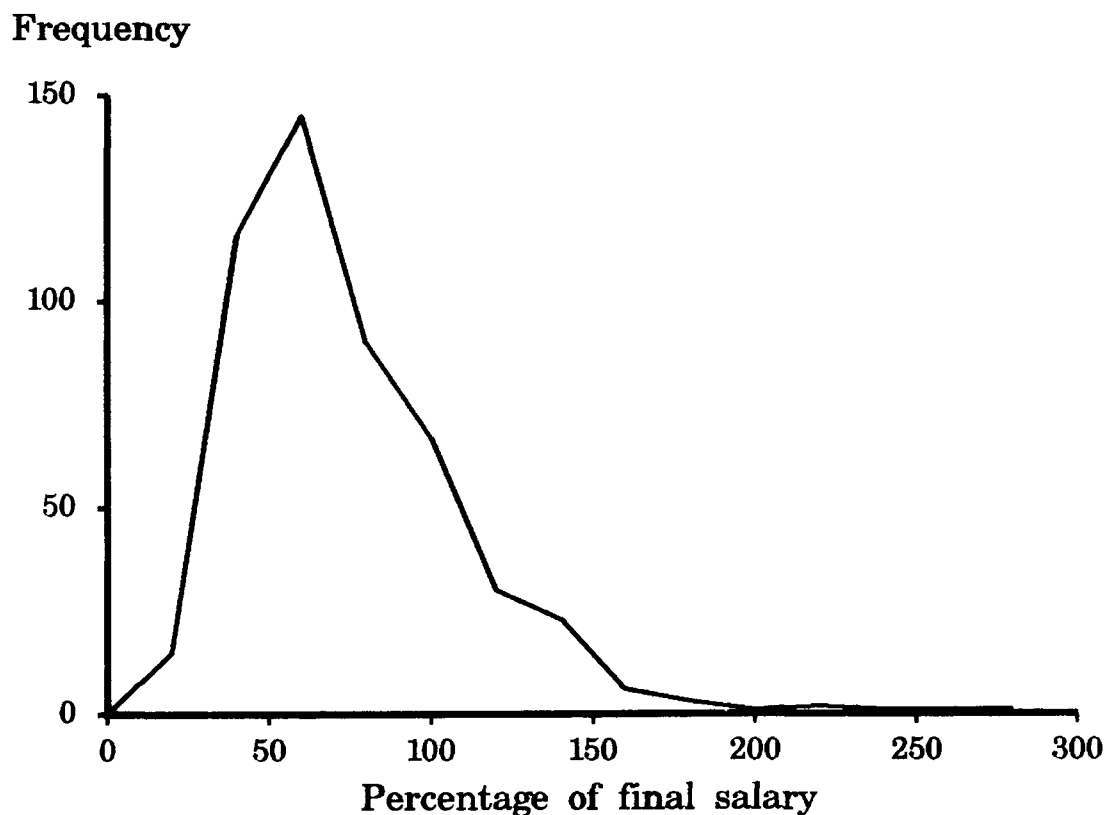
(4.19)

It is necessary to define the starting economic conditions. Rather than use one particular year from the recent past as a base, the projections for the individual in (4.13) have been carried out using a starting age of 16, but not taking any credit for contributions paid until age 25. This effectively allows the stochastic model to generate its own starting conditions which are not equal to the assumed long-term norms from which the model begins at age 16.

(4.20)

The results of 501 simulations are summarised in Figure 1. This plots the emerging pension as a percentage of final salary against the frequency of the outcomes. As can be seen, the distribution is of a log-normal form; it has a median of 65% and a mean of 75%. With this distribution, the standard deviation (of 37% in this case) is not particularly helpful as a statistic; the inter-quartile range lies between 50% and 93% whilst the bottom and top quintiles are 34% and 138% respectively.

Figure 1
Results of 501 Simulations



(4.21)

Clearly, the investment strategy adopted varies between the simulations. However, a summary of the "average" strategies is provided in Table 12. The limits set out in (4.16) have a clear impact in that the average equity exposure tends to be some 10% below the maximum at all durations. This would suggest that a further analysis along the lines suggested by Wise (1984 et seq) might be helpful in establishing more efficient limits; this is beyond the scope of this paper.

TABLE 12		
Age	Exposure to	
	Equities	Fixed-interest
	%	%
Under 40	90	10
40-49	85	15
50-54	80	20
55-59	75	25

(4.22)

This approach can easily be adapted to take into account the early leaver. For this purpose, the same simulations have been carried out, limiting the contributions paid to five year bands. The amounts of pension emerging at age 65 as a result of the contributions paid during each quinquennium are summarised in Table 13, which also repeats the result for ages 25 to 65 from paragraph (4.20).

TABLE 13				
Age at Commencement	Mean	Median	Inter-quartile Range	
			Lower	Upper
	%	%	%	%
25	15	12	8	18
30	13	11	7	17
35	11	9	6	14
40	10	8	6	12
45	8	7	5	10
50	7	7	5	8
55	6	5	4	7
60	5	5	4	6
All ages	75	65	50	93

(4.23)

Over a working lifetime, based upon the assumptions set out in (4.11) and (4.12), a contribution of 10% of salary would result, on the average, in a pension of around two-thirds of final salary. Given that each quinquennium should give rise to a pension of 5/60ths or 8.3% of final salary, the bias of a fixed rate scale towards the younger members is clear. In taking into account the variable nature of a money purchase arrangement, it would be reasonable to employ an increasing scale of contributions with the intention of providing uniform accrual in terms of the pension emerging at retirement age. This analysis calls into question some of the more generous underpins that have been introduced in final salary schemes to combat personal pensions; the employer may unwittingly be granting better benefits to his younger employees than he appreciates. For example, between ages 25 and 30, the lower quartile is 8%. Even taking the risk factor into account this seems a generous level of provision where the underpin is of the form described in (3.49).

(4.24)

Of course, the figures quoted above are based on compound pay rises at a real rate of 1.75% per annum. The introduction of a promotional salary scale, which would be steeper at the younger ages than for the older members, would have the effect of reducing the amount of pension secured as a percentage of final salary for the younger members. This is a further matter to be addressed in individual cases.

(4.25)

The examples in this Section have all been based essentially on a unitized approach. A with-profits policy might help to even out some of the wilder fluctuations, although terminal bonuses can still vary quite widely. The total policy proceeds are still likely to represent some form of mis-match with the cost of buying annuities at retirement, but it would be interesting to construct a model to simulate with-profits bonuses and test the outcomes. This again is beyond the scope of this paper.

5.

TRANSFER VALUES

(5.1)

When an individual changes employment, he will often have retained benefits from his earlier employment which may be transferred to the pension scheme of his new employer or to a personal pension arrangement. The number of combinations of exporting scheme design and importing scheme design would make an analysis of all the possibilities a lengthy (and probably unrewarding) experience. However, a common situation is likely to be where a member is leaving a final salary scheme with an entitlement to a deferred pension, and is considering whether he should transfer to a money purchase arrangement.

(5.2)

Typically, the transfer value available will reflect a deferred pension subject to statutory revaluation, often sitting on top of a GMP also subject to some form of fixed rate revaluation. For the purpose of this Section, it will be assumed that the GMP is to be revalued at 7.5% per annum, whilst the excess is subject to revaluation at the lesser of 5% per annum and price inflation; it is assumed that, if price inflation were to be negative, the amount of the pension in excess of the GMP would not be reduced below its starting level.

(5.3)

Given the member's age at exit and the investment conditions relating to the date of leaving, it is possible to calculate deterministically a transfer value by reference to the yields on long-dated Government fixed interest securities, as required by Guidance Note 11. It is assumed that this transfer may be taken to a personal pension which is invested along the same lines as those established in (4.16), i.e. with a significant bias towards equity investment. This means that there is a mis-match between the benefit being given up and the investment medium subsequently adopted. Transfers to Section 32 arrangements are very different in their treatment of the GMP elements; these are usually secured on unfavourable non-profit terms.

(5.4)

Once again, it is appropriate to assess the value of the alternative benefits by comparison with the final salary of the member at retirement. Whilst it would be possible to make more sophisticated assumptions, for the purpose of this paper it has been assumed that no specific advantage in terms of long-term improvement in salary levels is achieved by job changing. In other words, the average salary progression of the member remains at 1.75% per annum in excess of prices, irrespective of changes in employment.

(5.5)

In Section 4, we were dealing with a situation in which regular contributions were paid into a particular scheme. In the case of transfer values, we are only concerned with a single payment, which can therefore be seriously affected by investment conditions ruling at the date of payment. The examples to be considered will therefore relate to two specific periods, namely April 1988 (when conditions were very close to those assumed in the long term model) and April 1985 (when fixed interest were trading on a relatively high yield). These dates have been chosen for their economic rather than their temporal significance. The fact that withdrawals in April 1987 would have been subject to 8.5% fixed rate GMP revaluation will be ignored. Three early leavers will be considered, aged 25, 35 and 45. Each is assumed to have left service after five years in a contracted out scheme providing a deferred pension of 1/60ths of salary in excess of the LEL at exit per year of service on a salary of £10,000.

(5.6)

The following Table summarises investment conditions at the two dates:-

TABLE 14		
Date	Yield on	
	Equities	Fixed Interest
	%	%
April 1985	4.47	10.01
April 1988	4.38	8.82

The yields are taken from a monthly series and are those available as at close of play on 31 March in each year. Table 15 summarises the results of the projections in terms of the emerging pension as a percentage of final salary, while Table 16 relates the alternative deferred pension to final salary.

TABLE 15

Age at		Mean	Median	Inter-quartile range	
				Lower	Upper
		%	%	%	%
April 1985	25	8.6	6.8	4.6	10.6
	35	8.2	7.1	4.9	10.4
	45	8.0	7.2	5.3	9.9
April 1988	25	9.7	7.6	5.1	12.0
	35	8.9	7.6	5.2	11.2
	45	8.2	7.3	5.3	10.2

TABLE 16

Age at		Mean	Median	Inter-quartile range	
				Lower	Upper
		%	%	%	%
April 1985	25	4.6	4.4	2.7	5.6
	35	5.0	4.9	3.2	6.2
	45	5.8	5.6	4.0	7.0
April 1988	25	4.7	4.5	2.7	5.6
	35	5.0	5.0	3.3	6.1
	45	5.7	5.7	4.1	6.9

(5.7)

The results of investing in accordance with the principles set out in paragraphs (4.14) to (4.17) are that the mean pension emerging goes some way towards replacing the years of service given up by the employee when he transfers. However, it must be remembered that the benefit actually surrendered consists of a GMP and an excess deferred pension. Table 17 re-expresses the results for the 25 year old in terms of the pension emerging as a percentage of the deferred pension that would otherwise have vested at retirement. For this purpose, the column headed "Equity" reflects the previous investment strategy, whereas the column headed "Fixed-interest" reflects a policy of investing entirely in fixed interest securities.

TABLE 17				
Percentile	April 1985		April 1988	
	Fixed-interest	Equity	Fixed-interest	Equity
	%	%	%	%
5	67	47	69	51
25	93	99	95	111
50	123	173	125	191
75	158	293	156	329
95	267	775	254	868

(5.8)

It will be seen that a fixed interest strategy provides a far superior match for the benefits being given up. However, an analysis of the ratio of the equity pension to the fixed interest pension for each simulation shows that, in the median case, the former exceeds the latter by some 48% for the 1985 simulations and 65% for 1988.

(5.9)

Further analysis of some of the more extreme results is valuable. In particular, a number of examples where the equity policy provides an extremely poor return compared with the deferred pension occur in low inflation scenarios. In other words, the fixed rate 7.5% revaluation of the GMP gives rise to a relatively large pension when compared with final salary. However, by leaving his deferred pension in his final salary scheme the member does not benefit to the same extent as would appear from these figures. At SPA, the DSS will work out the individual's total SERPS entitlement, and then deduct the GMPs it knows to be due from other schemes. If a fixed rate revalued GMP happens to be a very large benefit, the employee's supplement from the State to make up his SERPS pension will be correspondingly reduced.

(5.10)

The conclusion to be drawn from this Section is, of course, hardly surprising. In the majority of circumstances, investment in fixed interest securities will under-perform investment that is more heavily biased, particularly at younger ages, towards equities, although the relative performances are biased by the assumptions underlying the projection. By calculating a transfer value by reference to fixed interest yields, credit is only being taken for a relatively low level of investment performance, resulting in an increased transfer value. If those assets are then transported into a more effective investment mechanism, the pension emerging is far superior.

6.

CONCLUSIONS

(6.1)

Three questions were raised in the first Section of this paper. It would appear that the traditional concept of a two-thirds pension, even taking into account the availability of the basic State pension, is an inadequate provision for retirement if the retiree is seeking to maintain the standard of living enjoyed at the end of his or her working life.

(6.2)

To suggest that the majority of pensioners will be on two-thirds of their final salary is far from the truth. If the concepts put forward in Section 3 of this paper are followed, it is the target employees who will be in this position, not all of them. There are analytical tools available for the employer who is seeking to review his pension arrangements, both in terms of final salary and money purchase schemes. These can be used to ensure that what the economists term the company's "scarce resources" (i.e. money) are used wisely.

(6.3)

Employees should try to decide what their priorities are. In the majority of cases, this may well be no more than to enjoy a reasonable standard of living in retirement. If this is to be measured against final salary, money purchase schemes offer a rather variable level of security, although they may have their place early in peoples' working lives. The new forms of transferability offer an opportunity to recover some of the lost ground when changing jobs.

(6.4)

Even though actuaries may have made life unnecessarily difficult in the past, pensions are complicated; they involve planning over time horizons that are far beyond the view of the average individual. If the new forms of pension provision, with their associated uncertainty, are to become widespread, or if voluntary membership of pension schemes leads to a reduction in the provision for retirement, it is the author's view that an adequate safety-net in the form of the basic State pension is essential. This is already being eroded relative to the living standards of those in employment. It would be regrettable if the suggestion at the end of the quotation with which this paper started, that the role of the National Insurance Fund should be reconsidered, leads to an acceleration of this erosion.

(6.5)

"A student has suggested that" is a favourite format of question in the examinations; the examinee can be confident that something fairly risible follows. We seem to be in an era in which "a politician has suggested that" is more appropriate. This might be amusing, too, if it were not so serious.

7.

ACKNOWLEDGEMENTS

(7.1)

Working for a large firm means that many ideas are absorbed without being directly attributable to any specific individuals. However, I would like to acknowledge the unfailing courtesy with which David Wilkie and Andrew Wilson have allowed me to bend their ears over the last few months. Outside the actuarial profession, Chris Beauman and John Thompson have asked a number of questions or stated opinions that have had an impact upon the views expressed, while Charlotte Tookey has uncomplainingly deciphered my appalling handwriting whilst preparing lengthy drafts of this paper. To them, and all my colleagues, I offer my thanks.

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APPENDIX A

Extract from Inland Revenue document "Benefits on Early Retirement: a Discussion Paper".

"Criticisms of present practice"

10. The main criticisms of the present approach to early retirement benefits are that:

- it discriminates unfairly against people who are made redundant;
- it discourages employees from taking voluntary early retirement, and so creating vacancies for the unemployed; and
- it reduces pension expectations, particularly where people have paid AVCs.

11. In certain circumstances, notably hardship, pension schemes may by concession be permitted to pay benefits in excess of those normally allowed under [the normal] formulae.

12. But any change from the present approach would require certain points to be considered:

- i. if the early retiree's pension were not abated it would be unfair to the stayer whose circumstances were otherwise the same,
- ii. schemes might feel obliged to fund on the assumption that everyone would retire early, increasing the cost of the tax reliefs and allowing large surpluses to accumulate,
- iii. schemes can always get round the problem (at a cost) by reducing the normal retirement age (although not below 60), and
- iv. no early retiree's benefit will be reduced to less than N/60ths.

13. The first point relies on equality of treatment. But existing practice does not achieve equality in other respects: for example, accelerated accrual is not available to all employees. And, if equality of treatment is the priority, it could be argued that the practice in cases of hardship (paragraph 11 above) is inconsistent.

14. The second point concerns the cost of the pensions tax reliefs. An early retirement pension is clearly more expensive to provide than an equivalent pension payable from normal retirement age. An indication of the differences in costs is given in the table below. The calculation at different ages is based on annuity factors commonly used by insurance companies for funding purposes:

Age	Annual Pension	Cost
55	£20,000	£338,720
60	£20,000	£297,760
65	£20,000	£258,072

15. The third point arises because there is no Revenue requirement for a standard normal retirement age. And it is often possible to change an existing scheme's normal retirement age, provided that the new age is between 60 and 70. But, since the new age will apply for all members of the scheme, this is often an unattractive option to employers.
16. The final point - that no-one can get less than N/60 - is little comfort to someone with less than 40 years service who has paid AVCs precisely because he expected that a pension based on N/60 would not be adequate."

APPENDIX B

Summary of relevant tax and National Insurance rates 1988/89.

Income Tax

		£
Single allowance		2605
Married allowance		4095
Single age allowance	(65 - 79)	3180
	(80 +)	3310
Married age allowance	(65 - 79)	5035
	(80 +)	5205
Income Limit		10600
<u>Rate of tax</u>		<u>Tax band</u>
		£
25%		1 - 19,300
40%		19,301 upwards

National Insurance

Lower earnings limit = £2132

Upper earnings limit = £15860

Earnings per week	Full Rates		Contracted-out Rates		Reduced rate for married women
	Employee	Employer	Employee	Employer	
	%	%	%	%	
below 41.00	Nil	Nil	Nil	Nil	
41.00 - 70.00	5	5	3	1.20)	
70.00- 105.00	7	7	5	3.20)	3.85
105.00 - 155.00	9	9	7	5.20)	
155.00- 305.00	9	10.45	7	6.65)	

Note

The table shows the rate payable according to the band in which the employee's earnings fall. If the employee earns less than the Upper Earnings Limit (UEL) then the Full Rates apply to ALL earnings. If the employee earns over the UEL then the employee's Full Rate is 9% on all earnings up to the UEL, but the employer's rate is 10.45% on all earnings. For a scheme which is contracted out the Full Rate contributions are reduced by the Abatement applied to earnings between the Lower and Upper Earnings Limits.