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IMPLICATIONS OF RECENT LEGISLATION ON FUTURE BENEFIT DESIGN

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1. INTRODUCTION

1.1 The paper was prepared by the authors as members of the Pensions Research Group of the Faculty of Actuaries. It covers the major factors influencing the design of pension schemes during the last decade. This period saw an unprecedented level of legislation on pensions, much of it with far reaching consequences. In the final sections of the paper some suggestions are put forward as to the likely form of benefit design in the 1990s and beyond.

1.2 Section 2 considers the impact of contracting out and changes in contracting out terms since its introduction. Section 3 covers the impact of the surplus regulations introduced by the Finance Act 1986. During the 1980s European law has had a considerable influence on equality in pension arrangements and this is covered in Section 4. Section 5 covers the introduction of personal pensions, Section 6 covers the position of part timers, Section 7 covers SSAP 24 and Section 8 covers the Finance Act 1989.

1.3 The Social Security Act 1990 was introduced as a result of concerns about the protection of members rights in defined benefit schemes. Much of its content has been the subject of debate and controversy. Section 9 contains the main details of the Act and considers its implications.

1.4 Section 10 begins by detailing the main forms of benefit design as we move into the 1990s and goes on to consider whether there are likely to be changes in benefit design. Section 11 covers the potential impact of futures and options on the pensions market and Section 12 suggests a revised money purchase approach for the future.

1.5 The views put forward are those of the authors and should not be taken as representative of any of the offices for which the authors work. The authors are indebted to their own offices for encouraging participation in the Research Group.

2. CONTRACTING OUT

2.1 *History*

2.1.1 SERPS was first introduced in 1978 with the support of all the main political parties. However by June 1985 we had a Green Paper proposing the abolition of SERPS and the political concensus was at an end.

2.2 *Social Security Pensions Act 1975 (SSPA 1975)*

2.2.1 SSPA 1975 allowed occupational pension schemes which satisfied various criteria to contract out of SERPS, and this course of action was ultimately followed by schemes covering around ten million employees.

2.2.2 Initially set at 7% of Upper Band Earnings, the contracting out rebate has decreased every five years as a result of the gradual decline in the average GMP accrual rate. The Government Actuary has indicated that the rebate is expected to decline as follows:

1978 – 1983	7.0%
1983 – 1988	6.25%
1988 – 1993	5.8%
1993 – 1998	4.8%
1998 – 2003	4.3%
2003 – 2008	3.9%
2008 – 2013	3.6%
2013 – 2018	3.5%
2018 onwards	3.4%

2.2.3 In determining these figures, the Government Actuary has made assumptions about several factors, including the level of future investment returns, the level of future increases in earnings and the age distribution and proportion of men to women in a typical occupational pension scheme. One factor which may well affect these figures is the opting out of SERPS by many younger employees following the introduction in 1988 of personal pensions for contracting out – a drop in the average age of employees who contract out could result in lower rebates or higher National Insurance contributions.

2.3 *Social Security Act 1986*

2.3.1 The Social Security Act 1986 reflected the Government's twin objectives of reducing the burden of SERPS on the future working population and of increasing individual provision for retirement benefits. These objectives were addressed in four ways:

- (i) By reducing the overall benefits provided by SERPS.
- (ii) By introducing the money purchase test for contracting out.
- (iii) By introducing Personal Pensions.
- (iv) By ending compulsory membership of occupational pension schemes.

2.3.2 However, this concern about rising costs was considered debatable by many who felt that reasonable economic growth would have made the current scheme affordable in both the short and the long term. Also the U.K. tended to spend a low proportion of the national income on State pensions compared with other developed countries. In the event the Social Security Act 1986 introduced the above changes which the White Paper stated would reduce costs by over £12 billion by 2033, a saving of over 50% of the projected costs.

2.3.3 As an encouragement to contract out of SERPS and hence to reduce long term costs further, the Government provides, for new schemes and employees taking out a personal pension, an additional incentive payment of 2% for a period of five years from 6 April 1988, with an additional payment for the 1987/88 tax year being offered for Personal Pension schemes.

2.4 *Review of Contracting Out Terms*

2.4.1 In March 1987, the Government Actuary presented his review of contracting out terms. Firstly the main economic assumptions were changed from a rate of interest of 9% combined with a net yield over earnings of 1% to a rate of interest of 8.5% combined with a net yield of 1.5% over earnings. Also the rebate included the cost of 3% escalation for GMPs. In addition a margin of 0.4% was included in the rebate for 1988-93 only.

2.4.2 In addition the terms for State scheme premiums were worsened. The rate of interest was reduced from 9% to 8.5% and the net yield over earnings increased from 0.5% to 1.1%. This has led to a change in the shape of the Accrued Rights Premium (ARP) table. More importantly, the Market Level Indicators (MLIs) for pre-1988 GMPs have increased significantly. The neutral position for MLI now arises if gilt yields are at 12% and equity dividend yields are at 4.8%. These changes have increased MLIs by around 23%.

2.4.3 The changes have implications for Certificate A particularly where GMPs are a large part of the benefit. The additional margins required for Certificate A may run into conflict with the limits placed by the Surplus Regulations which are described in the next section. The change to MLI also affects the calculation of Transfer Premiums.

2.4.4 Finally the changes to MLI are not applicable to post-1988 GMPs. For post-1988 GMPs rather than a straight MLI adjustment there is a fraction equal to the current MLI divided by the average since 1988.

3. SURPLUS REGULATIONS

3.1 In his Budget Statement on 18 March 1986 the Chancellor of the Exchequer proposed changes in the tax treatment of actuarial surpluses in occupational pension schemes. Fully insured schemes were exempt. These changes, which reflected concern about the growing size of surpluses in schemes, introduced a defined basis for the payment of surpluses to employers. In many cases surpluses had arisen as a result of successful investment performance but there was also a belief that some companies, in order to reduce their tax bill, were deliberately understating profits by paying excessive contributions to their pension schemes.

3.2 As a result the Surplus Regulations were introduced. These Regulations laid down a statutory basis for carrying out valuations for the purpose of determining a "surplus". The main economic assumptions were a real rate of return over general salary increases of 1.5% and a minimum net yield post retirement of 3% (2% if pensions were guaranteed RPI increases). Demographic assumptions were not laid down but had to be consistent with previous valuations. A valuation in accordance with the Surplus Regulations was to be included as part of all valuations from 6 April 1987 and surplus was to be determined using the Projected Accrued Benefit Method.

3.3 The Regulations require the excess of assets over liabilities to be reported to the Inland Revenue where it exceeds 5%. In general, if this occurs one of the following methods must be used to target bringing the excess down to 5% or there will be some taxation on a proportion of the investment income and capital gains.

1. An increase in benefits
2. A reduction in employers and/or employees contributions
3. A refund to the employer

Where a refund is paid to the employer this is taxed at a uniform rate of 40% irrespective of the employer's actual corporation tax rate.

3.4 The Surplus Regulations were introduced at a time when many schemes were revealing substantial surpluses due in the main to good short term investment performance. An unfortunate result of the Regulations is that short term experience may force short term funding considerations on what is essentially a long term pension scheme commitment. There are also inconsistencies in the differing requirements for security under contracting out and the accounting requirements covered by SSAP 24.

3.5 The impact of the Surplus Regulations is also likely to be influenced by the requirements of the Social Security Act 1990 which is covered in Section 9.

4. EQUALISATION

4.1 The subject of equality of pension benefits has been debated and discussed at length over the last decade. For many people equality was seen as a means of reducing unemployment and it is probably not coincidence that unemployment was at high levels throughout much of this period. However the present Government has indicated that, while it is in favour of flexibility and equality of benefits, it is not prepared to make changes which will lead to a substantial increase in the cost of State pensions.

4.2 *Background*

4.2.1 In 1976 the OPB reported on equal status for men and women in occupational pension schemes. Their report concluded that there were grounds for requiring equal pension ages but that legislation was unlikely while the State continued to have different ages. This was followed by reports from the Government, the Equal Opportunities Commission, the National Association of Pension Funds and the House of Commons Social Services Committee. In view of the high cost of reducing male pension age to 60 most of these reports concentrated on an age between 60 and 65 with 63 being the most common. However none of these reports actually led to any move towards equalising pension ages.

4.2.2 During the 1970s and early 1980s there was considerable concern about the level of unemployment and the pressure was for State pension ages to be equalised at a lower age, such as 60 in order to help reduce unemployment. In the late 1980s the main concerns were the high cost of social security benefits as a result of pensioners' longer expected lifetimes and the reducing numbers of school leavers. As a result the pressure is now likely to be for an older equalised State pension age than 60 and there have been some recent examples of companies increasing the pension age for women. It is worth noting that in France, where pension age was equalised at 60 as recently as 1983, the Government established a Committee in April 1987 to review the social security system. The Committee identified problems such as the falling birth rate, the increasing retired population and the rising costs of medical care. It recommended a gradual raising of the retirement age and an increase in the period over which final earnings were averaged from 10 to 20 or 25 years. In the U.K. there has been a similar reduction in social security benefits by measures such as reductions in SERPS benefits, the impact of which will only be felt in the longer term, and the linking of basic old age pensions to prices rather than earnings.

4.2.3 Probably the greatest influence towards equalising pension ages has come from the EC. The two Articles of the Treaty of Rome which deal with this subject are Article 119 – Equal Pay and Article 118 – Social Cooperation.

4.2.4 Article 119 stipulates that each Member State shall maintain the principle that men and women should receive equal pay for equal work – pay means wages or salary and any other consideration whether in cash or kind. The European Court has held that Article 119 has a direct effect – this means that it is enforceable in national courts without the need for further national legislation.

4.2.5 Article 118 covers terms and conditions of employment such as a compulsory retirement age. However because of its wording the European Court has held that Article 118, unlike Article 119, does not impose rights and obligations directly on private companies.

4.2.6 The Sex Discrimination Act 1986, which was introduced as a result of the Marshall case, made it illegal from 7 November 1987 to discriminate between men and women as to the age at which their contract of employment ends. It does not however equalise normal pension ages and no rules exist about how scheme benefits should be adjusted where retirement is postponed because of the Act.

4.2.7 The latest EC legislation in the area of sex discrimination is Directive 86/378 on equal treatment for men and women in occupational pension schemes. This Directive, issued by the European Council in July 1986, required U.K. laws to be amended by August 1989 and schemes to comply for future service by 1 January 1993.

4.2.8 This latest Directive clearly states that equality of pension ages in occupational pension schemes is not required until equality is achieved in the State scheme. Equality of retirement ages only is required under the Sex Discrimination Act 1986. However it could be argued that as a result of the Barber case Article 119 is deemed to cover pensions and therefore it would not be possible to apply different pension ages to men and women. If this view was upheld it is important to note that the Article would override the Directive. One other interesting aspect of the Directive is that it excludes a requirement for unisex annuity rates.

4.2.9 In 1987 draft Directive 87/494 was issued covering further proposals to complete the implementation of the principle of equal treatment for men and women in statutory and occupational social security schemes. This Directive proposed that equality of pension ages and equality of survivor benefits be introduced both for the State and occupational pension schemes.

4.2.10 The draft Directive recommends a gradual implementation of equal pension ages where they differ at the present time. It also permits the use of flexible pension ages or retirement based on a given number of years of contributions providing that the conditions are the same for men and women. Member States would have three years in which to introduce legislation once the Directive was implemented and its implementation would not be backdated.

4.2.11 While there is considerable support for this draft Directive in Europe it is generally felt that the U.K. Government will resist its implementation at the present time due to concern about possible increases in the cost of social security benefits.

4.2.12 The case of "D W Clark v Cray Precision Engineering Limited" came before an Industrial Tribunal in May 1988. In this case Mr Clark took early retirement at age 60 as a result of redundancy. His normal pension age was 65 and his pension was reduced by 32% to take account of early payment. Mr Clark claimed discrimination on the grounds that a women would have had no reduction on retiring at age 60 – her normal pension age was 60. The Tribunal ruled that:

(a) benefits under a retirement benefits scheme are 'pay' within the meaning of Article 119 of the Treaty of Rome.

(b) the payment of a pension to a man which is less than that payable to a woman retiring at the same age in similar circumstances is discriminatory under Article 119.

(c) Article 119 has direct effect in this case and therefore confers rights on the individual.

4.2.13 The Social Security Act 1989 was introduced to implement EC Directive 86/378. Under the Act with effect from 1 January 1993 it will no longer be possible to directly or indirectly discriminate between the sexes in relation to benefits under occupational pension schemes. The most significant implications are in relation to bridging pensions, upper entry ages to schemes and the calculation of pensions and contributions. However, in April 1991, DGV of the EC Commission confirmed that bridging pensions were acceptable and therefore the Government could amend the section of the Act which outlawed them from 1 January 1993, although ultimately only the European Court of Justice can make a final binding decision.

4.2.14 While all the above events were significant in the move towards equalising pension benefits the greatest impact has probably been the judgment by the European Court of Justice on 17 May 1990 in the Barber v GRE case. In this case Mr Barber claimed that the more favourable early retirement options available to women in similar circumstances to himself represented discrimination and the European Court found in his favour.

4.2.15 The Barber judgment required equal benefits to be available in respect of future claims but specifically said that the decision was not retrospective for claims in respect of pensions prior to 17 May 1990. Just how the application of retrospection will work has not yet been made clear. It is also not clear as to whether the judgement applies to options such as early retirement, commutation or transfers as well as to the main benefits. In addition there is doubt about which test should apply to money purchase schemes – equal contributions, equal benefits or both.

4.2.16 The question which has to be addressed is whether the European Court decision applies (i) only to benefits accruing after the judgment date, (ii) to total pensions of active members leaving after the judgement, (iii) to all pensions coming into payment after the judgement or (iv) to any instalments of pension paid after the judgement.

4.2.17 Logic suggests that equal benefits must be given for equal pay in respect of all accrual. It does not seem reasonable for discrimination to take place and then be condoned by future actions merely because the situation giving rise to the discrimination was an occurrence prior to the date of the judgment. If the actual period of service continues beyond the date of judgment, it seems necessary for all pension entitlements to be "equal".

4.2.18 If this is the case (ie option (ii)) then the implications will be more wide ranging than if option (i) is the case. The financial implications of options (iii) and (iv) are even greater but these seem the least likely interpretation of the judgement. If option (ii) is to be the way forward and if all future retirals are to have the same benefits, then there seems to be no alternative but to reduce the male pension age to the female pension age for the calculation of all benefits including pre May 1990 service. Otherwise it would be necessary to increase female pension ages which could have significant employment legislation problems.

4.2.19 The assumption in (i) allows past benefits to be dealt with considerably more cheaply (although probably the administration would be more awkward). If only future accrual need be equal then benefits can consist of pre and post 17 May 1990 benefits. The NAPF have recently received Counsel's Opinion on the Barber judgement. The conclusions were that the judgement applied to both contracted in and contracted out schemes, it applied to survivors' benefits as well as pensions and it did not apply to benefits accruing prior to 17 May 1990. While the conclusion on the retrospective implications of the judgement is in line with option (i) above it may be that a different Counsel would have a different view or the Court might decide differently. Also, although Industrial Tribunal decisions do not set legal precedents the decision in the Roscoe v Hick Hargreaves case in March 1991 was in line with option (ii) above. In order to resolve this issue, the DSS have agreed to back a case involving the Coloroll scheme which it is hoped will clarify the Barber judgement. There are also two further cases, one Dutch and the other German, which have been referred to the European Court of Justice for clarification of the Barber ruling.

4.2.20 One of the problems facing the pensions industry is that even if the ECJ interpretation of retrospective is option (i) the U.K. could introduce legislation following option (ii). However, the DSS have indicated that they currently support option (i) – a change of Government could change this position though. With the introduction of 5% revaluation of preserved pensions in the Society Security Act 1990 Government has shown that it is prepared to adopt retrospective legislation.

4.2.21 The Barber v GRE decision presents further problems where sales and purchases occur. Vendors are unlikely to be willing to assume the worst scenario in calculating transfer values or adjustments to sale prices nor are they likely to accept an open ended commitment based on the eventual final interpretation of this decision. This doubt and uncertainty about future scheme liabilities is going to make negotiations considerably more complicated for both vendor and purchaser.

4.2.22 Turning now to flexible retirement ages "Age of Retirement" was published in 1982 by the House of Commons Social Services Committee. The Committee believed that the two guiding principles should be flexibility of pension ages and equality of treatment between the sexes. The Committee recommended that 63 be adopted as a notional common State pension age, with flexibility for State pensions to be paid between the ages of 60 and 70.

4.2.23 Also in 1982 the European Parliament issued a non-binding recommendation to Member States that they present a report on the practicality of adopting more flexible retirement ages but this has not yet led to a Directive.

4.2.24 The Government referred to the concept of flexible pension ages and a decade of retirement in their Green Paper on "Reform of Social Security" but there was no mention of it in the Social Security Act 1986.

4.2.25 Flexible retirement in occupational pension schemes is difficult to achieve while State benefits represent a significant portion of total retirement benefits and the State offers no real flexibility on pension ages. The only flexibility in the U.K. results from the Job Release Scheme which provides a benefit between early retirement age and State pension age. This benefit is payable to a released employee provided he does not undertake further employment and provided the employer recruits a registered unemployed person for a full time job. The scheme was extended in 1982 to cover men down to age 62 and women to age 59 but from 1984 the age for men was raised to 64. The scheme has limited effect since it only gives one year of extra flexibility and it would not be appropriate to an employer seeking to reduce his workforce.

4.2.26 While legislation has not yet introduced either equality or flexibility there has been a growing trend towards earlier retirement. In a recent report by the Public Policy Centre figures indicated that over half the men aged 60-65 and a third of those aged 55-60 no longer go out to work. Although it is not possible to quantify exactly the percentage of those individuals who have taken early retirement, it is likely that many were offered early retirement as part of a redundancy or manpower reduction package. It remains to be seen whether this pattern will continue as reducing numbers of school leavers enter the system in the future.

4.3 *Money Purchase Schemes*

4.3.1 If a scheme is run on a money purchase or defined contribution basis, there is of course no set level of pension. It is already a requirement under the Social Security Act 1989 that contribution rates are to be equal for both sexes, except that different rates are permissible if actuarially justified (this exception may no longer be possible in the post Barber v GRE world). Also any indirect discrimination caused by differing approaches being applied to part timers would not be acceptable.

4.3.2 Although money purchase schemes should, in theory, be easily designed to be non-discriminatory they still face difficulties. The problem is in the conversion of a fund of money into an annuity. Only if the annuity rate is calculated on a unisex basis will equal pensions come into payment for a man and a woman retiring at the same age with the same "money purchase fund".

4.3.3 Although they clearly involve a degree of cross subsidy, three factors would appear to suggest that unisex annuity rates will be the final approach. Firstly, the requirement of the personal pension legislation that Protected Rights be bought on a unisex unistatus basis lays a precedent within U.K. legislation and suggests that in the minds of the DSS (if not in the minds of anybody else) unisex annuity rates are "fair" and give rise to equality.

4.3.4 Secondly, it can be argued simplistically that if defined benefit schemes require equal starting levels of pension for "equality", then so too, surely, must employers' money purchase arrangements. The third and perhaps most important factor is the

Barber v GRE judgement which would seem to require equal pensions and contributions. Against this, however, there is the allowance in the Social Security Act 1989 for unequal contribution rates to ensure that equal pensions will arise when sex based annuity rates are applied.

4.4 *Defined Benefit Schemes*

4.4.1 In theory equalisation of benefits should be quite simple for defined benefit schemes. As benefits are defined in terms of service, pay and benefit structure, it should be the case that sufficient legislation has already been enacted to ensure that equal benefits for each sex is the norm. The preservation requirements forced equal access to the various categories of benefit structure. The Sex Discrimination Act 1986 required equality of service to be available. Article 119 of the Treaty of Rome (which has been in effect since prior to the United Kingdom joining the European Community) required equality of pay and by implication now pension.

4.4.2 However the problem is that the Social Security Pensions Act 1975 continues to ensure that some form of sexual discrimination exists within benefit structures. The contracting out requirements for defined benefit schemes are closely tied to the unequal State pension ages of 60/65. This means that GMPs are paid from different ages and their accrual rates generally differ. Defined benefit schemes are likely to find that the conflicting requirements of contracting out and equalisation required by the Barber case are administratively so complex that employers may question the advisability of continuing to provide defined benefit schemes.

4.4.3 Equal benefits for each sex on a defined benefit basis cannot be achieved by any minor adjustments of the systems as they are at present. Pensions legislation in the United Kingdom seems to become more complicated with every passing year. This has arisen due to successive governments "tinkering" with the edges of legislation rather than tackling the fundamental problems. No government has actually been prepared to grasp the nettle and set out an environment whereby a member can be assured of an equal benefit to that of a member of the opposite sex in return for equal work.

4.4.4 It is tempting to suggest that the only way to achieve a satisfactory situation is by winding up all existing schemes, stopping accrual within the State earnings related scheme, and starting again from scratch (subject of course to full salary related revaluation of accrued benefits). Unfortunately this is impractical and not necessarily desirable.

4.4.5 What is necessary is; (i) an equalisation of the State pension ages, as only then can occupational schemes genuinely be forced to follow suit, in order to achieve some semblance of "equality" (ii) an introduction of a flexible range of pension ages; the same for both males and females and (iii) a uniform approach to options (for example with respect to early retirement factors and commutation rates).

There are a number of aspects to the above not least of which are the cost implications.

4.5 *Equal Pension Ages*

4.5.1 While 63 represents a broadly neutral State pension age the recent pressures of a reducing workforce and reducing numbers of school leavers is likely to push towards an age of 65. In the long term this would be expected to result in a reduction in the cost of pension provision for both State and occupational schemes which would tend to fall into line with the State. In March 1991, the NAPF prepared a discussion document recommending a common State pension age of 65, with safeguards for older women, combined with flexible retirement on an adjusted pension between age 60 and 70.

The pressure for an equal State pension age continues with 18 of the largest schemes in the U.K. approaching the Secretary of State for Social Security in April 1991 to request that the Government equalise State pension ages. This was necessary in order to allow companies to implement an equal pension age in their company scheme which fits in with the equal age in the State scheme, on the assumption that eventually the State will have to equalise pension ages. A move in this direction has already occurred with the Government announcement in June 1991 that they were intending to issue a discussion paper with proposals for achieving equal State pension ages. Also in view of the potential implications of the Barber v GRE case they would not be bringing into effect LPI, introduced under the 1990 Social Security Act, until the issue of retrospection was resolved.

4.6 *Flexibility in Pension Age*

4.6.1 Flexibility in pension age must be the way forward for employers. Those employees who desire to draw their pension as early as possible may be encouraged to remain for the extra period that is required to train a replacement, and those who wish to stay on as long as possible may be encouraged to make way for a replacement, at least on a part-time basis. Job sharing comes in as a natural extension to this.

4.6.2 Some gradual retirement schemes already operate in France, Spain and Sweden although often there is a requirement for an unemployed person to be taken on to replace the retiring employee. Examples of these arrangements are discussed in Section 4.7. Whether this is to become a requirement of any future flexible arrangement in the United Kingdom is more a political decision than an actuarial one.

4.6.3 In theory, a gradual retirement arrangement as part of an occupational pension scheme should be no more difficult to allow for than the normal concept of flexible retirement. The practical aspect of increased administration is likely to present much greater difficulties.

4.7 *Flexible Retirement Arrangements in Europe and the United States*

4.7.1 Various different types of retirement packages exist in the social security systems found in Europe and the United States. Over the last decade there has been a trend towards equalising retirement ages and providing some form of flexibility –

undoubtedly this trend towards flexibility has been closely connected with the high levels of unemployment found worldwide. Most flexible retirement schemes have been seen as a means of reducing unemployment figures by making it financially easier to retire early.

4.7.2 However in the last few years there has been growing concern in many countries about the cost of social security benefits as contribution rates have increased to meet the cost of higher benefits. The increase in contribution rates has also reflected the strain placed on social security systems by high levels of unemployment. In several countries there has actually been a reversal of the trend towards increasing social security benefits. In the Netherlands social security benefits have been reduced. In the United States pension age has been increased from 65 to 67 and in France an urgent review has been carried out with its main purpose being to consider ways of reducing social security expenditure. The last decade was one in which the prevailing trend was towards increasing social security benefits. The next decade seems much more likely to be one in which costs take on greater significance and the trend may be towards reducing benefits or at least restricting any further increases in costs.

4.7.3 There are various different flexible retirement arrangements working at the present time in Europe and the United States. These can be split into three categories – income replacement schemes, gradual retirement schemes and early retirement options. The adoption of one particular type of arrangement generally reflects an attempt to meet a particular unemployment problem.

4.7.4 Income replacement schemes involve the payment of an income during a short period preceding normal pension age. The Job Release Scheme in the U.K. is an example of an income replacement scheme. In many cases the scheme requires the hiring of an unemployed person although where it is introduced to help in dealing with declining industries there is no requirement to hire an unemployed person. Schemes exist in France, Finland, Germany, Sweden and the U.K.. They range from a one year payment period in the U.K. to ten years in Sweden.

4.7.5 Gradual retirement schemes involve replacing lost income for employees who switch from full time employment to part time employment. Again in many cases the scheme requires the hiring of an unemployed person to replace the employee taking part time employment. Schemes of this type exist in France, Spain and Sweden.

4.7.6 The option to retire before normal pension age exists in many countries. In Germany (65/65) and Australia (65/60) it is possible to retire 5 years early without reduction in pension. Both Canada and Sweden have a normal pension age of 65 for both males and females with early retirement possible from age 60 subject to an actuarial reduction of 6% per annum. France (60/60) permits early retirement from age 55 with an actuarial reduction of 7% per annum and Greece (65/60) allows early retirement from age 58 with no reduction and from age 56 with an actuarial reduction.

4.7.7 The recent trend in most countries has been to reduce normal pension age or to introduce an early retirement option. However, in 1983 the US raised normal pension age to 67, retaining the option to retire early from age 62 subject to an actuarial reduction of 5% per annum. In 1987 legislation was passed in the US which prohibited mandatory retirement at any age.

4.7.8 A summary of social security arrangements in Europe and the United States is contained in Appendix I and a more detailed description of the flexible retirement arrangements in France, Germany, Sweden, the U.K. and the United States is contained in Appendix II.

5. PERSONAL PENSIONS

5.1 Personal pension schemes became available on 1 July 1988. In many respects the rules relating to personal pensions are similar to retirement annuities. However one notable difference is that personal pensions can be used to contract out of SERPS via an appropriate personal pension scheme.

5.2 As mentioned above an appropriate personal pension scheme can be used to contract out of SERPS. In this situation the DSS will pay the contracting out rebate across to the pension provider. This contrasts with a contracted out defined benefit or money purchase scheme where the employee and employer pay reduced National Insurance contributions. Where appropriate the DSS will also pay over to the pension provider the 2% incentive.

5.3 The decision to offer the possibility of contracting out via a personal pension was intended to reduce the burden on the National Insurance Fund. It was also intended to meet the Conservative Government's idealogical ambition to reduce the role of Government in all matters. However, an option to contract out on an individual basis from SERPS with a level contribution rebate was clearly open to financial manipulation. The opportunity for profit was further enhanced by the additional 2% incentive offered by the Government.

5.4 It is not clear whether the large numbers contracting out have acted as a result of the attractive financial terms or the major sales efforts of the Government and the life assurance industry. However, the net effect has been that 4 million employees have contracted out of SERPS via personal pensions and the National Audit Office are suggesting that this will cost the National Insurance Fund some £5.9 billion over 1988-1993. It seems very unlikely in these circumstances, that the 2% incentive will continue after 1993. The additional 0.4% margin in the 5.8% rebate must also be at risk. Finally, the feature of "pivotal ages" may now disappear as the DSS have already indicated that they are considering an age and sex related rebate from 1993 – presumably spurred on by the National Audit Office report. With several insurance companies already deciding to inform policyholders once they reach pivotal age and Labour Party publicity on the "dubious" nature of some pivotal age calculations, the long term future for appropriate personal pensions looks less favourable.

5.5 The Government's intention to reduce the burden on the National Insurance Fund is unlikely to be achieved in these circumstances. The idealogical ambitions to reduce the role of the Government in pension provision also look at risk as in certain aspects this exercise has mirrored privatisations. Many investors will have made a windfall profit in the short term but fewer than was hoped for may actually remain in the private sector!

5.6 While the main market for personal pensions will undoubtedly be the self employed and non pensionable employees they may also be seen as an attractive option for highly mobile staff or senior staff who would be caught by the earnings 'cap' in a defined benefit arrangement.

6. PART TIMERS

6.1 The position of part timers in pension schemes has taken on greater significance as the 1980s have drawn to a close. More and more firms have been increasing the number of part time employees on their payroll. In addition projected demographic changes in the size of the working population has made companies aware of the need to attract employees, such as married women, back to work on a part time basis if necessary.

6.2 The case of Bilka Kaufhaus v Weber has had a considerable influence on the provision of pension benefits for part timers. In this case a West German female shopworker took her employers to court because, as a part timer, she was excluded from their pension scheme. The European Court ruled that, since most of the part timers were female and pensions counted as part of pay, men and women were not being treated equally. The Court also stated that the only exception to this ruling would be where the exclusion could be objectively justified and in no way related to sex.

6.3 As a result of this case there has been a considerable increase in the number of pension schemes which have been extended to part timers. Recent examples of large employers who have extended their schemes to part timers include Sainsburys and many of the banks. The decision to extend their schemes to part timers has undoubtedly been influenced by the Bilka Kaufhaus case but also by the increasing competition to obtain staff.

6.4 The position of part timers in defined benefit schemes can be extremely complicated, particularly if the employee's hours change from year to year. The complications are at their worst if the employee combines both full and part time service with an employer. Recognising the trend towards greater numbers of part timers the Inland Revenue released Joint Office Memorandum No 100 which has simplified the position of part timers. The Revenue no longer requires separate records to be kept for each period of employment where the employees' hours have changed.

7. ACCOUNTING FOR PENSION COSTS – SSAP 24

7.1 The requirements of SSAP 24 came into effect for accounting periods beginning on or after 1 July 1988 and a Guidance Note (GN17) has now been issued. Prior to SSAP 24 the pension cost figure disclosed in company accounts was simply the actual contribution paid. This practice had the drawback that the actual short term pension cost (or lack of it) had an immediate impact on pre tax profits and made it impossible to achieve consistency between one accounting period and another.

7.2 SSAP 24 requires that pension costs be allocated in accordance with its stated accounting objective and also covers the disclosure of information about the nature and financial details of pension schemes.

7.3 The accounting objective stated in SSAP 24 is a requirement for:

> "... the employer to recognise the cost of providing pensions on a systematic and regular basis over the period during which he benefits from the employees' services."

7.4 The disclosure requirements differ depending on whether the scheme is money purchase or defined benefits, the requirements for the latter being more extensive. Broadly they cover disclosure of the nature of the scheme, accounting policy, pension cost charge and any provisions or prepayments in the accounting period, the actuarial method and the ongoing funding position.

7.5 SSAP 24 requires that a pension cost charge appears in the accounts. For money purchase schemes this charge is simply the contributions paid. For defined benefit schemes, however, the Regular Cost and Variations from the Regular Cost must be calculated. The Regular Cost is the "consistent ongoing cost" recognised under the actuarial method used and should be "a substantially level percentage of payroll".

7.6 SSAP 24 points out that it does not seek to direct the funding strategy of pension schemes. It will, nevertheless, highlight any material differences which exist between the accounting and funding policies adopted. While many employers are likely to seek identity between the two policies, there may be attractions in adopting an accounting policy based on actuarial assumptions "weaker" than those used for funding purposes. There is also the possibility that the Trustees may have different funding requirements from the employer.

7.7 Clearly the introduction of SSAP 24 has reduced some of the flexibility available to companies with defined benefit schemes to control their financial results by adjustments to the funding of their pension arrangements. It may also have implications for sales and purchases of companies. The SSAP 24 basis may come to be seen as a more suitable basis for discussion between vendor and purchaser than the current valuation basis or a contrived "negotiation" basis.

8. FINANCE ACT 1989

8.1.1 The Finance Act 1989, which received Royal Assent on 27 July 1989, introduced a number of changes in the legislation governing both occupational pension schemes and personal pension schemes.

8.1.2 Briefly, the changes in respect of personal pensions cover:

(i) lump sum payments
(ii) limits on contributions
(iii) a cap on net relevant earnings
(iv) wider choice of investments

and the changes in respect of occupational pension schemes relate to:

(i) simplification of benefit limits
(ii) earnings cap
(iii) unapproved schemes
(iv) additional voluntary contributions

8.1.3 Without doubt the change, which has received the most attention and has so far had the greatest impact on scheme design, has been the introduction of a cap on the level of remuneration on which contributions and benefits may be based, although the other changes will affect a larger number of current pension scheme members.

8.2 *Earnings Cap*

8.2.1 The permitted maximum was set at £60,000 per annum for the years 1988/89 and 1989/90, and is indexed each April to the rise in the Retail Prices Index (RPI) over the twelve month period to the previous December, the resultant figure being rounded up to the nearest multiple of £600. The cap was raised to £71,400 for the year 1991/92.

8.2.2 The effect of linking the cap to the RPI is that if the rise in average earnings outstrips the rise in retail prices, as has been the case over many years, progressively more scheme members will be caught by the cap. There can be no logical reason for linking the cap to prices other than as an indirect method of reducing the tax advantages of pension schemes.

8.2.3 The limits introduced by the earnings cap, which could have an impact on the job mobility of senior executives, mean that employers will have to consider whether to pay increased salaries for high earners in order that they can make their own additional provision for retirement or whether to offer alternative methods of increasing the value of packages.

8.2.4 The main options for topping up capped retirement benefits are:

(i) unapproved unfunded pension schemes
(ii) unapproved funded pension schemes
(iii) business expansion schemes
(iv) approved executive share option schemes
(v) personal equity plans (PEPs)

8.3 *Unapproved Schemes*

8.3.1 The Finance Act 1989 allows employers to set up unapproved occupational pension schemes, sitting alongside exempt approved schemes or personal pensions and providing benefits in excess of Inland Revenue maxima.

8.3.2 Unapproved schemes, which do not have the tax advantages of approved schemes, can therefore be used to replace retirement and death benefits lost because of the earnings cap or, indeed, to provide any level of benefits required. Such schemes remain subject to disclosure regulations, preservation requirements and to the requirements of SSAP 24.

8.3.3 Unapproved schemes can be either funded or unfunded.

8.4 *Additional Voluntary Contributions*

8.4.1 The two main changes in the legislation governing AVCs were the introduction of a provision for refunds to be available on overfunding at retirement and a reduction in the administrative requirements for employers in respect of Free Standing AVCs.

8.4.2 From 27 July 1989, an employee may receive a refund of AVCs where there is overfunding at retirement. Such a refund is currently subject to tax at a rate of 35%, with higher rate tax payers chargeable at their top rate plus 8%.

8.5 *Simplification of Benefit Limits*

8.5.1 For approved occupational pension schemes set up on or after 14 March 1989, benefit limits have been simplified in that the requirement to apply the N/NS formula in accelerated accrual calculations has been removed. This means that an employee with at least 20 years service may now retire at any time between the ages of 50 and 70 with a two thirds pension.

8.5.2 The second simplification in the calculation of benefits provided by approved occupational pension schemes is that, for schemes set up on or after 14 March 1989 and for members of schemes set up prior to 14 March 1989 who joined the scheme on or after 1 June 1989, the maximum tax free lump sum available on retirement has become the higher of 2.25 times the initial amount of pension payable before commutation or 3/80 of final remuneration for each year of service, with a maximum of 40 years.

8.6 *Personal Pension Schemes*

8.6.1 In addition to the introduction of the earnings cap, changes to the legislation governing personal pension schemes included the following items.

8.6.2 With effect from 6 April 1989, the limits on contributions allowable to a personal pension scheme were increased for members over age 35. The maximum contribution allowed must take into account contributions paid to other personal pension schemes and to any retirement annuity policies.

8.6.3 The introduction of a cap on earnings, and therefore a restriction on contributions, has led to the removal of the limit of £150,000 on the maximum tax free cash which is available for members of personal pension schemes approved on or after 27 July 1989.

8.6.4 An increase in the choice of investments for personal pension schemes was announced by the Chancellor, but not included in the Finance Act. The changes were, instead, described in Joint Office Memorandum 101, issued in October 1989, and they apply from the date of issue.

9. SOCIAL SECURITY ACT 1990

9.1 *Background*

9.1.1 In April 1988 the Secretary of State for Social Security commissioned an eight month study by the Occupational Pensions Board with the title of "Protecting Pensions". The remit for the OPB was to consider:

1. The balance to be struck between employers' legitimate interests and those of the members of occupational pension schemes.
2. The involvement of pension schemes in company mergers and takeovers.
3. The extent to which decisions of the trustees of occupational pension schemes should be unanimous and the circumstances in which one or more trustees may act on their own.
4. The need for independent trustees of pension schemes.
5. Whether restrictions should be placed on self investment by pension schemes.
6. Any other measures to safeguard the rights of members.

9.1.2 The Occupational Pensions Board made its submission in December 1988 and this was published in February of 1989.

9.1.3 On 7 November 1989 the Secretary of State for Social Security announced the Government's proposals for early legislation based on the majority of the OPB submission. These then became the Social Security Bill 1990 and subsequently, with some notable changes, this became the Social Security Act 1990 which gained Royal Assent on 13 July 1990.

9.1.4 Two notable changes made to the Bill were the introduction of Limited Price Indexation (LPI) and the late amendment to allow benefits derived from Protected Rights under COMPS to be payable from age 60 for men.

9.1.5 A summary of the main provisions of the Act is given below.

9.2 *Matters Concerning Occupational Pension Schemes*

9.2.1 Occupational pension schemes (other than public service pension schemes and money purchase schemes) will be required to provide pension increases in line with the rise in prices up to a ceiling of 5% per annum in respect of:

(a) Pensionable service after a commencement date which is unlikely to be before the end of 1991.

(b) Past pensionable service, out of any surplus which may occur following an actuarial valuation.

However, as mentioned in 4.5.1, the Government has postponed the introduction of LPI until the full effects of the Barber case have been resolved.

9.2.2 As from 17 August 1990 schemes have been precluded from making payments to the employer until provision has been made in the scheme rules for every current and future pension to be increased at the above level.

9.2.3 The Act provides for the establishment of a Pensions Ombudsman. The duties of the Ombudsman will be to conduct investigations into allegations of injustice arising from maladministration by the trustees or managers of an occupational or personal pension scheme and to make determinations in relation to such complaints.

9.2.4 The Act provides for the appointment of a Registrar of Occupational and Personal Pension Schemes plus the setting up and operation of a register of occupational and personal pension schemes. The purpose of the register will be to enable individuals to trace past preserved pension rights.

9.2.5 The Act introduces requirements where an employer has become insolvent. These overriding provisions impose a duty on an insolvency practitioner (or the official receiver) in relation to an insolvent employer who has an occupational pension scheme. The duty imposed is to ensure that at least one of the trustees is an "independent" person and certain powers then rest with this independent trustee.

9.2.6 Where at the "applicable time" a scheme's liabilities exceed the value of its assets, the amount of the deficiency is to be treated as a non preferential debt due from the employer to the trustees of the scheme. The "applicable time" is the time when the scheme is being wound up. This provision overrides any conflicting scheme rule. It does not apply to money purchase schemes.

9.2.7 The Act makes provision for regulations to be made which would restrict the proportion of an occupational pension scheme's resources which may be self invested in "employer-related investments".

9.2.8 The Act provides for the OPB to make grants to any person or organisation which gives advice or assistance in connection with occupational or personal pensions. This grant giving power is intended to help finance the future operations of the Occupational Pensions Advisory Service.

9.3 *Amendments to Current Legislation*

9.3.1 The Act also introduces a number of amendments to pension provisions in current social security legislation.

9.3.2 The Act substitutes a new definition of "qualifying pensionable service" in paragraph 2(3) of Schedule 1A to the Pensions Act. This extends the requirement to revalue accrued rights of members who cease to be in pensionable service after the date the new provision comes into effect. This now is 31 December 1990. For such members the revaluation will cover accrued rights relating to the whole of that person's pensionable service and not just those relating to pensionable service on and after 1 January 1985.

9.3.3 The Act changes the basis for preservation from termination of relevant employment to termination of pensionable service before normal pension age. This change is made retrospective to 6 April 1988 to cover any member of a scheme who terminated pensionable service on or after that date and for whom no payment in discharge of his rights under the scheme has subsequently been made.

9.3.4 A provision of the Act which came into force on 13 July 1990 modifies for COMPS the earliest age at which benefits deriving from Protected Rights can be provided to the member. Instead of the date on which the member attains State pension age, effect can be given to Protected Rights from a date no earlier than that on which members attain the age of 60 and no later than that on which they attain the age of 65. The modification takes effect from 17 May 1990. This change in the contracting out provisions is necessary to meet equal treatment requirements, although there is an anomaly as it does not apply to personal pensions.

9.4 *Implications*

9.4.1 The required pension increases in line with the rise in prices up to a ceiling of 5% per annum provide a significant future benefit improvement to members of schemes which do not provide such increases at present.

9.4.2 The liabilities of a scheme in respect of this increase will gradually build up and many employers will find that they can budget for the increased cost. However, for smaller companies whose schemes at present provide a lower level of escalation, if they provide any at all, the increased costs may be prohibitive. For example a contracted in scheme currently with no escalation provision could ultimately face a 50% increase in costs once all pensionable service is covered by the new statutory escalation. If the company cannot afford to continue on this basis then they have the option of reducing the accrual rate or looking to higher contributions from employees or winding up the scheme. These courses of action may be very damaging to industrial relations. It should be noted that, according to the CBI, 40% of schemes promised some limited inflation proofing with only 10% matching the requirements of the 1990 Social Security Act. However, 80% of scheme members currently receive annual increases, mostly in the range 3% to 5%.

9.4.3 The provisions covering pension increases, the recent Barber v GRE decision and the fact that from 17 August 1990 surpluses cannot be refunded to the employer unless minimum increases are provided for every current and future pensioner are likely to take much of the heat out of the debate as to the ownership of a pension scheme surplus – a much smaller number of schemes are likely to continue to have a significant surplus. As well as providing more adequate pension increases this is also an attempt to stop pension schemes being raided on a takeover or merger to the detriment of the member. Overall this must represent significant protection for scheme members.

9.4.4 From the point of view of scheme funding it is unlikely to be attractive, other than in special circumstances, to build up the strength of a fund in the good times in order to sustain it during a bad time for the company. This may impact on the funding methods and bases used by the actuarial profession leading perhaps to "weaker" actuarial assumptions.

9.4.5 From the company's point of view, until 5% pension increases are in place, it means that while they have to pay for poor investment performance through increased contributions, they cannot equally benefit from good investment performance which produces surpluses. Companies will also have to consider their approach to accepting transfer values. Where there is no allowance for pension increases or an allowance below 5% then it is possible that transferred benefits may have to be enhanced using any future surplus. The situation of bulk transfers in the event of takeovers is likely to give even more concern where the numbers involved are significant.

9.4.6 It is not intended that Regulations will be the means of determining a "surplus". Rather the DSS have requested that the actuarial profession provides a framework for determining surpluses and as a result Exposure Draft EXD8 has been prepared. This leaves control with individual actuaries by adopting the basis used for the Actuarial Statement (covered in GN9) as the method of calculating surplus. However there may be differences between the two bases where the Actuarial Statement basis includes allowance for discretionary payments such as pension increases or enhanced early retirement terms. Whether in the long run this flexible approach proves acceptable to the Government is likely to be influenced by the range of bases used by different actuaries and by any inconsistencies between the valuation basis and that for SSAP 24. In particular the Government might be concerned if a significantly more conservative basis was used than for SSAP 24 purposes.

9.4.7 While there is choice as to the appropriate basis the Projected Accrued Benefit Method is the required method. The restriction to a single method may create difficulties in certain circumstances, e.g. some closed schemes.

9.4.8 One major concern must be the number of different actuarial calculations required now and their potentially conflicting requirements.

Contracting Out Certificate

Surplus Regulations

SSAP 24

Actuarial Statement

Social Security Act 1990

9.4.9 All these requirements are clearly going to keep the actuarial profession fully employed but there must be some concern about the volume of work generated. Perhaps the next step is for the Government to quote a single standard basis! To end on a more positive note the DSS now seem to have relented on the requirement that any surplus be distributed equally among members. This will provide some flexibility to direct the surplus towards specific age groups (e.g. older pensioners) where only small surpluses exist.

9.4.10 The Act introduces a number of areas of help to the member, namely the Pensions Ombudsman, Registrar of Occupational and Personal Pension Schemes and Independent Trustees. These measures all represent significant sources of help for the members of occupational pension schemes. In particular the Independent Trustee is to safeguard the rights of members on termination of the scheme due to the insolvency of the employer.

9.4.11 A non preferential debt due from the employer resulting from a deficit in a scheme's funding position on wind up represents a further area of protection for scheme members. They now at least have a chance of receiving full accrued benefits, although if the company is insolvent this is not necessarily going to obtain more money for the members. From the company's point of view where they wish to wind up the scheme because they cannot afford it they might be in the position where, due to the debt provisions, they may not be able to afford to wind it up if there is a large deficit. This particular provision has not yet been brought into force.

9.4.12 The self investment limit is to be 5% of an occupational pension scheme's resources. After an initial scare which threatened Small Self Administered Schemes they have been given an exemption from this rule if the members are all 20% directors and decisions are taken on a nem con vote.

9.4.13 Significantly the Act introduces retrospective legislation by extending the revaluation of early leavers' benefits to count pre January 1985 service. In itself this provision is not of great financial consequence. However its significance lies in showing that the Government is now willing to introduce retrospective legislation.

9.4.14 One of the most significant provisions of the Act is that a male scheme member can receive benefits deriving from Protected Rights commencing between ages 60 and 65. This provision, which was introduced as a result of the Barber case, represents the first step towards full equal treatment. The Government have commented that it was necessary because Protected Rights represent identifiable benefits for an individual member. The Government clearly accept that the Barber case has a direct and overriding effect on the rules for existing COMPS. However, they say that changes to salary related benefit schemes have not been necessary as a matter of urgency at this stage. This, they say, is because the contracting out requirements simply refer to a minimum level of pension that must be payable at State pension age. Hopefully it will only be a matter of time before all contracting out requirements will be based fully on the principle of equal treatment.

10. FUTURE BENEFIT DESIGN

10.1 *Current Situation*

10.1.1 Most employees at the present time have their private pension provided through an employer sponsored defined benefits scheme. The great majority of these schemes are final salary and contracted out.

10.1.2 On the basis of the 1989 NAPF Survey of Occupational Pension Schemes the typical contracted out final salary scheme is:

Pension Age:	65 for men and 60 for women
Pension Fraction:	1/60th
Member Contribution:	5%
Spouses Pension:	50%
Pension Increases:	3%

10.1.3 While some schemes have equalised pension ages the majority have not yet done so. Clearly the fact that the State has not acted on this point in respect of State pensions has had a significant impact on the reluctance of employers to rationalise their approach to pension ages. It is also worth noting that a significant portion of schemes have exceeded their guaranteed pension increase rate in recent years, helped in many cases by substantial surpluses generated by good investment returns.

10.1.4 In addition to the large number of employees in defined benefits schemes it is estimated that some 4 million have taken out a personal pension since they were first introduced in 1988. Some of these individuals will also be members of contracted in defined benefit schemes with personal pensions being used solely to contract out of SERPS.

10.2 *Different Types of Pension Provision*

10.2.1 The most common type of pension provision is the final salary scheme. In addition there are a small number of average/revalued average salary schemes. Perhaps the best known example of this type of arrangement is SERPS which is revalued in line with average earnings increases.

10.2.2 The alternative to the defined benefit approach is the defined contribution/ money purchase approach. The introduction of personal pensions and the ability to contract out using a contributions test has clearly helped to make money purchase an option to be considered. The high level of investment returns in the past few years and concerns about recent legislation such as the Social Security Act 1990 have also helped.

10.2.3 The two alternative money purchase approaches are personal pensions and company money purchase schemes. Personal pensions have limits on the level of contributions which can be paid rather than on the ultimate level of benefits. They are also individual contracts and subject to the requirements of the Financial Services Act. Large employer sponsored personal pension schemes remain individual schemes and the banner "group personal pension scheme" merely covers items such as premium collection.

10.2.4 Company money purchase schemes are subject to the same Inland Revenue limits on benefits as final salary schemes and equally the same much less stringent limits on contributions. The exception to this is simplified money purchase schemes.

10.2.5 In recent years various hybrids of the two approaches above have appeared. Money purchase underpinning was the first to appear and was seen as a means of reducing the attractiveness of personal pensions to leavers and younger employees. More recently there has been the alternative approach of final salary underpinning which is designed to smooth out the volatility of money purchase. In both these cases the variations are being introduced to protect employees rather than employers.

10.2.6 The Basic State pension is currently £2,704 for a single person and £4,329 for a married couple. The figure of £2,704 represents less than 20% of the average salary in the U.K.. The present Government changed the link for the Basic State pension from earnings to prices and over the last 5 years alone this has reduced its value by nearly 15% in relation to average earnings. Since the link was changed in 1979 the reduction is closer to 25%. It is interesting to note that Carroll and Tompkins (1) estimate that linking the Basic State pension to prices will more than halve its cost by the middle of the next century.

10.2.7 In addition to the Basic State pension there is SERPS. Once it reaches maturity the maximum entitlement under SERPS will be £3,500 in today's terms. However, although SERPS is in theory an earnings related scheme the earnings limits (LEL and UEL) are based on the level of the Basic State pension. As a result they are not rising each year in line with earnings and eventually average earnings will exceed the UEL leading to reductions in the level of benefit under SERPS. While this is a reasonable concern probably the greatest concern about SERPS is the degree of complexity it has introduced for the pensions industry. At the end of the day the significant costs associated with SERPS are being met by either employers, employees or both.

10.3 *Final Salary v Money Purchase*

10.3.1 Over the last couple of years there has been considerable debate about the two alternatives of final salary schemes and money purchase schemes. While there may be a place for average salary and hybrid schemes the majority of companies are unlikely to switch to these alternatives. The debate has increased more recently as a result of the Barber v GRE case and the Society Security Act 1990.

10.3.2 Beginning with final salary schemes they clearly have the advantage that benefits are known. In addition many employers work in markets where final salary schemes are the norm and therefore they are required to attract and retain staff. In recent years communication with members has improved greatly and theoretically the final salary scheme should be reasonably straightforward to describe to employees. However in practice many employees still do not fully understand or appreciate their scheme.

10.3.3 The disadvantages associated with final salary schemes have grown in recent years. Firstly there are the complex administrative requirements associated with various examples of Government legislation over the last decade. Even with computerised systems pension scheme administrators face dealing with the complexity of preservation, contracting out, equalisation and revaluation to name just a few of the problems. The fact that the EC requires equal pension ages, the State pension ages remain different and our best pension lawyers just don't know the precise implications of judgements such as Barber v GRE creates more difficulties. The recent trend towards introducing legislation by means of Regulations with insufficient time to put systems in place is another problem – the various Regulations covering transfer values are obvious examples.

10.3.4 The cost of running schemes is rising to reflect the administrative complexities described above. The potential for five different sets of actuarial calculations, referred to in 9.4.8, certainly won't keep costs down.

10.3.5 From the point of view of the employer he has lost his control of costs in recent years. SSAP 24 means that the attractions of a contribution holiday are largely gone now. In addition the Social Security Act 1990 has undermined the principle that in the event of difficulties the maximum exposure was the assets in the scheme. Other changes such as the Surplus Regulations make it more difficult for employers to take deliberately conservative approaches to funding in order to create surpluses for events such as redundancies. The manipulation of costs, and hence profits, by putting more into schemes in good years and less in bad years has now largely gone.

10.3.6 There are potentially substantial increases in costs for some employers as a result of the need to equalise pensions ages and the Social Security Act 1990 with its LPI provisions.

10.3.7 Also many final salary schemes over the years have had a bad record in respect of early leavers and this has reduced their attractiveness to young mobile employees in particular.

10.3.8 In final salary schemes the advantages generally lie with employees and the disadvantages with employers. The opposite applies to money purchase schemes. Probably the most important advantage of money purchase schemes is that their cost is fixed and known for employers. Having said that, the cost is usually assessed with some approximate level of benefits in mind and if financial circumstances change it may be necessary to reconsider the contribution rate from time to time.

10.3.9 The concept of money purchase schemes is generally acceptable to employees in that it corresponds to their own personal savings through life assurance, banks, building societies and stocks and shares. However it is also probably the case that very few appreciate the potential volatility of their retirement income due to uncertainty about the eventual fund at retirement and annuity rates at that time.

10.3.10 The other attraction of money purchase schemes is that if the contribution is set at a reasonable level they are likely to represent better value than final salary schemes for many young mobile employees. This advantage has been reduced in recent years by introducing an increased level of protection for early leaver benefits.

10.3.11 The main disadvantage of money purchase schemes is clearly the uncertainty over the eventual pension available. Events such as the equity market collapse in October 1987, which was combined with an increase in annuity rates, have made it quite clear just how volatile markets can be. Also more recent falls in markets have demonstrated that the high returns of the 1980s, which helped to make money purchase attractive, are unlikely to continue over the longer term.

10.3.12 The other disadvantage of money purchase is that the majority of large employers in the U.K. offer their employees membership of a final salary scheme. The increasing attention focused on pensions may make recruitment of staff harder if only money purchase benefits are available. However, against this, US and Japanese subsidiaries in the U.K. are likely to come under increasing pressure to offer money purchase schemes where this is consistent with the parent company's philosophy on pension provision.

10.3.13 The results of a recent survey (3), covering 414 companies with 1.2 million scheme members and carried out in July 1990, showed a potential trend away from final salary schemes towards money purchase. 14% of the companies surveyed were positively considering changing from final salary to money purchase and a further 17% were carrying out a review of their pension arrangements. In particular for schemes with fewer than 1000 members 1 in 6 was actively considering a change to money purchase. The Barber v GRE judgement and the Social Security Act 1990 were obviously major reasons for this movement towards money purchase – nearly 60% of the companies sampled thought these two factors would increase their pension costs.

10.3.14 However, the recent decision in the Hanson case where the judge stated that proposals by companies affecting the future of pension scheme members had to be made in good faith also presents further problems for final salary schemes. Employers may now feel under increased pressure to use any future surpluses to enhance benefits rather than reduce their costs.

10.3.15 Another important factor is that much of the legislation over the last decade has made final salary schemes more complicated and more expensive. In addition there has been a general move towards greater individual responsibility during this period – personal pensions rather than SERPS, private health care rather than the NHS, private housing rather than council housing and private industry rather than large State monopolies. In this climate it is perhaps inevitable that there would be a move towards money purchase schemes. This move has been helped by the high level of investment returns available during the 1980s and the trend towards considering the "cafeteria" approach to total remuneration packages – money purchase schemes fit better into the "cafeteria" approach. We believe there will be a move away from final salary schemes towards money purchase over the next few years and in Section 12 we have considered the type of money purchase scheme which might exist in the next decade.

10.4 *Money Purchase Schemes*

10.4.1 Before actually looking at money purchase schemes the problems involved in actually switching across from final salary schemes must be considered. There are likely to be few companies in the pleasant position of not having to unwind a final salary scheme.

10.4.2 On winding up a contracted out final salary arrangement the following matters must be considered.

(a) The liabilities under the scheme rules must be established.

(b) The assets must be determined – in many cases for smaller schemes this will involve valuing insurance contracts.

(c) Consideration must be given to dealing with any surplus or deficit – the Social Security Act 1990 will clearly have an impact here.

(d) The OPB must be approached concerning the contracting out certificate and the means of securing GMPs has to be considered.

(e) The members have to be informed as to what is happening and their rights and entitlements.

With regard to (e) individual consents to transfer are likely to be required. GN16 on bulk transfers suggests that only in exceptional circumstances would a bulk transfer certificate be provided in the situation of switches from final salary schemes to money purchase schemes.

10.4.3 All of these matters are likely to take some considerable time. For example the liabilities in (a) and the assets in (b) are not going to remain static – figures may need to be recalculated if there are significant movements. The problem of time is likely to be accentuated by the administration pressures this will create for insurance companies. A large percentage of schemes switching to money purchase will be smaller insured schemes and it would be unrealistic to expect the administration departments of the insurance companies to be able to produce rapid turnarounds of figures in such circumstances.

10.4.4 Clearly then any move towards money purchase is going to be gradual partly because of the time involved in winding up final salary schemes. Employers may also have industrial relations difficulties in switching over to money purchase. This will help to ensure that there is no sudden switch from final salary to money purchase, rather events such as management buyouts or sell offs of part of a business may be used as an appropriate opportunity to consider a change in pensions philosophy.

10.4.5 One of the major problems associated with money purchase schemes is the volatile short term nature of investment markets. Appendix III contains sample returns from various markets since 1963. This is taken from Phillips & Drew Pension Fund Indicators (2). The fluctuations in investment markets are made worse by the need to purchase an annuity at retirement. Appendix IV contains correlation rates between the various markets. Although there is a reasonable correlation between equities and gilts over the period 1963-88 there is a much lower correlation over the shorter period 1982-88. These correlation rates are based on annual figures – if they had been based on the daily position it is likely that the correlation would have been lower. A typical example of the problem here is that when the equity market collapsed in October 1987 this was accompanied by a rise in the gilt market. For a money purchase scheme fully invested in equities and then faced with the need to purchase an annuity based on gilt yields the difference in pension could be as much as 25% over a very short period.

10.4.6 Although it may seem possible to reduce the volatility of the fund at retirement by investing in with profits arrangements with insurance companies, the insurance contract will still be backed by a high level of equity type investments and the importance of terminal bonus in recent years has increased the volatility of with profits results.

10.4.7 One possible approach to stabilising returns would be to try to match the investment policy to the potential liabilities. This could be achieved by switching gradually from an equity dominated portfolio to a gilt dominated portfolio as retirement approaches. Apart from the obvious difficulties associated with timing and early retirement there is also a potential reduction in the overall level of returns if non-equity type investments are used. Appendix III shows clearly the out performance of the equity market over most periods. The result of a matched investment strategy is therefore likely to be either a reduction in the overall level of benefits or a higher contribution requirement initially.

10.4.8 The figures in Appendix IV show that the only investment which shows any degree of correlation with salary increases is cash. However even cash shows a very low correlation and therefore no investment is likely to match precisely the increase in salary related liabilities. In addition even if cash showed a greater degree of correlation it retains the disadvantage of a potentially lower rate of return than equity type investments.

10.4.9 Futures and options may represent a solution to the problem of volatility and the next section considers their use in money purchase contracts.

10.4.10 It looks likely that the 1990s will see a number of schemes switching from final salary to money purchase. This may be influenced by outside factors such as EC proposals for a new Pension Directive. Current differences between Member States are seen as barriers to the total freedom of movement of employees within the Community. However, in view of the doubts about the feasibility of creating pan-European funds, the paper has concentrated on current issues. In the current environment if the switch is going to increase in speed and overall numbers there will need to be a means of reducing the potential fluctuations in the level of pension at retirement under money purchase schemes. Section 12 describes a possible solution.

11. FUTURES AND OPTIONS

11.1 Derivative products – traded options and financial futures – have not until recently been used to any great extent by pension fund investment managers. This is partly because of a lack of understanding of their potential advantages, but mainly as a result of the unfavourable tax treatment of profits and losses of trade.

The 1990 Budget introduced, for pension schemes and authorised unit trusts, an exemption from tax on trading income arising from options and futures and it is likely that this will lead to an increase in their use as a tool for pension fund investment.

There are three main areas in which futures and options can be used:

1. Hedging
2. Asset Allocation
3. Managing cash flow

11.2 *Hedging*

11.2.1 Financial futures can be used to reduce exposure to the volatility of the U.K. equity markets without the necessity to sell shares. This reduces dealing costs, involving only the sale of the appropriate number of equity futures. This method of hedging can be carried out only as a short term measure, since the maximum life of a contract of this type is one year.

11.2.2 Gilt exposure can be similarly hedged by using gilt futures, either short term (3 to $4^1/_2$ years) or long term (15 to 25 years).

11.2.3 The liquidity of the futures market means that contracts can be traded before expiry date, allowing positions to be closed off.

11.3 *Asset Allocation*

Restructuring a pension fund portfolio in order to take advantage of a short term view of stockmarkets can be a lengthy and costly process if the sale and purchase of particular stocks is required.

A more efficient alternative is to buy and sell the appropriate futures contracts, involving fewer transactions and lower dealing costs. If the view becomes longer term, holding futures contracts means that there is more opportunity to consider the suitability of particular investments, since the portfolio allocation changes have effectively taken place at the original market levels.

11.4 *Managing Cash Flow*

11.4.1 Pension fund investment managers can often be in the position of knowing projected income but being unable to invest in the required markets prior to receiving the cash payment. The margin system of payment used for futures transactions means that the investment of relatively small sums can provide access to rising markets, again at reduced cost.

11.5 *Conclusion*

11.5.1 It is now possible to trade in a variety of financial futures contracts on the London International Financial Futures Exchange (LIFFE) including contracts in United Kingdom and United States Government Securities, stock indices (both U.K. and overseas), short term interest rates, and foreign exchange rates.

The availability of Exchange Traded Options, with a range of strike prices and expiry dates and of Over The Counter Options, which can be tailored to suit individual needs but consequently have no secondary market, increases the range of opportunities open to fund managers. It is, however, important to be aware that the downside risks involved in the use of derivatives can be substantial.

11.5.2 Over The Counter Options provide an opportunity to reduce volatility over periods of up to 10 years. However, there is not a large liquid market in these options and they are associated with a degree of risk. In view of the lack of liquidity in the market, the risk involved and the unavailability of options covering long term money purchase contracts, which can be for periods in excess of 40 years, futures and options are not going to provide a solution to the volatility problem at the present time.

12. MONEY PURCHASE IN THE 1990s

12.1 *Company Schemes*

12.1.1 One possible approach to money purchase in the 1990s could be a reverse of the hybrid approach to pensions which gained popularity in the 1980s. In the 1980s money purchase underpinning of final salary schemes was seen as a means of removing the early leaver disadvantages of many final salary schemes. This could be reversed with a basic level of final salary benefits underpinning the main money purchase benefits. The final salary underpin could be particularly important for older existing employees where a switch was being considered or in the recruitment of experienced older staff.

12.1.2 This approach is likely to require complicated administrative procedures and also the extent of the final salary underpin may impact on the effect of legislation such as the Social Security Act 1990. If the underpin is a guarantee then much of the recent legislation will have an impact whereas if it is only a statement of intent it provides less security. Either way it may prove difficult to explain to employees.

12.1.3 As a result of the complications discussed above final salary underpinning is likely to remain a niche market in much the same way as money purchase underpinning in the past. The solution to the problem of volatility must be reasonably simple to administer, it must avoid the legislative problems of final salary schemes by remaining "pure" money purchase in nature and it must not be achieved at a higher cost to the employer or significantly lower average benefits for employees.

12.1.4 The approach being put forward is as follows:

(a) The employer determines the broad level of benefits which he wishes to provide on the basis of a final salary target and assuming the purchase of an index linked pension, e.g. 1/80th target.

(b) Banded contribution rates are then produced for each age group on a unisex basis. For example they could be banded in 10 year age bands from age 15 upwards say. By banding the contributions the final salary target, determined in (a) above, can be more closely matched.

(c) Appendix III shows that equities have provided better returns than fixed interest investments over most periods. Therefore in order to secure maximum returns investment should be restricted to equity only. In addition, to keep it as simple as possible it would be further restricted to U.K. equities only – this also helps to remove potential mismatching of liabilities and overseas assets. Also equities are a more marketable investment than property.

12.1.5 The problem of short term fluctuations in the U.K. equity market is removed by paying a separate top up contribution rate. This additional top up rate is used to smooth out short term movements in the market. Appendix V shows a history of dividend yields over the last 50 years. During this period the dividend yield has fluctuated around 5% and its average has generally been close to 5%.

12.1.6 In order to provide a reasonable level of security for employees the money purchase scheme would smooth out fluctuations in U.K. equity markets by adjusting for short term movements in investment yields. This would be achieved by purchasing units in an equity fund with each contribution paid and then creating a "shadow" fund which adjusted these units to remove the impact of short term movements. In order to keep the process as simple as possible the adjustment would use the following formula:

$$\text{Shadow Units} = \frac{\text{Actual Units}}{\text{Dividend Yield at Purchase}}$$

12.1.7 When employees retire they would be given the greater of the actual value of their units and the value of the shadow fund determined as

$$\text{Value of Shadow Fund} = \text{Shadow Units} \times \text{Unit Price} \times \text{Current Dividend Yield}$$

12.1.8 This approach removes the volatility created by short term movements in the U.K. equity market which should reduce the variability of returns for individuals. However by retaining it only as a minimum guarantee there is still the possibility that some individuals will achieve a higher than expected return and this should be allowed for in setting the contribution rate. Trends in dividend yields would need to be monitored. If for example there was a general trend towards, say, lower dividend yields which were not accompanied by a rise in market values it might be necessary to adjust the formula.

12.1.9 *Having introduced the above guarantee there still remains the problem of* fluctuating annuity rates at retirement. During the 1980s gilt yields ranged from 9% to nearly 16% for terms around 20 years. As a result there has been a wide spread of annuity rates over this period and a means of solving this problem is essential if money purchase is to be an acceptable alternative to final salary schemes.

12.1.10 The spread of yields for index linked gilts has been much less significant since their issue – they have generally kept to a real return range of 2.5% to 4.5%. In recent years there has been greater focus on protecting pensions in payment and the introduction of LPI in the Social Security Act 1990 is a major step in the direction of full price protection. The Labour Party has in fact indicated that they favour full price protection for pensions.

12.1.11 In order to reduce volatility in annuity rates the top up fund referred to in 12.1.5 could also be used to smooth out increases in index linked annuity rates. Target pensions for assessing money purchase contribution rates could be based on the assumption of a 3% real return over prices. The top up fund could then be used to cover cases where real yields on index linked stocks dropped below 3% based, say, on Index Linked Over 5 years Inflation Rate 5%.

12.1.12 This would be achieved by adjusting the fund at retirement as follows

$$\text{Adjusted Fund} = \text{Actual Fund} \times \frac{\text{20 year annuity certain at } i\%}{\text{20 year annuity certain at } 3\%}$$

where $i\%$ is the redemption yield on Index Linked Over 5 Years Inflation Rate 5%.

12.1.13 Although theoretically a different adjustment should be used for different retirement ages and depending upon whether or not dependants' benefits are provided, it would not be appropriate to introduce this degree of precision to what is essentially an approximate adjustment factor.

12.1.14 Where an individual did not wish an index linked pension there would be an open market cash fund but no special adjustment would be made to allow for changes in fixed annuity rates. Similarly there would be no adjustment for annuity rates where individuals left prior to retirement.

12.1.15 By creating a model of returns in the U.K. equity market and the index linked market it should be possible to determine an appropriate top up fund which takes account of the adjustments to the dividend yield prior to retirement and the index linked yield post retirement. As these two targets are effectively minimum guarantees it would be reasonable to make an allowance in the main contribution rate for the fact that many individuals will retire in circumstances better than those assumed in setting the guarantee.

12.1.16 The model can be developed to allow employers to adopt their own individual approach to reducing volatility. For example, if the chance of the top up fund failing to meet its target is to be reduced the target could be amended (e.g. 2.5% index linked yield) or a higher ratio of top up fund to main fund could be selected. The model would then be able to determine the level of risk associated with alternative approaches. In practice small schemes are more likely to adopt a conservative approach than large schemes as volatility could be more significant for them. Sample results using the model are contained in Section 12.2.

12.1.17 It would be possible to adopt a different investment approach for the top up fund from the main fund. Ideally the top up fund would be invested in a market which was negatively correlated to the U.K. equity market. Appendix V shows that cash has a low or negative correlation to U.K. equities but it is unlikely to be suitable as over the longer term the price for low correlation is a lower return. Property in general provides a similar level of return to equities but it has the disadvantage of lack of marketability and therefore it is also unlikely to be suitable. Overseas equity markets tend to perform in line with U.K. equity markets and this is likely to be a continuing trend in the future. Therefore overseas equities again do not provide a suitable defensive market and they also involve the possibility of currency risk.

12.1.18 Another possibility is that the top up fund could be set up as a book reserve. This would have the advantage of potentially removing any surplus problems which are referred to in 12.1.21 below. However, there would be the disadvantage of the obvious lack of security and the further disadvantage that the return on the book reserve might be unsuitable as a defence against falls in U.K. equity markets.

12.1.19 The final possibility is that the top up fund could be actively managed by an investment manager. It would be essential that the manager was aware of the need to invest both for the best possible return and to provide protection against falls in the equity market. It would also be necessary to provide an estimate of cash flows out of the fund in order to be able to predict when protection was required. This type of approach might be suitable for a large money purchase scheme but for most schemes the cost involved in such an approach would probably outweigh the advantages gained. Therefore in general it is anticipated that the top up fund would also be invested in U.K. equities, with the high returns normally available intended to offset the disadvantage of no protection against short term falls in the market.

12.1.20 The approach described above addresses the main problem associated with money purchase schemes. It provides a secure floor below which returns cannot fall while still allowing investment in potentially the most attractive investment sector. In setting these minimum guarantees it is assumed that they would remain fixed for a considerable period of time but that they might require to be altered at some time in the future if fundamental changes occur in stock markets. It is not possible to match exactly final salary schemes and this approach does not allow directly for volatility introduced by salary changes. However it does provide a more secure money purchase approach than has been available in the past.

12.1.21 One potential problem for this suggested approach may be the attitude of the Inland Revenue or the DSS. The Revenue have in some cases allowed top up funds in the past. However their attitude to surpluses has hardened in recent years and this was reflected in the Surplus Regulations. Similarly the DSS will wish to ensure that there are no breaches of the spirit of the Social Security Act 1990. Many companies in the 1990s are going to be unwilling to provide a final salary scheme, particularly new companies or management buyouts. If employees are going to have a reasonably secure level of income in retirement then some form of smoothed money purchase approach is needed. Like the rest of the pensions industry the Revenue is going to have to consider new approaches such as that mentioned above. Clearly the onus then lies on those within the industry to ensure that these schemes are used as a bona fide means of protecting employees and not merely as a means of sheltering profits.

12.2 *Example of the Money Purchase Model*

12.2.1 In order to test the approach proposed above it is necessary to have a model for the U.K. equity market, index linked market and general movements in salaries. There are a number of models which could be used each with certain attributes but equally with some drawbacks. We have decided, in this case, to use A D Wilkies' stochastic investment model. This model has been used extensively and therefore most people should be aware of its basic structure. It is hoped that this will allow the impact of our approach to be discussed rather than the mechanics of the model. The detail of the parameters which we have used are contained in Appendix VI.

12.2.2 Appendix VII contains the results of our testing of the model. Our basic calculations assumed an adjustment for index linked yields based on 3% interest. We then tested the impact of the model assuming that the top up fund represented 5%, 10% or 20% of total contributions. Total contributions were assumed to be 10% of salaries. We also tested the results over terms ranging from 5 years to 40 years.

12.2.3 The results in Section A of Appendix VII show that the impact of a higher top up fund is reduced volatility of results (indicated by a reduction in the standard deviation of the adjusted percentage of salary secured by contributions to the fund). However, what is more interesting is that the percentage of contributions allocated to the top up fund makes almost no difference to the standard deviation, although as expected, it significantly reduces the mean percentage of salary secured. Therefore, from the point of view of the employee there is no advantage in allocating more than 5% of contributions to the top up fund as a greater figure merely reduces the expected pension with almost no reduction in the volatility of results.

12.2.4 From the employers perspective it is important that the top up fund is sufficient to cover the targets which have been indicated. It is important to note that it was considered unreasonable to expect employers to guarantee to meet their targets as they might not be achievable in adverse circumstances. As mentioned in Section 12.1.18 it was anticipated that the top up fund, as well as the main contributions, would be invested in U.K. equities. Therefore, the total funds available to an employer at any point in time would be represented by the unadjusted percentage of salaries, assuming no top up fund. We have produced a distribution of the difference between the unadjusted and adjusted percentages. The mean and standard deviations are again shown in Section A of Appendix VII.

12.2.5 The distribution of differences gives an indication of the likelihood of there being sufficient funds to meet the targets under the contract. Where only 5% of contributions were allocated to the top up fund there would be a high probability (nearly 50%) of the fund being inadequate. In order to reduce this probability to a reasonable level – say less than 10% chance of the top up fund being inadequate – it was necessary to allocate 20% of contributions to the top up fund.

12.2.6 As expected there is a conflict between the needs of the employer and the employee. If the employee is to obtain as high an expectation as possible the employer has to accept a high probability that the top up fund will not be adequate to meet the targets. One point which is worth mentioning, however, is the gearing of this arrangement. If the employer paid a contribution of 10% of salaries with 9% of salaries invested and the remaining 1% being used to set up the top up fund, the level of security in the arrangement would be very significantly increased by an increase in the top up rate to 2% of salaries. This would represent an increase in total outgo of 10% but there would be a high level of expectation that the top up rate could be reduced at some point in the future once a reasonable fund had been built up.

12.2.7 In addition to testing various levels of top up contribution we also looked at the impact of changing the guarantee applying to the index linked yield. Section B of Appendix VII shows the impact of increasing the yield by 0.5% to 3.5% and also the impact of decreasing the yield by 0.5% to 2.5%.

The results show that the choice of index linked guarantee has very little impact on expected returns for employees, volatility and risk of top up fund being inadequate.

12.2.8 Finally the impact of introducing a large single premium into the model was tested. This would typically represent a transfer value brought in when joining the scheme. In the model being tested total contributions were paid at the rate of 10% of salaries and the single premium was taken as (a) 50% of salary or (b) 100% of salary. Section C of Appendix VII shows the impact of these two levels of single premium.

In all cases, the impact of introducing this large single premium is to increase significantly the volatility of results. Where the single premium is 100% of salaries the standard deviation doubles at longer terms and at shorter terms it increases almost fourfold. These figures are approximately halved where the size of the single premium is halved. On the basis of these figures single premiums should be excluded from this type of arrangement which should be restricted to regular contributions. This would also avoid the possibility of individuals exercising an option against the fund by arranging their transfer at a time which would provide them with an opportunity for a short term gain.

12.2.9 It would be interesting to test this model against the results which would be available under a with profits policy. In theory, there should be a reasonable level of correlation between the two sets of figures as the with profit fund also seeks to reduce the impact of short term market movements. However, over the longer term, this approach should provide a higher level of return as it involves 100% investment in U.K. equities whereas most with profit funds will have a core percentage of fixed investments. The other disadvantage of with profit funds at the present time is their high reliance on terminal bonus and the level of volatility introduced by this. This volatility is made worse by the lack of guarantees on the terms for buying open market annuities.

12.2.10 In conclusion, the test results indicate clearly the prime difficulty with money purchase schemes – the volatility of pensions secured by contributions. If money purchase is to become a viable alternative to final salary schemes then it is essential that innovative solutions to this problem are found. The particular model which has been considered in this paper does lead to a reduction in volatility although, as in all investment situations, the penalty for this is a reduction in the expected total return. However there are other possibilities for reducing volatility and each of these alternatives will need to be investigated in order to produce the best solution.

12.3 *State Schemes*

12.3.1 The current SERPS arrangement is clearly unsatisfactory. It has introduced a level of complication for company schemes which surely cannot have been foreseen when it was first formulated. There is now a situation where it seems that GMP conditions conflict with equalisation requirements. The unequal State pension ages cause even greater problems. There is now a need for a much more flexible attitude towards retirement to meet the requirements of the next century – a decreasing work force and a decreasing number of school leavers.

12.3.2 There have been various attempts to tinker with SERPS which probably have as their most significant achievement the introduction of an unsurpassed level of administrative complexity – the cost of administration still increases even with the advent of computers and few experts, never mind the general public, understand exactly what their entitlements are. The solution must be to scrap SERPS with effect from April 1993.

12.3.3 In addition, the Basic State pension should be raised by 50% to offset the effect of removing SERPS. This pension should again be linked to earnings increases to ensure that pensioners also enjoy the benefits of growth in the economy. Finally, there should be a decade of retirement between 60 and 70 with a central figure at 65. On retirement before or after this central age pensions would be decreased or increased by 5% per annum respectively.

12.3.4 The approach above would introduce a much needed level of simplicity in State benefits and in time a similar degree of simplicity for final salary schemes. For schemes wishing to introduce the new structure more quickly it should be possible to buy back GMPs and revert immediately to the simpler contracted in approach.

12.3.5 On the basis of figures contained in Carroll and Tompkins (1) the approach above is likely to lead to an increase in the direct cost of providing State pensions. However, against this must be offset savings in reduced administration when SERPS disappears, less unemployment benefit once flexible retirement is available, an end to the recent process of continually reducing the real value of the Basic State pension and finally it should be environmentally friendly – imagine the rain forests saved if pensions legislation could be simplified.

12.4 *The Future*

12.4.1 The sections above outline an approach to company and State pensions which we believe to be the right way forward for the 1990s. While it is likely that as far as company schemes are concerned there will be a significant switch away from final salary to money purchase and that new forms of money purchase will evolve the suggested changes to the State scheme are less likely. It is only a matter of time before the State equalises pension ages and flexibility is also likely to follow. The end of SERPS and an increased Basic State pension are, however, more likely to remain a forlorn hope until we get a former pension scheme administrator into the role of Social Services Minister and an actuary as Chancellor!

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SUMMARY OF PENSIONS PRACTICE IN EUROPE AND THE UNITED STATES

	Social Security				Occupational Pension Schemes
	1. Normal Retiring Age	2. Retirement Pension	3. Survivors' Benefits	4. Disability Benefits	
Belgium	65/60	Earnings Related	Spouse's Pension	Earnings Related	Funded arrangements which are normally integrated final salary schemes
Denmark	67/67	Mainly Flat Rate	Spouse's Pension	Mainly Flat Rate	Funded arrangements which are normally based on defined contributions
France	60/60†	Earnings Related	Spouse's Pension	Earnings Related	Little scope for occupational pension schemes as a result of high level of benefits from Social Security
Germany	65/65	Earnings Related	Spouse's Pension	Earnings Related	Integrated final salary schemes, with book reserves the most common method of financing the scheme
Greece	65/60	Earnings Related	Widow's Pension*	Earnings Related	Little scope for occupational pension schemes as a result of high level of benefits from Social Security
Ireland	65/65	Flat Rate	Widow's Pension*	Flat Rate	Funded arrangements which are normally integrated final salary schemes
Italy	60/55	Earnings Related	Spouse's Pension	Earnings Related	Little scope for occupational pension schemes as a result of high level of benefits from Social Security
Luxembourg	65/65	Earnings Related	Spouse's Pension	Earnings Related	Integrated final salary schemes with book reserves the most common method of financing the scheme
Netherlands	65/65	Flat Rate	Widow's Pension	Earnings Related	Funded arrangements which are normally integrated final salary schemes
Portugal	65/62	Earnings Related	Widow's Pension*	Earnings Related	Little scope for occupational pension schemes as a result of high level of benefits from Social Security
Spain	65/65	Earnings Related	Widow's* Pension	Earnings Related	Little scope for occupational pension schemes as a result of high level of benefits from Social Security
United Kingdom	65/60	Flat Rate plus Earnings Related	Widow's* Pension	Flat Rate plus Earnings Related	Funded arrangements which are normally integrated final salary schemes
Sweden	65/65	Flate Rate plus Earnings Related	Widow's Pension	Flat Rate plus Earnings Related	Integrated final salary schemes, both funded and book reserves
United States	65/65	Earnings Related	Spouse's Pension	Earnings Related	Funded arrangements both defined contribution and integrated final salary schemes

† This is a minimum retiring age for full benefits

* Widower's pensions may be payable in limited circumstances

APPENDIX II

FLEXIBLE RETIREMENT ARRANGEMENTS IN SELECTED COUNTRIES

Almost all the countries covered in Appendix I offer some degree of flexibility in retirement arrangements. However this Appendix concentrates on the detailed arrangements applying in the following countries:

France

Germany

Sweden

United Kingdom

United States

In considering these countries the different types of arrangements will be split into the following three categories:

INCOME REPLACEMENT SCHEMES

These schemes involve the payment of an income, during a short period preceding normal retiring age, to individuals who have stopped working either voluntarily or compulsorily. In many cases the payment is linked to a commitment by the employer to recruit an unemployed person. The main schemes found in the five countries under consideration are as follows:

France: The scheme provides an income between 56 and age 65 (or age pension commences if earlier). It does not require the recruitment of an unemployed person. The cost of the scheme is met by the State and the amount of benefit is a percentage of earnings.

Germany: The scheme provides an income between age 58 and age 65. It does not require the recruitment of an unemployed person but if an unemployed person is recruited the State meets part of the cost. The amount of benefit is a percentage of earnings.

Sweden: The scheme provides an income between age 55 and 65. It does not require the recruitment of an unemployed person. The cost of the scheme is met by employers and the amount of benefit is a percentage of earnings.

United Kingdom: The scheme provides an income within one year of retirement (age 65 men and age 60 women). Prior to 1 April 1984 the scheme provided an income within three years of retirement for men and one year of retirement for women. It requires the recruitment of an unemployed person. The cost of the scheme is met by the State and

	the benefits are generally in line with those payable under the State pension arrangements.
United States:	No income replacement scheme.

GRADUAL RETIREMENT SCHEMES

These schemes involve the payment of a benefit to individuals who switch from full time to part time status. The main schemes found in the five countries under consideration are as follows:

France:	The scheme provides an income based on a percentage of earnings for individuals switching from full time to part time status having reached age 55. The cost is met by the State and there is a requirement that an unemployed person is recruited.
Germany:	No gradual retirement scheme.
Sweden:	The scheme provides income based on a percentage of earnings for individuals switching from full time to part time status having reached age 60. The cost is met by special employers' contributions to the State and there is no requirement that an unemployed person is recruited.
United Kingdom:	Prior to 30 May 1986 a scheme based on the Job Release Scheme existed but this has now been closed to new entrants.
United States:	No gradual retirement scheme.

EARLY RETIREMENT OPTIONS

France:	The option to retire early applied from age 55. Pensions are reduced by 7% for each year early.
Germany:	The option to retire early applies from age 60. Pensions are unreduced from age 63 but are reduced actuarially prior to age 63.
Sweden:	The option to retire early applies from age 60. Pensions are reduced by 6% for each year early.
United Kingdom:	No early retirement option.
United States:	The option to retire early applies from age 62. However full pensions are not available until age 65 and from 2022 this will be increased to age 67. The reduction for retiring at 62 is 20% of the full pension at 65 (30% of the full pension at 67 from 2022). Therefore there is effectively a "normal" pension age of 65 and an option to retire early from age 62 on a reduced level of pension.

APPENDIX III

MARKET RETURNS

Year	(a) Gilts	(b) U.K. equities	(c) Overseas equities	(d) Cash	(e) Property
1963	2.5	19.7		4.2	
1964	– 2.6	– 6.1		5.4	
1965	2.9	11.4		7.0	
1966	4.5	– 4.4		6.9	
1967	2.6	35.0		6.4	
1968	– 4.4	48.4		8.2	
1969	– 1.8	–12.0		9.1	
1970	4.2	– 3.6		8.1	
1971	27.5	47.1		6.3	
1972	– 6.8	15.8		6.4	
1973	–10.7	–28.7		11.5	20.5
1974	–17.9	–51.7	– 6.4	13.4	–19.6
1975	41.8	150.9	46.0	10.9	6.2
1976	12.3	1.8	26.5	12.0	7.4
1977	50.1	48.6	–19.1	8.4	25.8
1978	– 3.3	8.2	11.1	9.1	19.9
1979	4.3	11.1	–27.4	14.7	23.1
1980	21.1	35.0	16.3	18.6	18.7
1981	1.4	13.5	21.1	14.5	16.3
1982	53.9	28.9	30.7	12.9	8.3
1983	16.2	28.8	37.2	10.5	7.6
1984	7.3	31.6	31.7	10.2	7.8
1985	11.3	20.6	12.3	13.0	7.0
1986	11.7	27.5	40.2	11.0	4.3
1987	16.3	8.0	– 9.0	10.0	18.3
1988	9.4	11.6	30.6	10.1	32.6
1989	5.7	36.0	31.1	14.1	15.5
Average 1963-1989	8.4	15.2	—	10.1	—
Average 1980 – 1989	14.7	23.8	23.4	12.5	13.4

(a) FTA Over 15 year Index (P&D 25 year Index up to 1975)

(b) FTA All Share Index

(c) Composite Index based on Morgan Stanley Capital International and FTA World Indices

(d) Local Authority 7-Day Rate

(e) P&D Property Unit Trust Index

APPENDIX IV

CORRELATION BETWEEN RETURNS IN VARIOUS MARKETS

Years 1982 – 1988

	P	S	G	E	C	Prop	Ov	Ind
Price	1.00	0.47	0.08	−0.12	0.13	0.38	0.25	0.21
Salary		1.00	−0.05	−0.73	0.10	0.30	−0.47	−0.10
Gilt			1.00	0.24	0.56	−0.22	0.08	0.67
Equity				1.00	0.32	−0.67	0.73	−0.09
Cash					1.00	−0.67	0.05	0.16
Property						1.00	−0.15	0.40
Overseas							1.00	0.13
Index Linked								1.00
Mean	5.03	8.00	18.09	22.49	11.10	13.29	25.37	7.10
Std Dev	1.12	0.86	16.36	9.44	1.34	9.91	17.68	5.76

Years 1974 – 1988

	P	S	G	E	C	Prop	Ov	Ind
Price	1.00	0.81	0.00	0.29	0.34	−0.27	−0.18	0.00
Salary		1.00	−0.34	−0.12	0.45	−0.44	−0.35	0.00
Gilt			1.00	0.67	−0.16	0.28	0.17	0.00
Equity				1.00	−0.15	0.21	0.42	0.00
Cash					1.00	−0.19	−0.08	0.00
Property						1.00	−0.15	0.00
Overseas							1.00	0.00
Index Linked								1.00
Mean	10.61	12.49	15.77	25.00	11.99	12.40	16.37	0.00
Std Dev	6.53	6.43	19.59	41.50	2.68	12.29	22.62	0.00

Years 1963 – 1988

	P	S	G	E	C	Prop	Ov	Ind
Price	1.00	0.82	0.18	0.28	0.55	0.00	0.00	0.00
Salary		1.00	– 0.13	– 0.07	0.54	0.00	0.00	0.00
Gilt			1.00	0.65	0.15	0.00	0.00	0.00
Equity				1.00	– 0.02	0.00	0.00	0.00
Cash					1.00	0.00	0.00	0.00
Property						1.00	0.00	0.00
Overseas							1.00	0.00
Index Linked								1.00
Mean	8.55	10.88	9.79	19.14	9.97	0.00	0.00	0.00
Std Dev	5.74	5.71	17.45	35.33	3.36	0.00	0.00	0.00

APPENDIX V

HISTORY OF DIVIDEND YIELDS

% based on annual average	1940-44	1945-49	1950-54	1955-59	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89
High	6.9	5.7	7.2	7.1	5.3	5.5	7.7	6.4	6.3	4.7
Low	4.4	4.0	5.6	5.3	4.4	3.6	3.1	5.5	4.6	3.9
5-year average	5.5	4.7	6.3	6.5	4.7	4.6	4.6	5.8	5.5	4.1
Cumulative average (years)	5.2(50)	5.2(45)	5.3(40)	5.1(35)	4.9(30)	4.9(25)	5.0(20)	5.1(15)	4.8(10)	4.1(5)

Sources: London & Cambridge Economic Service (1939-49); Moodies (1949-61); FTA All-Share Index (1962-88).

APPENDIX VI

MONEY PURCHASE MODEL

The calculations were based on A. D. Wilkie's model for simulations on the rates of return for investments in ordinary shares and interest rates.

The projection of the fund was as follows:

The value of the fund invested in ordinary shares came from projections of the yield on shares at time t ($y(t)$) and an index of dividends on shares ($d(t)$).

The share price $p(t)$ (and hence fund size) was found from $p(t) = d(t)/y(t)$.

Long term interest rates $c(t)$ and rates of inflation $q(t)$ were also simulated.

The formulae were:

$\text{loge}\ [q(t)/q(t-1)] = .05 + .6\ (\text{loge}\ [q(t-1)/q(t-2)] - .05) + .05{*}Z1(t)$

$c(t) = c1(t) + c2(t)$

where

$c1(t) = .2{*}\ \text{loge}[q(t)/g(t-1)] + .8\ c1(t-1)$

and

$\text{loge}(c2(t)) = \text{loge}\ (.035) + .91\ (\text{loge}\ [c2(t-1)] - \text{loge}\ (.035)) + .165{*}Z2(t)$

$\text{loge}\ y(t) = 1.35 * \text{loge}\ [q(t)/q(t-1)] + w(t)$

where

$w(t) = \text{loge}\ (.04) + .6{*}\ (w(t-1) - \text{loge}\ (.04)) + 1.75{*}\ Z3(t)$

$\text{loge}\ [d(t)/d(t-1)] = .8\ r(t) + .2\ \text{loge}\ [q(t)/q(t-1)] - .0525{*}Z3(t) + .1{*}\ Z4(t)$

where

$r(t) = .05\ \text{loge}\ [q(t)/q(t-1) + .95 * r(t-1)$

$Zi(t)$ is distributed $N(0,1)$ for all i,t

Starting values used were loge	$[q(o)/q(-1)]$	$= .05$
	$c1(o)$	$= .05$
	$c2(o)$	$= .035$
	$w(o)$	$= \text{loge}\ (0.04)$
	$r(o)$	$= .05$

Using the above model salary growth was estimated to be inflation plus 2%.

For each projection, the accumulation of a 10% contribution rate to the fund up to time t ($t = 0$ to 40) was found.

This was converted to an annuity by dividing the fund by a 20 year annuity at the ruling index linked yield at the duration.

This figure was expressed as a percentage of salary at the appropriate duration. The mean and standard derivation of the results of 250 simulations are shown in the first two columns of each table.

The adjusted figures arise as follow:

The contributions were accumulated in an "adjusted fund", with a Market Value Adjustment (MVA) applied at the time of input of ($0.5/y(t)$).

The accumulated fund was reduced to allow for a set percentage (g=5%, 10% or 20%) of the total contribution being diverted to a top-up fund.

It was then converted to a pension by the application of the MVA ($y(s)/.05$) and divided by a 20 year term certain annuity rate at a *fixed* rate of interest.

Calculations were done with this fixed rate at 2.5%, 3% and 3.5%.

The pension was expressed as a percentage of salary and uplifted (if necessary) to $(l-g)$* the unadjusted percentage. The mean and standard deviation of 250 simulations at a variety of terms are shown in the middle two columns of each table.

Finally, the difference between the adjusted and unadjusted figures were calculated, and their mean and standard deviations are shown in the two right hand columns of each table.

The tables marked with 100% and 50% assumed an additional single contribution (e.g. a Transfer Value) of 100% or 50% of salary at outset.

APPENDIX VII

A. IMPACT OF DIFFERENT LEVELS OF TOP UP FUND

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) 5% of contributions allocated to top up fund						
5	3.216	0.831	3.152	0.676	0.063	0.365
10	6.087	2.027	6.040	1.733	0.048	0.753
15	9.122	3.302	8.981	2.965	0.140	1.130
20	12.080	5.073	11.938	4.511	0.142	1.534
30	16.686	7.980	16.632	7.042	0.055	2.272
40	20.554	11.571	20.206	10.496	0.347	2.710
(b) 10% of contributions allocated to top up fund						
5	3.216	0.831	3.063	0.685	0.152	0.309
10	6.087	2.027	5.871	1.726	0.217	0.639
15	9.122	3.302	8.746	2.942	0.375	0.947
20	12.080	5.073	11.613	4.486	0.467	1.307
30	16.686	7.980	16.183	6.990	0.504	1.965
40	20.554	11.571	19.656	10.414	0.898	2.359
(c) 20% of contributions allocated to top up fund						
5	3.216	0.831	2.953	0.714	0.263	0.197
10	6.087	2.027	5.628	1.749	0.459	0.420
15	9.122	3.302	8.416	2.914	0.706	0.615
20	12.080	5.073	11.148	4.490	0.932	0.890
30	16.686	7.980	15.503	7.045	1.183	1.349
40	20.554	11.571	18.932	10.396	1.622	1.683

B. IMPACT OF DIFFERENT LEVELS OF INDEX LINKED YIELD

(i) 5% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) Index Linked yield of 3%						
5	3.216	0.831	3.152	0.676	0.063	0.365
10	6.087	2.027	6.040	1.733	0.048	0.753
15	9.122	3.302	8.981	2.965	0.140	1.130
20	12.080	5.073	11.938	4.511	0.142	1.534
30	16.686	7.980	16.632	7.042	0.055	2.272
40	20.554	11.571	20.206	10.496	0.347	2.710
(b) Index Linked yield of 2.5%						
5	3.216	0.831	3.078	0.682	0.138	0.319
10	6.087	2.027	5.899	1.727	0.188	0.658
15	9.122	3.302	8.784	2.946	0.338	0.980
20	12.080	5.073	11.668	4.489	0.412	1.346
30	16.686	7.980	16.254	6.992	0.432	2.023
40	20.554	11.571	19.744	10.424	0.810	2.421
(c) Index Linked yield of 3.5%						
5	3.216	0.831	3.237	0.674	-0.022	0.412
10	6.087	2.027	6.201	1.746	-0.144	0.847
15	9.122	3.302	9.220	2.998	-0.098	1.274
20	12.080	5.073	12.246	4.561	-0.166	1.723
30	16.686	7.980	17.080	7.137	-0.394	2.510
40	20.554	11.571	20.783	10.728	-0.229	2.941

(ii) 10% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) Index Linked yield of 3%						
5	3.216	0.831	3.063	0.685	0.152	0.309
10	6.087	2.027	5.671	1.726	0.217	0.639
15	9.122	3.302	8.746	2.942	0.375	0.947
20	12.080	5.073	11.613	4.486	0.467	1.307
30	16.686	7.980	16.183	6.990	0.504	1.965
40	20.554	11.571	19.656	10.414	0.898	2.359
(b) Index Linked yield of 2.5%						
5	3.216	0.831	3.009	0.697	0.206	0.264
10	6.087	2.027	5.760	1.725	0.328	0.552
15	9.122	3.302	8.595	2.925	0.527	0.810
20	12.080	5.073	11.400	4.479	0.680	1.134
30	16.686	7.980	15.885	6.998	0.802	1.717
40	20.554	11.571	19.319	10.388	1.235	2.083
(c) Index Linked yield of 3.5%						
5	3.216	0.831	3.133	0.678	0.083	0.354
10	6.087	2.027	6.003	1.731	0.084	0.730
15	9.122	3.302	8.929	2.960	0.192	1.093
20	12.080	5.073	11.868	4.503	0.212	1.488
30	16.686	7.980	16.532	7.025	0.154	2.212
40	20.554	11.571	20.084	10.472	0.470	2.640

(iii) 20% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) Index Linked yield of 3%						
5	3.216	0.831	2.953	0.714	0.263	0.197
10	6.087	2.027	5.628	1.749	0.459	0.420
15	9.122	3.302	8.416	2.914	0.706	0.615
20	12.080	5.073	11.148	4.490	0.932	0.890
30	16.686	7.980	15.503	7.045	1.183	1.349
40	20.554	11.571	18.932	10.396	1.622	1.683
(b) Index Linked yield of 2.5%						
5	3.216	0.831	2.931	0.723	0.284	0.164
10	6.087	2.027	5.576	1.761	0.511	0.356
15	9.122	3.302	8.341	2.922	0.781	0.520
20	12.080	5.073	11.052	4.498	1.027	0.776
30	16.686	7.980	15.329	7.074	1.358	1.176
40	20.554	11.571	18.784	10.396	1.770	1.503
(c) Index Linked yield of 3.5%						
5	3.216	0.831	2.982	0.705	0.233	0.235
10	6.087	2.027	5.699	1.734	0.388	0.495
15	9.122	3.302	8.511	2.916	0.610	0.725
20	12.080	5.073	11.282	4.480	0.798	1.027
30	16.686	7.980	15.712	7.015	0.974	1.557
40	20.554	11.571	19.141	10.388	1.413	1.906

C. IMPACT OF DIFFERENT LEVELS OF SINGLE PREMIUM

(i) 5% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) No single premium						
5	3.216	0.831	3.152	0.676	0.063	0.365
10	6.087	2.027	6.040	1.733	0.048	0.753
15	9.122	3.302	8.981	2.965	0.140	1.130
20	12.080	5.073	11.938	4.511	0.142	1.534
30	16.686	7.980	16.632	7.042	0.055	2.272
40	20.554	11.571	20.206	10.496	0.347	2.710
(b) Single premium of 50% of salary						
5	6.453	2.023	6.083	1.710	0.370	0.561
10	9.037	3.487	8.728	2.977	0.309	0.982
15	11.922	4.684	11.494	4.158	0.428	1.279
20	14.770	6.555	14.368	5.824	0.402	1.697
30	19.015	9.528	18.750	8.436	0.265	2.468
40	22.542	13.264	21.988	11.975	0.554	2.903
(c) Single premium of 100% of salary						
5	9.690	3.313	9.065	2.828	0.625	0.803
10	11.987	5.052	11.458	4.335	0.529	1.259
15	14.722	6.195	14.034	5.442	0.688	1.503
20	17.460	8.157	16.819	7.236	0.641	1.894
30	21.343	11.183	20.892	9.934	0.451	2.663
40	24.531	15.028	23.785	13.533	0.746	3.099

(ii) 10% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) No single premium						
5	3.216	0.831	3.063	0.685	0.152	0.309
10	6.087	2.027	5.871	1.726	0.217	0.639
15	9.122	3.302	8.746	2.942	0.375	0.947
20	12.080	5.073	11.613	4.486	0.467	1.307
30	16.686	7.980	16.183	6.990	0.504	1.965
40	20.554	11.571	19.656	10.414	0.898	2.359
(b) Single premium of 50% of salary						
5	6.453	2.023	5.973	1.738	0.480	0.461
10	9.037	3.487	8.534	2.985	0.503	0.829
15	11.922	4.684	11.232	4.111	0.689	1.802
20	14.770	6.555	14.015	5.802	0.755	1.433
30	19.015	9.528	18.285	8.395	0.729	2.112
40	22.542	13.264	21.434	11.911	1.108	2.523
(c) Single premium of 100% of salary						
5	9.690	3.313	8.930	2.874	0.760	0.658
10	11.987	5.052	11.239	4.367	0.748	1.063
15	14.722	6.195	13.761	5.441	0.961	1.266
20	17.460	8.157	16.436	7.218	1.024	1.602
30	21.343	11.183	20.396	9.891	0.947	2.274
40	24.531	15.028	23.225	13.481	1.305	2.693

(iii) 20% of contributions allocated to top up fund

	Unadjusted Percentage of Final Salary Secured by Contributions		Adjusted Percentage of Final Salary Secured by Contributions		Difference Between Unadjusted Percentage and Adjusted Percentage	
Term	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
(a) No single premium						
5	3.216	0.831	2.953	0.714	0.263	0.197
10	6.087	2.027	5.628	1.749	0.459	0.420
15	9.122	3.302	8.416	2.914	0.706	0.615
20	12.080	5.073	11.148	4.490	0.932	0.890
30	16.686	7.980	15.503	7.045	1.183	1.349
40	20.554	11.571	18.932	10.396	1.622	1.683
(b) Single premium of 50% salary						
5	6.453	2.023	5.857	1.786	0.596	0.294
10	9.037	3.487	8.272	3.056	0.765	0.552
15	11.922	4.684	10.908	4.134	1.014	0.724
20	14.770	6.555	13.539	5.812	1.231	0.993
30	19.015	9.528	17.568	8.439	1.446	1.462
40	22.542	13.264	20.711	11.910	1.831	1.821
(c) Single premium of 100% salary						
5	9.690	3.313	8.781	2.936	0.910	0.437
10	11.987	5.052	10.939	4.462	1.048	0.721
15	14.722	6.195	13.427	5.487	1.295	0.867
20	17.460	8.157	15.951	7.252	1.510	1.124
30	21.343	11.183	19.644	9.927	1.698	1.598
40	24.531	15.028	22.497	13.489	2.033	1.974

DISCUSSION

K. J. Auld introducing the paper said:- The paper which is to be discussed tonight is the result of the deliberations of the Faculty Pensions Research Group under the leadership of Bill Robertson. I have the honour of introducing the paper as Bill has taken on the unenviable task of replying to the discussion.

May we begin by thanking the Faculty for the opportunity to present this paper and in particular David Forfar for providing the monitoring role over the last few years.

Our primary aim is described in the paper title; to examine "The Implications of Recent Legislation on Future Benefit Design". I note that the word "pensions" is conspicuous by its absence save in name of the authors. I would amend it to "on Future Pension Benefit Design". This examination was in three parts:-

1. To review recent legislation.
2. To assess the implications.
3. To try to predict where we may be directed, or maybe where we want to go, over the next few decades.

There has been only limited opportunity in the last few years to consider the recent legislative changes at Faculty meetings. I hope that a number of you in the audience tonight will take this opportunity therefore, not only to comment upon the paper and discuss our conclusions, but also to raise some of the major issues confronting the pensions industry today.

A few years ago in his budget, the then Chancellor Nigel Lawson claimed that he had no intention to make further pensions legislation in the remainder of this Government and no doubt a collective sigh of relief was given by the industry. However, since then we have had a Social Security Act, affecting the use of fund resources, Guidance Notes on Bulk Transfers, the Barber decision and Regulations on Self Investment from both the Superannuation Funds Office and the Department of Social Security. With a general election due before the summer I think the only thing we can be certain of is that pensions legislation won't stay still.

In respect of such areas of legislation as we have considered, I should point out that we have not gone in to all the finer points associated with them. We make no apologies for this. The paper is quite long enough without us going into all the details. The paper is not intended as a complete regurgitation of pensions history (that is available in much more readable form elsewhere), and most importantly it wasn't the detail of the legislation that concerned us in our thinking. Rather it was the impact which legislation has had on the pensions industry and how the industry could or should respond.

Have we come up with a solution in the quest for an ideal pension scheme or indeed any practical simple solution? To be honest probably not but then that's not necessarily the point. The point, as we saw it, was to direct attention at alternative structures which better meet the needs of the pension holders. While we may not claim total success, nevertheless we hope that what we have presented here will generate interest and discussion towards practical solutions for the future.

What we have suggested is fundamentally a money purchase approach with variations to counteract the flaws inherent in money purchase pension schemes. Our solution, as you will no doubt realise is not allowable under the present legislative regime. Neither were the ideas of the Centre for Policy Studies which eventually led on to personal pensions. We are not advocating anybody trying to set up a pension scheme with which the Inland Revenue would disapprove. Rather we are suggesting that if the industry is to advance we have to look beyond the current pensions framework and give the lead to the legislators as to what the rules might be; not react to what they lay down for us. Changes are going to be forced on us by Brussels in any event and it is better that we ensure that such changes meet the needs of the pension holders rather than the other way around.

Before I mention the conclusions, I should also refer you to the handouts that you received on your seats. After the drafts of the paper had been circulated, we were kindly contacted by Angus MacDonald who pointed out to me an error in our calculations. I am actually grateful for that partly because it meant he didn't stand up here and tell us that everything we have done is wrong and it did give us the opportunity to re-run the calculations and produce the revised figures. It also demonstrated to us that the ideas maybe did elicit some interest which was gratifying in itself. I must therefore apologise in advance to any whose comments this evening may require amendment, I trust that this will not stop them from entering in to the discussion.

I would also wish to mention the model which we refer to and which we used for our projections, it was one developed by A. D. Wilkie and has been used in other papers presented to the Faculty. I would stress that we have not considered it necessary to investigate the theory behind the model, the parameters used in it or the sensitivity of the results to the parameters. These are subjects which would no doubt require entire papers in their own right and that would divert attention away from what we feel to be the purpose of our paper. The model has been accepted at face value and I trust that you will accept it similarly.

Finally if I may, I will briefly touch on the conclusions which we have reached. Obviously the greater level of the top up fund which we are proposing i.e. the greater the proportion of the total contribution rate then the lower the volatility of the level of the pension. However the expected level of pension is also significantly affected with the result that the smaller top-up fund appears to offer the best deal for the employee. I suppose these results are only to be expected. What is of greater significance of course is that the small top up fund would be unable to meet its liabilities far too often to provide the necessary security. What really has still to be investigated is just how well some of the higher levels of top up fund would be able to cope with substantial and sustained levels of demand upon them. Certainly the balancing acts required by the various interests would require very careful investigation before such a system could be put into operation. Hopefully those are just some of the items which people would care to discuss tonight.

A. C. Martin said:- It is my honour to present the note to you this evening on Pensions and Divorce. Some actuaries may regard divorce as a difficult divine decrement, others may regard divorce as a delicate daunting devout division, whilst others may simply regard divorce as a demoralising, debauched and depraved debacle. Irrespective of our personal views the subject affects the profession and deserves attention. Why does it deserve attention? Well there are approximately 13,000 divorces each year in Scotland, many of them involving pensions and this will inevitably lead to involvement of the actuarial profession with the legal profession and most importantly with the direct general public. There will of course be a much larger number of cases involved in England and Wales. Can we therefore guide those south of the Border given our experience over the last five and a half years?

Since drafting the paper last year there have been a few developments in the area. The first, from May this year, is the report by the Family Law Committee of the Law Society of England and Wales. They reported on proposed legislation including marriage contracts and also the splitting of pension rights. Secondly the Faculty has been involved in informal discussions with the Scottish Legal Aid Board on the possible use of standard tables and also on professional fees. The matter has been discussed in actuarial circles at the Glasgow Actuarial Students' Society and most recently at the Harrogate Pensions Conference. The matter is also being considered by consulting actuaries, the Association of Consulting Actuaries Damages, Reversions and Divorce Committee considered the subject last month, a response to the Family Law Committee is being considered as well as possible input to the Joint Pensions Committee of the Faculty and Institute. It is indeed a current topic.

For those who are commenting on the subject tonight, I would invite them to consider a few points. Firstly do they think a standard approach is necessary – a standard valuation approach? Secondly do they think the Faculty and Institute should take a pro-active approach and guide the legislators on possible pitfalls, thirdly would standard tables be of any assistance to those involved in applying the legislation, fourthly, for those interested in new business, whether transfer values to personal pensions should be one option for the investment of capital proceeds on divorce and fifthly again on the legislative front, whether the assignation of benefits should be re-addressed. Finally with no disrespect intended to life office people involved in this type of work I would have to question whether life offices want their actuaries to be involved in this type of work with possible court appearances and the possible consequent publicity. I look forward to the discussion.

A. W. Botterill opening the discussion said:- In recent years it has been difficult to keep track of all the new legislation affecting pension schemes in the U.K. The paper presented today provides a helpful summary of the main items and aims to set out how benefit design may look in future. For this the authors are to be congratulated.

However, the word DESIGN implies freedom of choice and I therefore looked to the paper for an understanding of how employers have exercised choice to date and how they may do so in future. In this respect, I suggest that the authors could have taken matters further in a number of areas, in particular:-

the considerable volume of information provided might have been linked more directly to the issue of benefit design;

the important issues of employee understanding and their preference for benefits should have been emphasised;

more fundamentally, the drive behind future benefits design should be based on employers looking to identify, and communicate, their own specific objectives for the benefits provided for their employees, rather than reacting to enforced change;

the money purchase design solution proposed, with volatility dampened on the downside, does not really work in that the residual volatility in the pension provided is likely to remain unacceptably high for the intended benefit target – this needs to be developed;

I shall now expand on these points.

Firstly, linking the information to the impact on design.

Section 2 provides a background on SERPS and contracting out, including details of changes to rebates and MLIs. It would have been helpful to explain why the majority of U.K. pension schemes today are contracted out on a final salary basis, namely:-

for employers with established final salary schemes in 1978 contracting out was the easiest response to the introduction of SERPS in that the existing benefit structure largely could remain unchanged and the contracting-out rebate was financially attractive.

for small employers with modest, or no pension schemes, the financial incentive offered by the contracting-out rebate allowed what was described as a "good" pension scheme to be provided at minimum real additional cost.

The net cost to an employer of a scheme providing:-

- 1/80th of a three year average of
- basic salary less 1.5 times the Lower Earnings Limit
- with no pension increases; and
- employee contributions of 3% of pensionable pay was often insignificant.

This point was not lost on the pensions industry and many new schemes, often extending final salary benefits to work employees, were sold.

In Section 3, the key details of the surplus regulations are given but no linkage to emerging benefit design is brought out. It can be argued that these regulations began to make employers define clearer objectives for their pension schemes in terms of both benefits and costs. Having to spend a surplus may not lead to a completely rigorous approach to benefit structure but it does begin to raise the right questions.

I agree that the surplus regulations add another layer of complexity to the financial analysis of pension schemes but I do not feel that they are a real threat to long-term funding. There is considerable commercial flexibility within the regulations and for those who wish to have higher funding levels than prescribed, the option of paying tax on a proportion of the scheme's investment returns may be acceptable. Also, the authors themselves argue later in the paper that as a result of the Social Security Act 1990 and SSAP 24, funding levels are likely to reduce generally.

In Section 4, the U.K. history of equalisation is covered in some detail and the persistent problem of inaction by the Government to equalise State Pension Ages is highlighted. As a result of the Government's financial constraints, this issue is linked naturally to flexible retirement ages.

The authors correctly emphasise the urgent need for flexibility from the State system to allow employers to meet their commercial needs and the needs of their employees. However, there is growing evidence that the still open issue of the BARBER judgement is beginning to impact on benefit design and the authors could usefully have explored this point. Recent surveys suggest that employers are moving towards equalising pension ages at 65 and retaining some flexibility over early retirement policy. Once again, the theme is that employers are increasingly taking action to define their own financial and benefit objectives – being pro-active, rather than reactive.

In Section 5, Personal Pensions are introduced with comment on the Government's incentive to contract out with the intention of reducing the long-term cost of State pensions. This development did have an impact on pension schemes. For many employers the immediate reaction was to lower entry ages and in some cases introduce a money purchase underpin. The aim was to encourage younger employees to remain members of, or to continue to join, existing schemes. In some cases, however, this was the trigger for the employer to begin to think through the real objectives for their pension schemes and a number, seeing the trend towards mandatory benefit improvements and increased cost, decided to raise entry ages and provide alternative benefits for younger staff.

Section 6 outlines the moves to include part-time staff in pension schemes, partly to avoid indirect sex discrimination and partly to attract an increasingly important section of the workforce. The simplification of Inland Revenue rules for part-time staff was welcome but even so the issue facing many employers is whether current benefit structures actually meet the needs of part-time staff whose working life is likely to differ from full-time colleagues. This area merits further development.

In Section 7, the requirements of SSAP24 are outlined. From the perspective of benefit design, the main issue to be raised is whether this accounting standard will lead to:-

increased interest by the finance director in the financing of the pension scheme;

better focus on best estimate costs and realistic benefit costings;

more specifc targeting of previously discretionary benefits such as pension increases.

There is little evidence of companies seeking to use different assumptions for funding and accounting. In fact, the accountancy profession seems to be reluctant to recognise any balance sheet assets where funding contributions exceed accounting expense, giving further encouragement for using the same basis for both. Accordingly, the likelihood of "free" benefit improvements coming out of almost planned surpluses might reduce.

Section 8 covers the Finance Act 1989, the piece of legislation that may ultimately have the most fundamental impact on benefit design. I think that it is a little premature to claim that the earnings cap has had a significant affect on benefit design. In practice it applies to only a small fraction of the population and pension scheme benefits have not been changed for the average member. However, a change of Government might see the cap reduced to, say, £30,000 and then the fun would begin. I think that it is in this area, together with unapproved schemes and alternative forms of benefits that the shape of future benefit design may lie.

Clearly, considerable work remains to be done on this. A positive point about the cap is that it affects senior management first and there is no better way of getting these decision makers to focus on benefit issues.

Section 9 outlines the Social Security Act 1990 which continues the established trend of mandatory benefit improvements for U.K. pension schemes. This Act is one of the Government's most aggressive in that it insists that backdating of the prescribed pension increases takes first call on any emerging surplus. Allied to the unresolved issue of sex equality, the message to employers should now be quite clear, namely pension schemes can seriously damage your financial health.

Bringing these background issues together, I feel that the authors should have emphasised that the lessons of the recent past for employers are:-

legislation has enforced benefit improvements that employers had not sought to provide;

the mandatory improvements have significantly increased employers' pension costs;

pensions are political and there can be little confidence in the logic, or durability, of Government attitude or action;

there is no reason to believe that the upward spiral of mandated benefit improvements and costs will cease.

Accordingly, the lead in to Section 10 should be a framework within which employers might approach benefit design, such as:-

Financial Issues

- acceptable cost level
- acceptable cost variability
- contribution flexibility
- protection against legislation

Design Suitability

- reward for long service

- employee participation
- administration
- redesign flexibility

Employee Acceptability

- security of adequate living standard in retirement
- reassurance of reasonable protection on early termination
- recognition of the value of the employer's contributions
- simplicity
- ease of communication

The latter point, the attitude of the employee, will be, in my opinion, one of the keys to future benefit design. I suggest that a major omission from the legislation issues listed in the paper as affecting benefit design is reference to the Disclosure of Information Regulations. These regulations provide employees with access to comprehensive information on their benefits and the operation of their schemes through:

actuarial valuation reports;

actuarial certificates;

trustees' reports;

transfer values;

benefit statements.

Indeed, many employers have made considerable efforts to respond to the requirements by developing comprehensive communication programmes to promote the existing company pension scheme. Few, however, have made serious efforts to ask employees what they want from their pension scheme.

Employees' financial sophistication is increasing and I suspect that in a future world of restricted tax-exempt funding the form that employees' deferred pay takes will be driven more by their choice and less by an arbitrary model pension for the mythical employee who works for one employer for 40 years.

Turning towards possible future benefit design, the authors outline in Section 10 where we are today and the basic choice between final salary and money purchase. My own experience suggests that some of the contrasts between the two are often overstated.

For example,

The comment that benefits are known under final salary schemes might be questioned by a young employee trying to interpret a leaving service benefit statement from a contracted-out final salary scheme. The measure of relevance normally will be the transfer value, not the prospective benefits.

Despite generally improved knowledge about pensions, I suspect that few employees today would turn down a new job because a money purchase pension scheme was offered.

The certainty of cost often claimed for money purchase can be elusive where contributions are based on gross pay rather than basic salary, and vary according to employees' age and service

The authors suggest that there should be a steady drift towards money purchase schemes as employers seek to regain some control over their pension destiny and costs. Also, it is suggested that money purchase should have more immediate appeal to employees through improved clarity and value for money. The major drawback highlighted for a conventional money purchase scheme is the volatility of the retirement pension, resulting from volatility of investment markets affecting the accumulated fund and annuity rates.

The potential volatility is demonstrated in the money purchase model illustrated. To give meaningful comparison with final salary schemes the authors have assumed investment in U.K. equities solely. This is reasonable since concentrating investment in less volatile assets with lower returns would lead to either benefits that are too low or costs that are too high. While there are arguments that diversifying the investment portfolio among overseas equities and other assets may moderate volatility, the impact is unlikely to be significant.

The basic results show what would be considered to be unacceptable volatility in the level of pension with significant chance of deviation from the mean. This volatility is consistent with comparisons of models of money purchase and final salary structures over the last 40 years but even then volatility does not give the full picture. In a recent analysis undertaken with a client we found that the level of pension relative to final pay was persistently low during the late 1970s. The client's concern was not so much the volatility of the emerging pension but its inadequacy at a time when the employer was least able or willing to provide additional resources.

To address the volatility, the authors have attempted to dampen the volatility of the resulting pension by use of a top up fund. In simple terms, this fund aims to provide a minimum guarantee of a smoothed actuarial pension from the money purchase scheme. The solution does not appear to be satisfactory in that there is no meaningful reduction in volatility and the trade off between lower expected pension and lower volatility through increased allocations to the top up fund is not attractive.

I conclude that this approach does not work financially and of equal importance I suggest that it would fail the communication test. I feel that employees would have difficulty in understanding the concept of a top up fund and would place little value on it especially if the rules for its application remain effectively at the discretion of the employer.

Nevertheless, I found the model results helpful and there should be scope to develop this type of investigation. For example, the lack of sensitivity of the results to the base interest rate used for annuity purchase poses the question of whether it needs to be raised further to provide real protection.

Returning to design, I suggest that other solutions will need to be found and these are likely to spread along the spectrum between pure money purchase and final salary. The right answer for each employer will increasingly depend on its own specific workforce needs, financial objectives and constraints.

Examples might include:-

retain a final salary structure but express the benefit as a cash sum such as 15% of final salary for each year of service;

provide a money purchase benefit but underwrite some of the investment return, for example matching salary inflation up to retirement;

combine separate final salary pension and pure money purchase structures to give a compromise between the two for both employer and employee;

provide a money purchase structure but over age 50 allow employees to apply their funds and contributions to secure guaranteed pensions – in practice, the employer can reinvent the deferred annuity and even operate it on a with-profits basis.

Each of these and other designs will need to respond to emerging legislation and economic developments. In particular, unapproved schemes and alternative forms of saving are likely to have a growing impact on benefit design.

In summary, I am inclined to agree with the authors that benefit design in future will have more of a money purchase emphasis. This is more likely for smaller companies serviced mainly by insurance companies who not surprisingly appear to be abandoning the final salary pension market as the legal and administrative cost burden escalates. However there will be many variations on the theme.

Finally I am not convinced that having an actuary as Chancellor would solve our benefit design problem but if we did, we could no doubt use some of our inevitable spare time reviewing his practising certificate!

R. J. Amy said:- The authors are to be congratulated on producing a very readable paper. It provides a good summary of pensions legislation and its implications over the last ten years.

They mention in paragraph 10.3.13 the trend away from defined schemes to money purchase schemes. This has been an accelerating trend for smaller companies and it would appear that very few new insured schemes are being set up on a defined benefit basis.

Any move to money purchase is however far less apparent among larger schemes, the top 1,000 of which have well over half the membership of occupational pensions schemes. Many of these schemes are largely unaffected by the Social Security Act 1990 and the Barber judgement, unless one of the more extreme interpretations of retrospection prevails. So it is likely that a significant proportion of the working population will continue to be members of final salary schemes during the 1990s.

If many smaller companies are to rely on money purchase schemes for future pension provision some method of stabilising the level of benefits provided will have to be sought. Just as the pages of "*Money Mail*" were filled ten years ago with early leaver sagas, there will be stories in the future about two pensioners who retire within a month of each other, having worked together for years, and who end up with pensions which are different by 20% or more. The fall in equity values in New York on Friday and London today are salutary reminders of how fragile markets can be.

The authors' solution is an elegant version of a minimum investment guarantee and minimum guaranteed annuity terms financed through a top up fund. This would certainly take away the downside risk for employees. However is it acceptable to leave open the possibility for windfall benefits on the upside without any downside risk?

The logic keeps leading back to the same conclusion that was reached the last time money purchase schemes were found to be inadequate 20-30 years ago – defined benefit programmes are a much better solution if they can be sustained and administered by employers, and understood by their members.

One of the main pension objectives for the 1990s must be to seek simplification of defined benefit schemes. (It is a great pity that the Inland Revenue were not more committed to simplification in their recent revision of the Practice Notes). The authors suggest in Section 12.3 of the paper removing SERPS and increasing the basic State pension by 50%. (I think they have been reading the Liberal Democrat's draft manifesto). This would result in significant additional resources being found for current pensioners, and would inevitably place a significant burden on employment costs and therefore the competitiveness of British industry. In any event SERPS is an effective safety net scheme.

A much better approach would be to abandon GMPs and to restore a requisite benefit test for defined benefit contracting-out. This would greatly simplify the equalisation of benefits and the Government's review on the equalisation of State pension ages provides the opportunity to make the case for such a change.

I would like to close by thanking the authors for their stimulating paper.

A. S. MacDonald said:- I would like to congratulate the Research Group on producing a very useful guide to recent legislation, which mostly makes me happy not to be a pensions actuary. If their surmise is correct, that pensions provision will be driven towards money purchase, then there is a pressing need for the implications to be made clear, and only the profession can undertake that task. The Research Group has made a start, with the modelling in Section 12 of the paper. My comments are about the modelling.

Assuming investment in equities, the Group identifies uncertainty of the final benefits as the chief concern, and advocates a mixture of smoothing and top-up guarantees as a remedy. To quantify the uncertainty they have looked at the mean and standard deviation of the emerging pension. However, these statistics alone may lead us to overlook just how much of a lottery money purchase might be.

Following the Group, I have made some projections using 250 simulations. The only difference is that I have used annuity values at a fixed 3% throughout to convert fund to pension.

First, look at some percentiles of the emerging unadjusted pensions; that is the results of investing entirely in equities with no attempt at smoothing and no guarantees. Table 1 shows the 5th, 25th, 50th, 75th and 95th percentiles, expressed as a percentage of final salary.

TABLE 1

250 Projections: Percentiles of Pensions as Percentage of Final Salary

Length of Pensionable Service	PERCENTILES 5th	25th	50th	75th	95th
5 years	2.5	3.0	3.6	4.5	5.7
10 years	4.4	6.1	8.2	10.1	14.5
15 years	6.4	9.4	12.5	16.5	23.9
20 years	9.8	13.5	17.5	23.9	35.6
25 years	12.4	18.0	23.3	33.1	57.4
30 years	14.2	24.9	34.4	45.5	70.6
35 years	19.1	29.9	41.0	56.2	93.1
40 years	23.3	34.4	47.6	70.3	113.6

While a lucky few scoop the pool, others are let down very badly, despite having made equivalent contributions. I would be surprised if this is what most people expect from a pension plan. Figures of this sort lie behind the authors' remark, in paragraph 12.1.15, that "... many individuals will retire in circumstances better than those assumed in setting the guarantee".

These figures relate to 250 projections of a single employee's pension. In an active pension fund, retirements will happen continuously, and we should ask what difference there might be between the pensions of two employees who retire on different dates with the same length of service. These differences will be very obvious to those concerned, and could make or break the reputation of money purchase, once people have acquired hindsight.

I made 250 simulations of the same fund, invested in equities with no smoothing or guarantees, assuming all employees retire with 40 years service, and I projected the emerging pensions of 41 generations of retiring employees. Taking each of the 250 projections, I calculated the ratios of the pensions of employees retiring 1 year apart from each other, always dividing the larger pension by the smaller pension so that the ratio was not less than 1. The mean value and maximum value of this ratio tell us, for each simulation, what are the average and the worst discrepancies which arise during the 40 years, and in a very loose sense quantify the bad feeling which may follow.

I repeated the process with retirements 2 years apart, 3 years apart and so on, up to 10 years apart. Since this was done for each of the 250 simulations, what emerge are distributions, and Table 2 shows the 5th, 25th and 50th percentiles of these distributions.

TABLE 2

250 Projections: Percentiles of Maximum and Mean Ratios of Pensions of Employees who retire N Years Apart

No. of Years 'N' Between Dates of Retirement	Maximum Ratio Percentiles			Mean Ratio Percentiles		
	5th	25th	50th	5th	25th	50th
1 year	1.503	1.614	1.744	1.231	1.256	1.278
2 years	1.724	1.939	2.153	1.300	1.353	1.389
3 years	1.807	2.080	2.364	1.334	1.406	1.457
4 years	1.945	2.240	2.556	1.348	1.444	1.511
5 years	1.849	2.282	2.654	1.356	1.476	1.558
6 years	1.839	2.369	2.720	1.366	1.495	1.585
7 years	1.897	2.355	2.825	1.373	1.502	1.626
8 years	1.950	2.406	2.869	1.390	1.523	1.650
9 years	1.966	2.467	2.900	1.390	1.533	1.665
10 years	1.919	2.503	3.081	1.390	1.546	1.698

The fifth percentile of the maximum ratio suggests that there is about a 95% chance that, during 40 years, discrepancies greater than about 50% will arise between the pensions on retirements in successive years, and discrepancies greater than about 90% will arise between more widely separated retirements. This illustrates precisely what Mr Amy was saying. I suspect that these would be hard enough to stomach, but as the other columns suggest, there may be a high chance of even bigger discrepancies. Further research along these lines would be useful

The authors suggest a two-pronged remedy; a smoothing of equity prices by effectively investing in the index of dividend yields instead of the index of share prices, and a guarantee to top-up the smoothed fund if share prices did better than the yield index. As their figures show, it seems to be possible to find a rate of contribution to the top-up fund which does reduce the means and variances of the emerging pensions, while allowing the fund a reasonable probability of solvency. Again, it is worth looking at the distribution of the results in more detail.

Table 3 shows the quartiles of the unadjusted pensions, beside the quartiles of the pensions emerging if 20% of the contributions are directed to the top-up fund (that being the level which the authors chose for the protection of the employer).

TABLE 3

250 Projections: Percentiles of Pensions as Percentage of Final Salary

U.P. = Unadjusted Pension; A.P. = Adjusted Pension

Length of Pensionable Service	25th U.P.	25th A.P.	50th U.P.	50th A.P.	75th U.P.	75th A.P.
5 years	3.0	2.7	3.6	3.1	4.5	3.6
10 years	6.1	5.6	8.2	6.9	10.1	8.4
15 years	9.4	8.7	12.5	10.8	16.5	13.6
20 years	13.5	12.3	17.5	15.3	23.9	19.6
25 years	18.0	15.7	23.3	20.3	33.1	27.1
30 years	24.9	21.2	34.4	28.3	45.5	37.8
35 years	29.9	26.3	41.0	34.7	56.2	47.1
40 years	34.4	30.7	47.6	41.8	70.3	59.2

These show, and the other percentiles which I have left out confirm, that the imbalance is not improved much. All the pensions are reduced; large pensions rather more than small pensions. Setting the contribution to the top-up fund to 5% or 10% is a little better but not much. So although we have reduced the standard deviation, we have not achieved what we are surely trying to do, that is to raise the floor a bit at the bottom end of the distribution.

After experimenting with the authors' model of annuity rates based on fluctuating real yields, and also a different approach in which the purchase of the annuity was spread over a 5-year period, I convinced myself that it is very difficult indeed to change the distribution of emerging pensions by smoothing alone. I suspect that it requires either a more conservative investment strategy, or explicit cross-subsidies between different generations of retiring employees.

My final comment is that, unless there is some effort to control the top-up fund as the authors suggest in paragraph 12.2.6, the employer may profit from the risk premium with a high probability, depending on the way in which the contribution to the top-up fund is set. The authors' 90% chance of the fund's being adequate is extremely high, except perhaps in the run-off of a closed scheme. This probability relates to just one generation of employees, and an active fund should be able to offset profits and losses. Returning to the simulations of an active fund over 40 years, the accumulation of the profits in each simulation can be found. Table 4 shows the 1st, 25th, 50th and 75th percentiles of this accumulation, expressed as a multiple of current salaries of one generation of employees.

TABLE 4

250 Projections: Accumulated profit based on 20% of contributions, Expressed as a multiple of the current salary of one generation of employees

Time Since First Retirement	1st	25th	50th	75th
5 years	−7.2	2.7	6.0	10.5
10 years	−7.2	6.0	11.1	17.9
15 years	−6.1	9.6	16.9	29.9
20 years	−2.6	14.9	24.6	40.5
25 years	0.5	16.2	30.7	51.3
30 years	1.0	22.1	42.1	66.8
35 years	6.9	31.5	48.1	86.7
40 years	7.8	32.1	56.0	102.0

Some employers might find that running their pension fund as a risk business was more profitable than their other enterprises. That brings us to the heart of the problem; smoothing and guarantees backed by appropriate reserves are forms of insurance, which employers are not best placed to provide. Two examples from the paper which hint at the problems are, in paragraph 12.2.4, the statement that "... it was considered unreasonable to expect employers to guarantee to meet their targets . . " – what sort of guarantee is that, and who would decide when the scheme should be abandoned? – and in paragraph 12.2.8, the exclusion of single premiums, on the grounds of risk to the employer – the obvious course would be to pass on the risk to an insurance company in the first place. Smoothing, guarantees and retrospective profit-sharing are the bread and butter of with-profits life offices.

However, I am not sure that insurance companies would welcome the risks of this particular scheme, particularly if Open Market Options must be provided. The smoothing will cost most if retirements take place when yields are high, and equity prices low, which might sometimes coincide with a recession, many forced or early retirements, and high interest rates leading to attractive annuity rates in the open market. The authors in paragraph 12.1.14 envisage an Open Market Option being available; I think that would be unacceptable.

It would be worrying if great changes in pensions provision could take place without the profession being seen to commit some resources to researching the wider implications, and not just the commercial implications. It is good to see our own Research Group leading the way.

L. W. G. Tutt said:- As Mr Amy indicated, the authors' remarks in 12.3.2 and 12.3.3 refer to the concept of raising the basic State pension by 50% to offset the effect of scrapping SERPS. It may be of general interest that in recent discussion with a research team who indeed report to certain political quarters (not the one the previous speaker mentioned), I gleaned that that team seriously consider that the basic State pension should be raised, not by 50% as the authors mention, but by 100%. Perhaps therefore, an increased basic State pension is not the forlorn hope of the authors, if that be an appropriate expression, that the authors suggest in 12.4.1. Personally I find it all of extraordinary interest. For in pensions matters, as in many other things in life, cost is a relevant factor and we are considering this evening implications of recent legislation. The Social Security Act of 1973 proposed yearly increases in social security benefits in line with the greater of prices and earnings. The Social Security Pensions Act of 1975 introduced SERPS. But what has happened since? As regards increases in social security benefits the link with earnings was broken in 1980 and SERPS was modified, broadly downwards by the Social Security Act of 1986. We all know the reasons. Authority concluded that State pensions on the pre-modification bases were unsustainable long-term and that there was something not quite right for authority to dangle false expectations before the general public.

The authors say in 2.3.2 that concern about rising costs was considered debatable by many. I have to add that my own research work in this sphere has not led me to that implied conclusion. But do things go further for all pensions in payment whether they be state or private are a burden on the active population. Consequently pension scheme design overall, both state and private, should pay regard to the extent of that burden. Demographic and economic considerations now suggest that the pensions burden should be controlled, and controlled effectively. As long ago as the late 1970s I suggested in my writings at that time that the desirable way to achieve this is by the introduction of flexible pension ages with emphasis being placed on a gradual increase in the mean pension age. I make the same suggestion again this evening, I submit that such should be regarded as a feature of future benefit design. It is in fact relevant that the conditions of Inland Revenue approval of retirement benefit schemes have recently been revised to permit, as mentioned in the Practice Notes 6.4, a normal pension age of up to 75. Furthermore, as the Practice Notes 6.3 indicate it is permissible to provide retirement benefits to an employee retiring after the age of 75 if the benefits commence immediately on the establishment of the scheme.

It can of course be said that the Finance Act 1989 now broadly allows new members to retire at any age after age 50 on a full 2/3rds pension subject to completion of 20 years service, which on the face of it may seem to give official encouragement to retire at a relatively young age. But whilst this is so it is in effect merely the quantum of benefits permissible which has been modified rather than a lowering of pension age for permissible normal early retirement generally extended down to ages 50 men and 45 women even pre the 1989 Act.

It remains that the effective solution to the pensions problem is to extend the actual lifetime working period. In many cases it should be possible for this to be achieved by members continuing in their normal job. In those cases where such may not be possible, then in addition to the generally known first three pillars namely a guaranteed state basic pension, a complementary pension scheme linked to employment and personal accumulation of savings, practical advantage needs to be taken of continuing, in appropriate conditions, work in another capacity, that is, full consideration needs to be given to the concept generally known as the fourth pillar.

I would now like to make reference to the aspect of taxation, for the granting of exempt approval affords very valuable relief of taxes to pension schemes and those who contribute to them. But recent legislation reveals concern over the extent of those reliefs. I give just three examples:-

The 1986 Surplus Regulations which were brought in specifically to restrict tax relief on the fund.

The Finance (No) 2 Act 1987 which introduced a maximum final remuneration of £100,000 for calculating a tax free sum; introduced a stricter definition of final remuneration; broadly made accelerated accrual of lump sum benefits possible only when pension benefits have been uplifted; and prohibited encashment of some AVCs.

And the Finance Act 1989 which imposed the £60,000 indexed cap.

It is to be noted what such recent statutes imply concern over and what they don't imply concern over. They imply concern over tax reliefs. They don't imply concern over the amount of benefits allowable. Indeed SFO Memo 99 in referring to amendment to ICTA 1988 to facilitate the existence of unapproved schemes where for example the employer wishes to provide benefits above approvable limits on pensionable earnings in excess of £60,000 indexed states, the legislation will impose no restrictions on the scope, timing or amount of the benefit. Is there an implication here? Unapproval means loss of tax reliefs and may indeed involve in a funded scheme the employee being charged to tax on the employer's contributions paid in respect of him. Nevertheless the point seems to have been made. Give up tax reliefs and no restrictions will be imposed. Clearly to go as far as this would be extreme but can anything at all be done to alleviate the really quite unacceptable administrative and legislative problems currently imposed on the pensions movement.

How much, for example, of the Practice Notes could be dispensed with if only the concession of permitting at retirement part of the pension being commuted into a tax free lump sum were to be made no longer approvable.

And in 10.3.3 the authors refer to the complex administrative requirements associated with various examples of Government legislation over the last decade, in connection with final salary schemes. Consequently they go on to suggest in 12.4.1 that as far as company schemes are concerned there will be a significant switch away in the future from final salary to money purchase schemes. But do all the advantages lie with money purchase schemes? Might it be desirable to preserve a practicable general availability of final salary schemes as an alternative to money purchase schemes. If so, might it be worthwhile to forego some tax concessions up to a reasonably acceptable extent to achieve this. Perhaps so, perhaps not, according to one's outlook. But as the authors state in 12.3.5, imagine the rain forests saved if pensions legislation were to be simplified. Is it reasonable to consider that such simplification may call for some concessions.

R. K. Sloan said:- I would like to make a few comments on the divorce paper.

First of all responding to Mr Martin's splendid alliteration; at the risk of being devastatingly dour and dull my remarks are definitely devoid of Dias (which is German for slides).

Allan Martin suggests in his Note that legal practitioners almost universally rely on the life office surrender value quotation for insurance contracts. However, he does also refer to the possible auction of policies, which reflects the net worth to an individual purchaser rather than the disinvestment value placed on the policy by the life office.

Unfortunately, it is frequently the case that life offices make no or only limited allowance for potential Terminal Bonus in their surrender value calculations, which can obviously have a major impact on the value, particularly when fairly close to maturity. Although our President warned about the unsatisfactory nature of this practice in his recent Presidential Address, its existence is still quite prevalent, so that the legal profession should take great care before accepting an apparently straightforward surrender value quotation without taking further professional advice.

In this respect, I am aware that a Faculty Sub-Committee has recently prepared a draft flow-chart and questionnaire for the assistance of the legal profession in such cases. The draft flow-chart would seem to suggest that obtaining from an insurer the amount of the surrender value would preclude seeking any further information. I have already indicated the potential danger of this course and would like to see this point given further study.

Turning now to the choice between the leaving service or continuing service approach to the value of a final salary pension scheme entitlement, I believe we first need to define our terms. I think there is no doubt about the leaving service value, but I note that Allan Martin indicates that one of the assumptions to be made in the continuing service value would be an allowance for withdrawal. I therefore wonder why the Note refers to the two approaches of such a continuing service reserve and a leaving service transfer value and that "getting to an appropriate figure in between and justifying it is the actuarial practitioner's problem". Assuming that the "correct" allowance for withdrawal could be made in the continuing service value, then surely this single figure would be appropriate.

Given the considerable importance of the withdrawal assumption, I would suggest an alternative approach of quoting both the leaving service value and the continuing service reserve, but the latter without any withdrawal allowance. One would then indicate the likely probability of the individual leaving or remaining in service, thereby arriving at an appropriate compromise in between. I would submit that the probability of withdrawal of a single individual is not an actuarial issue, but one to be decided by the parties involved.

A further issue concerns what account, if any, should be taken of events and experience since the date of separation, often up to 5 years prior to the date of divorce. I have grouped into four main categories the factors that can change: **Personal**, such as salary and whether or not the individual has left the employment, – **Scheme Rules**, changes to accrual rate, normal retirement age, escalation rate and so on – **Legislative**, GMP revaluation rate, 5% statutory early leaver revaluation, and possibly LPI in future – and lastly **Actuarial**, the interest, salary growth and other assumptions current at the date of separation may no longer be felt to be appropriate today.

I would first dismiss subsequent changes in actuarial assumptions, and also dismiss changes in scheme rules. However, I believe account should probably be taken of legislative changes where these are retrospective, as has occurred from 1 January this year in the case of 5% early leaver revaluation. I also believe that account should be taken of the individual's current known salary (rather than still using the assumptions current at the date of separation) and that we should also pay regard to whether or not he is still an active member of the pension scheme.

Many would, I know, contend that subsequent experience cannot be relevant, but if this is the case, then I ask why the question about still being a member of the scheme is included in the draft questionnaire referred to previously. I believe this indicates that an actuary would wish to take account of the certain knowledge that the employee may in fact have left the scheme, in which event it would presumably be logical to provide a value based on the actual leaving service transfer value, either discounted back to the date of separation, or accumulated to the date of divorce. However, I would emphasise that the marriage related part of the deferred benefit to be so valued should still be based on the scheme rules in force as at the date of separation.

Finally, I hope that the Actuarial profession can arrive at a universally accepted basis of calculation and, in particular, get away from the current adversarial approach seemingly so favoured by the legal profession.

I would now like to make some comments on the pensions paper.

I would begin by offering my own thanks to the authors for their commendably concise résumé of the mountains of pensions legislation that we have had to climb in recent years. I would like to concentrate my remarks on the interesting ideas put forward for Money Purchase schemes in the 1990s.

First of all, however, I would just take issue with the implication of 10.3.10 where it is suggested that "the other attraction of Money Purchase Schemes is that, if the contribution is set at a reasonable level, they are likely to represent better value than final salary schemes for many young mobile employees". I would suggest that Money Purchase will represent better value only if the contribution is set at an <u>un</u>reasonable level, in other words at a level considerably higher than the underlying accrual cost of an equivalent final salary pension. My own solution to this problem is to recommend a commensurate reduction in the employee contribution level to the <u>final</u> salary scheme, so that what the member pays represents a reasonable proportion of the accruing benefit entitlement value.

Turning now to Section 12, I heartily endorse the approach put forward in 12.1.4, namely to determine a final salary target level of benefit and then to derive banded money purchase contribution rates on an age increasing scale. The heartiness of my support stems from the fact that I have successfully adopted this approach for more than 14 years, from the time when SERPS was first mooted. Indeed, we have even coined our own acronym of AIMPlan, standing for Age-Increasing Money Purchase, with the AIM element indicating the underlying final salary target.

Like the authors, I have long sought a solution to the twin problems of market value volatility and fluctuating annuity rates at the time of retirement. While the authors' suggested solution is novel and interesting, I doubt whether any employer other than the very largest could contemplate such an approach individually. I would therefore make two alternative suggestions.

First, a simple one. Provided that one's faith in equity investment is sustainable, then the transition at the point of retirement can to some extent be overcome by investing in a *unit-linked* annuity whereby the pension is not a fixed monthly sum, but the encashment of a fixed number of units. I accept that this may not suit all pensioners, but those who are equity-orientated would appreciate the continuing equity exposure rather than having to switch to a gilt-based investment, possibly at a time when interest rates were relatively low.

To revert to the authors' proposed solution of a top-up fund providing twin guarantees to combat market value volatility and annuity rate fluctuations at retirement, I wonder whether it might not be possible for an insurance company to provide precisely such a vehicle. I suggest this on the assumption that unitised with profit is regarded as still too volatile. Employers would then have the choice between straightforward unit-linked accumulation and market-protected units. I suspect that this could be a viable proposition only if it was a two-way guarantee, namely that participants would have to accept a potential downward adjustment, and not only upwards, so that the insurer could benefit from some "swings" to balance his "roundabouts" if these were not covered by the guarantee loading.

Having had considerable experience of age increasing money purchase plans, including the delicate matter of switch from existing final salary schemes, I know my own advice tends to discount any form of hybrid arrangement and instead concentrates purely on money purchase or final salary, but never a mixture of both. As the authors state, a change to money purchase involves a transfer of financial responsibility from the employer to the employees, which should not be undertaken lightly. If it is regarded as a means of avoiding the LPI provisions, then it surely cannot really succeed. If an employer is unprepared to reduce his non-escalating sixtieths final salary accrual to eightieths with LPI, then he surely cannot persuade employees to accept a similarly reduced target within a Money Purchase scheme, with its lesser certainty of achieving the desired target. If employers really feel it necessary to go to the lengths indicated by the authors' to iron out the undoubted fluctuations of the Money Purchase approach, then perhaps this indicates that they would be better advised to remain with a flexibly designed final salary scheme.

Finally, I enjoyed the authors' radical suggestion at the end of the paper of scrapping SERPS and increasing the Basic Sate Pension by 50%. Given that much of the administrative complexity referred to is caused not so much by SERPS as by contracting-out of it, then I would suggest another equally radical solution of retaining SERPS but scrapping the option to contract-out.

R. E. Brimblecombe said:- Dealing first with Allan Martin's paper, as he is aware, we are looking at the paper in the Pensions Joint Committee next week so I do not wish to pre-empt anything we discuss there; the comments made tonight in the debate, particularly Mr Sloan's comments, will of course be helpful to the committee in deciding where we go. I hope that we will be able to come up with some advice to actuaries on this difficult issue and as Mr Martin said earlier give us pointers south of the Border when the question of pensions and divorce comes there.

I would like to turn to the paper by the Research Group and very much welcome it and congratulate them, firstly as it is a more than adequate tour D'horizon of the current pensions issues and also because there is a lot of factual information which is useful to those of us who spend all our time having to look at various sources of reference for such questions such as what the pension ages are in France. On contracting-out, some of you will know that the Government Actuary has produced his consultative document on the contracting-out rebate for the years 1993 to 1998. His predecessor predicted five years ago that the rate would come down to 4.8%; he has calculated a figure of 4.68% but at the expense of increasing the real rate of return assumed from 1½% to 2% (and that follows a 1 to 1½% increase five years ago). He has also calculated the effect of equalising GMPs following Barber and states that 4.86% reduced to 4.34% should GMPs be equated for men and women at 65 and increased to 5.77% if GMPs were equated at age 60. 5.77% coincidentally is within a hair's breadth of 5.8% which of course was the rebate for the current quinquennium ignoring the 2% incentive.

I would like to move on to the question of Barber. In 4.2.18 the authors state that if the second option i.e. equalising total pensions arising for those in service in May 1990, for those people retiring after that, the only solution is a pension age for men and women of 60. I would like to question that because I believe that it is much better for schemes to have a flexible retirement age for men between 60 and 65 provided they provide non-discounted pensions for those wishing to early retire at age 60. This has two advantages.

Firstly it reflects the employer's wishes in that perhaps that he does not want to see all of his work force go at 60. It also helps employees who have been looking forward to retiring at 65 – with a pension age of 60 they would be required to retire at 60. But more importantly it has in some cases a material affect on cost because the actuary can take into account the percentage of males likely to retire between 60 and 65. Particularly for schemes where there is relatively short service the experience that I have had shows that the number of people actually retiring at age 60 is relatively small even on a fully non-discounted pension.

It is interesting that the authors refer to the four options for what Barber means in relation to retrospection, option (ii) is on some estimates four times as expensive as option (i).I wonder whether or not industry in the U.K. would think that option (ii) or option (iii), which is equalisation for all pensions, not only for those in service in May 1990, was reasonable or affordable or even logical. Option (iii) of course which allows equalisation of pre-1990 service for those already left would be administratively an absolute nightmare. I am slightly surprised the authors did not make too much reference to the question of transfer values following the Barber judgement and the effect on the Social Security Act 1990. There has been some comment that people are being invited to leave their pension scheme and move into personal pensions without having taken full account of the effect on their transfer values of the Barber judgement and SSA90 in relation to LPI. I believe this is an issue but I believe it is an issue for the regulators and LAUTRO and FIMBRA have had their attention drawn to issue this.

I was interested in the authors' comments on annuities and the inevitability, in their view, of the move to unisex annuities – referred to in 4.3.3 and 4.3.4. I believe that such a move will only work if there is a complete ban on companies offering sex related annuities, not only in the United Kingdom but throughout the European Community and possibly further abroad. Particularly with the life assurance directive, individuals would be able to buy their annuities abroad if, for example, French or German companies still quoted sex-related rates and I wonder in any event how practical it is for there to be a ban on U.K. insurance companies offering unisex rates.

I would also like to comment on the points raised in 4.4.5 on options. We readily accept that commutation should be equal between the sexes – one could accept that because we would always re-write the scheme as 1/80th pensions and 3/80th lump sum. I would even agree to equalising early retirement and late retirement factors because most final salary schemes nowadays have non-actuarial increases or reductions anyway, but unless one has unisex rates for personal pensions I cannot see the equity of having unisex transfer values. Secondly I do not believe there should be unisex rates for widows' and widowers' options. Just to take one example, for a pension age of 60 a woman has to give up at the moment four times as much pension to provide an equivalent widower's pension than a man does for a widow's pension at the same age. If we moved to unisex rates it would mean that women in that circumstance would be four times worse off. I think that that would be inequitable because the female employees who exercise that option are usually the breadwinners and I think that that would be grossly unfair because they would be discouraged from exercising that option because it would be very bad value for money.

On personal pensions I think it is unlikely that we will have age related contributions at least for the next few years. I am surprised sometimes when insurance companies jump for joy when they think about age related rebates. Which insurance company, for example, wants to continue appropriate personal pensions for those at the youngest ages where the rebate may only be 1.9% of the relevant earnings. The actual cost of administering such schemes, would have I thought ruled them out of court.

In 5.6 the authors say that personal pensions will become more popular for the higher paid but I question their relevance in the case of younger employees. Nevertheless mobile highly paid executives will find themselves in their 50s better off taking out personal pensions when they can contribute between 30 and 35% of capped earnings to personal pensions which by and large should give them better benefits than final salary schemes for short service. Reference has already been made to simplification of the Inland Revenue Practice Notes. We often forget that the current Practice Notes introduced in the last few weeks were the result of the "simplification of the 1989 Finance Act." We were all told one reason why the cap was introduced was to enable simplification of the Inland Revenue rules. I leave you to judge whether that has happened or not!

In 9.4, I do believe the actuarial profession is protesting slightly too much on the question of LPI. It has to be borne in mind that prior to the introduction of SSA90 the proposed legislation required that the "debt on the employer" if the scheme wound up in deficiency had to include LPI I don't think any final salary scheme and any actuary advising that final salary scheme could have coped with that because of the contingent liability. It really is a question of timing, whatever we come up with in relation to actuarial advice I would certainly not be happy for there to be standard tables. Nevertheless the Pensions Joint Committee have taken on board the various comments that were made on EXD8 and we will be re-visiting that as and when the issue comes up again.

9.4.10 refers to the advantages of independent trustees. I am wondering whether those of you who have been involved in those cases realise the actual costs involved for the insolvencies practitioner to have an independent trustee. There was one case that was brought to my attention – an insured scheme where the value of the assets is £20,000 and the lawyer acting as the insolvency practitioner providing the independent trusteeship has notched up bills so far of £5,000 i.e. a quarter of the assets – and still counting.

A little bit about money purchase – many schemes of course have not had a money purchase underpin but employers have had nursery schemes which provides money purchase benefits for the younger lives with an encouragement to come into a final salary scheme perhaps in the mid to late 20s. I don't particularly want to enter the debate about money purchase versus final salary. I do think however that in some ways money purchase is slightly better these days because of the ability particularly on personal pensions and insured schemes to have switches within equity linked funds and for example between equity and money market funds or indeed to the unitised with profits. That does enable the individual to take prior action in relation to his retirement if he thinks the stock markets continue to be volatile. However, he does have to take into account of course that if he goes from final salary to money purchase he is giving up post-retirement increases. I am always slightly surprised therefore that there are not more insurance companies offering with profits annuities. Perhaps one of the answers to money purchase schemes is to get the Inland Revenue to be slightly more flexible about when individuals have to retire so that they would not have to take their pension on the day after a stock market crash but would be able to defer their pension for a reasonable period.

The authors are to be congratulated on their ingenious attempt at designing Money Purchase schemes for the 1990s – it is ingenious but I am not quite sure how simple it is. I am not quite sure whether the authors expect the disclosure information regulations to require what is set out in Appendix 6 or Appendix 7 in full! The serious point is that if you are not careful setting up this type of fund will really be seen as a final salary scheme by another name and I think there may well be moral pressure on individual employers to make up any difference.

Finally, a question, if the Labour Party gets back in at the next election and restore the link of the flat rate state pension (from prices to earnings) do you think they will increase the linking of the earnings cap from RPI to earnings?

C. W. F. Low said:- I would like to refer to just one sentence in the paper. It is in paragraph 12.3.1 where the sentence says "there is now a situation where it seems that GMP conditions conflict with equalisation requirements". While there are great doubts about the degree of retrospection of the Barber judgement, the one thing that is quite clear is that future accrual has to be equal for males and females. I therefore find it incredible that the U.K. Government has asked the Government Actuary to report on GMP provision in a way which is clearly illegal under European legislation. Mr Brimblecombe mentioned the terms which have been proposed GMP at 60 and at 65. It seems quite clear to me that there is no way that these can last for the proposed five year period. While there might be the side route that Mr Amy suggested, and I would thoroughly support going back to good old requisite benefits if we can get rid of GMPs, we must remember that any GMP terms which are agreed in 1993 are likely to be revised because of European legislation before 1998. The Government Actuary's presumption of the average accrual rate over the next five years is unlikely to be realised and we should look for a higher rebate as it will probably last for about two years at the most.

R. A. Scott said:- I would like to make some comments on Mr Martin's note on divorce. Firstly I would like to thank Mr Martin for providing an insight into the formulation of the Family Law of Scotland Act 1985 and the involvement of actuaries in valuing pension rights. What may not have been fully apparent from the note however is the lack of knowledge and understanding of the legal profession regarding pensions valuations. Indeed nothing is designed to produce more panic and confusion in a solicitor or sheriff than a few numbers.

This almost universal aversion to numerical calculations encouraged me firstly to write an article to the Scottish Law Journal and then to arrange seminars for leading solicitors' firms throughout central Scotland. These seminars were well received and without exception the solicitors present stated that they had little or no idea what was involved in a valuation even though many had acted for clients in divorce cases often with comprehensive actuarial reports which, unfortunately, went right over their heads. I feel therefore that guidance should be given on the valuation of pension rights on divorce both to actuaries and to solicitors, because at present there can be vast differences arising in the valuations of pension rights. Recently I had a case where I quoted a value of £5,000 and the other actuary quoted £24,000! This suggests that actuaries do not at present agree on the method or assumptions to be used, let alone the solicitors.

It is encouraging therefore to hear of the joint negotiations between the Faculty and Scottish Legal Aid. The input of the legal profession will be important in drafting any guidelines. When prominent press reports are already criticising our profession for the vast ranges in costs that have been quoted for the Barber judgement, our credibility could be further undermined if we allow similar differences to apply in divorce valuations, especially if they are a result of a misinterpretation of the legal aspects.

In summary therefore, and in response to Mr Martin's questions at the start I would say: Firstly, I strongly feel that a standard approach should be adopted. However, and possibly to generate some future fee income, the basis should still be left to the actuaries concerned. I do not advocate standard tables, since the variety in benefit structures would be such as either to require a plethora of standard tables, or to have a small number of tables covering every pension scheme in the country. I do feel that the Faculty and Institute should take a leading role in the discussion and am encouraged to hear that they are doing so.

Finally I think that perhaps another approach should be looked at and Mr Martin's comment on transfers to personal pensions or assignations of benefits should be actively looked at and indeed I recommended them in my article for the Scottish Law Journal.

The President said:- On the actuarial note on divorce, it may also be appropriate for me to say that I have already declared my hand, so to speak, on some aspects of this subject. In my opening address to the recent Institute and Faculty Pensions Conference at Harrogate I made comments on the following lines.

The big problem as I see it with the Family Law Act is that often the value of the pension rights is the major part of the property and where does the money come from to divide at the time of divorce when the pension is not commutable? The professional problem which I hope we will discuss more widely sometime at the Faculty Hall (and we are now doing so) is how to value the pension rights – incidentally it is good to see that the courts are assuming an actuary or actuaries should be involved.

I gather from conversations with some practitioners involved in giving advice in these cases that they tend to assess the benefit based on present service but assuming salary increases to NRD and include a withdrawal decrement.

I can't say I am convinced that this is the best approach. It may seem obvious and uses our actuarial techniques but in these days when withdrawal often means involuntary redundancy, and it could happen within weeks, it seems a bit unfair to me to assess a larger current value to the prospective recipient than the value of the present withdrawal transfer benefit. The poor member may find that his or her actual benefit is significantly less than has been assumed in the division of the family assets, and loses out significantly. Not only has he (or she) got to find money now from somewhere else, because the pension rights are not commutable, but the amount would be significantly too much.

Incidentally the Legal Aid authorities in Scotland do not see why there are not standard tables for the judge to apply rather than having to get an actuarial report every time.

I think our instinctive reaction to such a suggestion is that each case has to be considered individually so that this wouldn't be appropriate. Is it an instinctive professional reaction to protect one's mystique? Would it not be more professional in the area of providing a service to the community to acquiesce? – and make available some standard tables – complicated as they may be.

A further comment I might make is that I would have liked to see some comments on the point that the mátrimonial property that is being divided is that which arose during the period of the marriage. Is it obvious how one allows for the membership of an occupational scheme which already existed at the time of the marriage?

I don't think we are really wanting to concentrate our discussions on what might be the legal position on divorce (volumes currently seem to be being written on this) but what as actuaries should we be doing in the context of the present law.

Some of the points may not be actuarial at all in the sense that it is a legal question of what benefits should be taken into account. It is the actuaries' job to make sure that the decision is taken with the parties' full awareness of the possibilities and implications.

B. J. Duffin said:- I would like to add the following comments to the discussion concerning Pensions and Divorce. However, let me first add my appreciation of the paper prepared by Alan Martin and of the contribution he has made to the development of actuarial work in this area.

The preparation and use of actuarial tables to value pension benefits has been raised as a topic for discussion. I would welcome research in this area to establish suitable tables but in my experience the major part of the work involved in valuing benefits lies in collecting the appropriate information. This task could be passed to the legal profession but in practice I think there would be little saving in costs due to the need for pensions expertise to interpret scheme rules, scheme booklets and benefit statements. This point might be made clearer if I give some examples of the complications which may arise such as the treatment of early retirement options, the assessment of death-in-service benefits which may continue following withdrawal, the allowance for the calculation of the effect of commutation of pension benefits and death benefits in the period immediately following retirement.

The question has also arisen of the attention which should be paid to the individual tax circumstances of either spouse. Generally, I agree with the author that gross valuation is appropriate, not least because it is consistent with a transfer value calculation. However, this may be inappropriate for a pension scheme member close to retirement, for whom it would seem inappropriate to take no account of the tax about to be incurred on both capital and interest payments on subsequent pension.

Perhaps this merely emphasises the need for consideration of the particular aspects of each individual case.

I would also agree with the author that it would seem fair to allow a transfer from a spouse's occupational pension scheme into a personal pension for the other partner – which would also encourage the use of gross rates of interest in the valuation.

Finally, let me return to the subject of the treatment of withdrawals. The President has just drawn attention to the inequity which can occur if a continuing service approach is taken but the spouse is subsequently made redundant. However, it is fair to say that the converse may also be true. It would be difficult to explain to a spouse that the valuation of his or her partner's pension benefit must be reduced because of the likelihood that the partner will move to a more highly paid job at some stage in the future.

G. G. Bannerman said:- I have two points to make tonight – both are of the nature of questions to the profession rather than answers. One is on the divorce paper where we have concentrated on the pension *scheme* aspect but have ignored the question of National Insurance benefits. When a divorce takes place the wife is given credit for the period covered by the husband's contributions and as two single persons' pensions are greater than the pension for a married couple the total benefit goes up rather than down. I have taken this point into account in cases where I have been involved in the past but have not seen the idea referred to generally. Should we not consider this in all cases?

The other question is on the effect of EEC equality rules on pension schemes. The President referred in his Address to the problems of retrospective legislation but here the underlying law has been in force for some time and we are talking about retrospective interpretation. I have never been able to understand why "retrospection" in the Barber case should be either to 1990 or all service – on the assumption that it only applies to those in service on the critical date. Surely one of the prime dates for retrospection should be that of the Treaty of Rome. Before that date there were no equality rules other than those of individual countries. To include service before that date is retrospective *legislation*. After that date the law was in place but its effect was not understood or was ignored. If sex discrimination is deemed to be something that is unlawful now it was unlawful right from the start. It should have been enforced even then and retrospective backdating to the Treaty date, although expensive, does not have the same moral objections as retrospective legislation.

P. Hurcombe said:- I would just like to add a few comments to the discussion on divorce and first to reinforce the remark the President made that a number of points that are cropping up at present, I believe are very definitely legal rather than actuarial. Indeed the whole question for example of whether a continuing service valuation or leaving service valuation is the appropriate one is I think essentially a question for the courts. This is not to say that the law would not have benefited from perhaps more actuarial involvement at the outset, these sort of points could I think have been clarified in the original law, but given that we are where we are I think we must be very careful not to pre-empt the decisions of the courts in this area. Another area where I think actuarial involvement at the outset might have been useful is in what I regard as one of the absurdities of the current law, that the pension is valued at the date of separation based upon the member's age and presumably the financial conditions at that date and yet the settlement is actually made many years later in some cases. This is often compounded by a situation where the settlement is then deferred, perhaps until retirement, in both cases without any addition of interest.

On the topic of a standard approach I would certainly accept that there are many points in favour of this and I trust that the profession will be able to come to some agreement, I was rather disappointed perhaps that the paper did not go into more detail on this, it was touched on very briefly under the heading of "Taxation" but I think there are a number of wider issues for example whether one should be looking at the question of replacing the pension, valuing it from the viewpoint of the recipient, or as the cost to the pension scheme of providing this. I would hope that these matters would be more widely discussed before any guidance is given to the profession.

D. G. Ballantyne closing the discussion said:- When the editor of the transactions asked me if I would close the discussion I was a bit hesitant, apart from the usual reasons of sheer ignorance and so on, he said he wouldn't give me access to the paper and all he told me was first we shall discuss pensions and then we move on the divorce! I was a bit alarmed about the casual link between the two, but he assured me that a discussion on pensions didn't have that stressful outcome.

I will deal firstly with the paper from the members of the Faculty of Actuaries Pension Research Group. I think it is encouraging that the Faculty Research Group can engage in such an innovative analysis and produce such novel ideas in a field as well documented as pensions now is and I think the profession is indebted to them. Essentially there were two parts to the Research Group's paper, the first part covering about nine sections giving an analysis of the present position and the last three sections proposing a possible benefit design for the future. It is always useful to start from where we are, it is a good actuarial technique to analyse the past to better judge the future and furthermore it is not sensible to divorce sensible pension provision from the general social and economic environment that is applicable to the population. For example it would not be sensible to have separately funded pension arrangements in an economy that doesn't have a viable stock market or at least a large volume of tradeable assets. Likewise there would be no scope for occupational pensions if the pension population already enjoyed a high level of replacement income and that is the position in a number of other European member states as the paper explains, so the legislative background is important and in the U.K. we have a flat rate social security system that is very low by European standards and even if SERPS is included then the relative position doesn't improve very much. That is generally why the occupational pensions and personal pensions are very important in the U.K. context. Mr Botterill explained that that was really the rationale for contracting out starting in the first place, employers had these occupational pensions schemes in place on top of a fairly basic state system.

Section 2 of the paper went on to explain the system of contracting out in the U.K., how the U.K. is almost unique in having any contracting at all in the state system and in section 12.3 the authors give their suggestions for the future of abolishing SERPS combined with an increase in the flat rate increase by 50%. This didn't seem to receive a very warm welcome from most of the speakers. Mr Amy and Mr Tutt pointed out there wasn't any easy solution; if you abolish SERPS on its own you wouldn't solve the problems of the non-pension section of the population; and if you abolish SERPS and increase the flat rate benefits you force many employers to have a look at their schemes in order to avoid over provision and extra costs. Mr Brimblecombe referred to the GAD consultative note. In fact Mr Low thought it was possibly illegal I think, but I think it is interesting that the figures actually worked would be for common pension ages of 60 and common pension ages of 65. This obviously shows the way the wind is blowing. There wasn't as much reference in the discussion as I might have expected to the proposed discussion paper on the State social security system which has been promised for some time now. It seems quite a long time ago that the promise was made that the discussion paper would be out shortly. The paper from the Research Group did refer to it and I think the current betting is that the paper will probably come out the Friday before Christmas! It would be optimistic to expect any significant decision this side of the General Election. Nevertheless the fact that significant fundamental changes have to be made for equality reasons does give an opportunity to the Government whatever its complexion to achieve a radical simplification of the system. Mr Amy suggested perhaps abolishing the GMP test and having a requisite benefit test and Mr Sloan suggesting abolishing contracting out; both of these are possibilities and I certainly agree that even if SERPS is retained contracting out procedures could be radically simplified and we have to hope the Government seizes this opportunity to do so.

Section 3 of the paper described the pension scheme surplus regulations that were announced in the 1986 budget and section 9 discussed the implications of the Social Security Act 1990 on the surplus disclosed by the actuaries own funding basis and there was also discussion on the implications from the actuarial profession to the problems arising from the limited price indexation.

I thought there might have been more of a discussion on the surplus issues which have proved a bit of a contentious issue but there wasn't very much of that this evening, I think Mr Tutt and Mr Botterill agreed with my view that the perceived problems flowing from the Inland Revenue's definition of surplus which were widely promulgated at the time it was introduced have not proved very significant and I don't think that it is a real deterrent to the way defined benefit schemes have operated. The paper acknowledged, and a number of speakers agreed, that there were pressures of all sorts resulting in, or could result in, a weaker funding basis with pressures from the accounting practice and from the desire to avoid disputes over surplus ownership and of course a weaker funding basis could conceivably result in less security from the members, almost certainly a pressure on the defined benefit occupation schemes from that source.

The longest section of the paper was on equalisation dealing with equality of treatment in occupational pension schemes and also in personal pension schemes through the use of unisex annuity rates. Again there wasn't an awful lot of comment at the meeting which surprised me a little. Mr Brimblecombe mentioned that flexible retirement ages where one option rather than a fixed retirement age or a preferred option, the extra costs of option 2 as compared with option 1 as described in authors' papers, the problems arising from transfer values and unisex option factors. Mr Bannerman mentioned that he thought retrospection couldn't conceivably go back to before the date the U.K. entered the Treaty of Rome; I am not sure he is right in that respect. I think we should hope that the retrospective issue is resolved on the basis that there isn't any retrospection before the Barber judgement. If there is a significant amount of retrospection I think my view would be "it may be law but it certainly isn't justice". However it is clearly time now to adopt equal state pension ages and equal normal retirement ages in occupational pension schemes and hopefully the Government discussion paper on this issue will focus debate on an agreed way forward however the outcome is still very much uncertain but I agree with the paper and a number of speakers that it would be surprising if the Government failed to notice the trend to age 65 retirement. Mr Botterill and Mr Tutt both mentioned the advantages of an extension of the working lifetime and also the overall burden of pensions provision on the working population and that is arising not just from earlier normal retirement ages but also from all the enforced redundancies and a lot of employers have been using the surpluses in pension schemes to ease staff out of the workforce rather early, the overall pension burden falling on the working population is becoming significant for these reasons.

Moving on to the more innovative part of the paper on defined benefit versus defined contribution and the possible solution of a new type of money purchase arrangement; the attack on the defined benefit scheme has been well documented and I don't think we need to spend much more time reiterating what has been said already. The attack from the legislators, the administrative complexity, the loss of flexibility in design, burdens on employers through disclosure of information, and the attack from the equality lobby who seem to regard defined benefit occupational schemes as a bottomless pit as a source of money, and the European dimension – one of the communications from the Commission recently is proposing that transfer value should be calculated on the funding assumptions, there are indirect attacks from accountants and pension lawyers and of course we have got the employees and trade union side claiming entitlement to surplus as deferred pay. (That is not the defined benefit promise but the surplus in excess of the defined benefit promise that they claim as deferred pay). On the other end of the political spectrum we have got some right wing politicians and economists who see the defined benefit pension scheme as an extension of the nanny state – feather bedding for employees by giving them a defined benefit promise. Apparently uncertainty over our future benefit levels ensures higher productivity during a working lifetime!

Given all these attacks on the defined benefit system, the authors' view is that there would be a significant shift towards money purchase schemes and perhaps the surprising thing is why any employers, even large employers stick with the defined benefits system? My own view is that a properly structured defined benefit scheme is a superb vehicle for delivering a desired level of benefits to employees and their beneficiaries in a very cost effective way and of course as Mr Botterill pointed out the certainty of benefits can be a bit illusive and it is certainly not the ideal solution in all cases, in fact if there only had to be one system there would have to be a money purchase system in the U.K. context to cater for the self employed and the non-pensioned employees. Why should employers be prevented from exercising a choice of the defined benefit alternative if that is what they wish to do. Now is this scheme proposed by the authors an alternative money purchase option is that a viable one? There was a number of comments on that and the authors clearly recognise the main disadvantage in paragraph 10.3.11 of the money purchase scheme as the uncertainty over the eventual benefit level and on the basis of the stochastic investment model by the authors the variations seem quite enormous in some cases, the standard deviation of about 60% of the mean at the longer duration and a number of contributors pointed out that this level of variation would be a bit alarming to the employees.

Mr MacDonald's figures show that there was a very high probability of a 50% difference in successive years from this type of money purchase arrangement, so that a means of reducing the variability bought through a top up fund or whatever is certainly desirable. The difficulty is that the level of the top up fund may be too high and have an unfavourable impact on the overall level of benefits provided, there are of course other methods of alleviating the variation, Mr Brimblecombe suggested, and one or two others, that individual scheme members adjusted contributions and more into other investment vehicles as they approach retirement.

Not much comment on futures and options so presumably everyone agreed with the authors that this wasn't a way forward! I think Mr Auld in introducing the authors proposed top up contribution did indicate that they weren't necessarily putting it forward as a panacea for all the ailings but more as an innovative contribution to the debate and I think the product could be viewed as lying somewhere between a money purchase and a with profit deferred annuity. Mr Sloan and Mr MacDonald indicated that not many employers would be willing to enter into this type of insurance very lightly and Messrs Amy and Tutt indicated that it was perhaps a rather convoluted approach for an employer who really wants a defined benefit scheme anyway and that perhaps the more sensible thing to do is to press for a change in attitude in relation to the current complexity covering defined benefit arrangements. There is a bit of a marketing hurdle to overcome and we look forward I hope to some life offices developing this product and selling it to some employers in the future.

Turning now to the second part of the discussion on divorce or more accurately the inclusion of pension rights in a divorce settlement – this is an area where Scotland is leading the U.K. and Mr Brimblecombe mentioned that the Pensions Joint Committee would be looking into this in the U.K. context shortly. We should be gratified that the actuarial profession in Scotland has responded to the legislative change introduced by the 1985 Act and Mr Scott indicated that actuaries are now beginning to educate solicitors in the mysteries of numbers. This is not the only area where actuaries are involved in assessing the value of pension rights in court cases of course, personal injury, wrongful dismissal, unfair dismissal but divorce is perhaps rather unusual in being a dispute between two individuals rather than between an employee and employer or an individual and some monolithic body like an insurance company. There was considerable discussion about the method of valuing pensions rights in divorce and I think pension rights are a different type of asset from property or a car because they are not marketable or assignable and in a way just as a sitting tenant reduces the value of a property the significant uncertainties involved in evaluating an individual's pension rights I think ought to be taken into account in the assessment. Certainly the use of a low discount rate with allowance for tax as was acknowledged in the paper can produce values which seem very much out of line with the transfer value or the post service reserve value or any other value and there is a danger that these sort of values might be laughed out of court. There seems to be a general presumption in favour of some sort of standardised approach to calculating the value but perhaps not going so far as to have standardised tables although our President mentioned that the possible use of standardised tables as a means of helping the courts resolve these issues and standardised actuarial tables are certainly used elsewhere such as in assessing pension loss on unfair dismissal so it is not an impossibility. There is an intuitive simplicity of course of using the transfer value approach particularly in these sort of areas where as Mr Sloan indicated withdrawal is not really an actuarial issue and that could be said about a lot of the decrements in relation to an individual. It is one thing to work out an average value applying to a group of people it is quite different to work out a value specific to one individual.

Mr Martin's paper reflects the actuarial response to the legislative developments that are affecting society and the paper from the Pensions Research Group analyses the current state of play on the pensions front and proposes an interesting and innovative way of overcoming the present problems and I think all the authors have to be thanked for their efforts on behalf of the profession.

W. J. Robertson replied:- Tonight is about thirteen years to the day since I attended my first meeting of the Pensions Research Group. We haven't managed many papers in that time, in fact this is our first paper, but life has not exactly been quiet for us. To name just a few events we have had Contracting Out, Surplus Regulations, Personal Pensions, SSAP24, Changes to Revenue Limits, Social Security Act 1990, and EC cases such as Barber and Marshall. In reply to the discussion I would like to say that one of our prime purposes in writing the paper was to provide a forum for discussion of these various matters which have had such an impact on pensions over the last few years. We also wished to look at the fundamental problem of money purchase schemes, the volatility of returns and we hoped to open up the debate on the means of reducing this volatility. It has been mentioned by several contributors tonight that if money purchase is to be a long term alternative to final salary schemes and not just a useful sales and marketing idea then this problem has to be addressed.

I know I can speak for my co-authors in saying that it has been very satisfying to have had such a wide ranging discussion tonight. I will try to cover the various points raised by contributors but we shall as a group be replying in the Transactions when we have seen the transcript of the discussion.

Mr Botterill began by mentioning the drive for benefit design to reflect employers needs rather than reacting to events and I have to agree with him entirely there. He also identified various areas where we could have investigated matters further such as the impact of surplus regulations, the impact of equalisation on the design of pension schemes and the employer's attitude towards setting their objectives for pension schemes. One of the problems we had with this paper was that the more we covered the longer it got, we were beginning to get a bit worried about the number of trees that were going to have to come down, and there were a tremendous number of areas which we could have developed further. Legislation has forced employers to improve benefits and there is no reason to expect that this upward trend will stop, was a comment from Mr Botterill. I believe that there is a real concern that if the continual move upwards goes on, can employers actually afford to pay for these benefits? Mr Botterill also mentioned that the matter of benefit design did not take sufficient note of employees' attitudes. He covered the disclosure regulations and how they provided considerable input to employees now. I wonder how many employees actually understand the information they have or understand the benefits they have. I worked for several years in a large private sector final salary scheme and no matter how much information we put out most of the employees thought they were in a money purchase scheme. Mr Botterill also mentioned there was a problem for Money Purchase scheme where low returns coincided with difficult times, he mentioned the late 1970s. That undoubtedly is a significant area of concern and I think in developing the model we actually came across more problems than solutions. I think what we would like to see is a bit more work going into this area to try and answer some of these questions that he raised.

Mr Amy mentioned that the move to money purchase tended to occur among the smaller schemes rather than the larger employers. I think that is fundamentally true but I think there is also a tendency these days to set up nursery schemes amongst some larger employers. There is a slight movement towards money purchase even amongst the largest employers but the problem is significant for small companies and that is the area we need to address. I particularly liked his idea of limiting the upside for those who did well out of money purchase schemes which did provide some protection for the others who did less well and this could be achieved perhaps by something like reducing the basic level of contribution and increasing the amount in the top up fund. He mentioned the significant increase in costs involved in removing SERPS and increasing the basic State pension. Mr Ballantyne I think mentioned that our U.K. spending on basic State pension and SERPS was not high in European terms, and looking at this particular idea I think our influence was administrative simplicity and not political motivation but I cannot speak for my fellow authors! The other thing was that the real value of the bank state pension has been reducing significantly over the last ten years or so, so partly this would be redressing this situation.

Mr MacDonald moved on and gave some interesting figures showing the average and the worst figures, I think these were quite fundamental to the whole problem of money purchase. A 95% chance of a difference of more than 50% in successive years was mentioned and that is clearly a significant problem that has to be addressed as this gradual switch across to money purchase occurs. There will need to be a mechanism which would restrict an excessive build up in the top up fund was another point he made. An actuarial valuation on a continuing basis, perhaps every three years would allow the top up fund not to get to ridiculous levels.

Mr Tutt commented that another political party was considering an increase in the basic State pension of a little more than 50%, perhaps towards 100%. That was an interesting insight. He also advocated flexible pension ages and a gradual increase in pension age. That is something I would certainly have to agree with.

I think that is something we are seeing in other European countries and I believe that France is already investigating an increase in retirement ages because of concerns about cost. I am sure that the combination of an increased retirement age and flexibility will be the way forward in view of the long term democratic problems faced by most countries. He also mentioned that recent legislation has reduced the tax advantages for pension schemes. Surplus regulations and the introduction of the earnings cap were mentioned in particular. This also tied in with Mr Botterill who was concerned with the earnings cap. I am sure that eventually the earnings cap will have a considerable influence on design. After all as Mr Botterill stated it affects senior employees first, and they have the right incentive to address the problem. He also mentioned that most of recent legislation has been directed towards final salary schemes and this could lead to a switch across to money purchase – this is a point we agree with entirely. It is not a reasonable situation. We do not have the level playing field at the present time as far as legislation is concerned and we believe that this is the reason why there are so many people considering money purchase.

Mr Sloan mentioned that younger employees would only be better off where the contribution represented an unreasonable figure rather than a reasonable figure. I think that is correct but if you get into some kind of banded approach then for a highly mobile person he may still be better off unless the bands are a perfect match. He also suggested the possibility of a unit-linked annuity and as far as I am aware this is already available to a very limited extent but it doesn't reduce the risks to employees if they go into the unit-linked annuity and the market falls. With regard to the top up fund he suggested an insurance company might provide the guarantee under the top up fund – Mr Ballantyne also mentioned that. I noticed no response from the meeting to this. Obviously a few people were worried about their Appointed Actuary's attitudes to that kind of risk. Mr Brimblecombe suggested that instead of a fixed retirement age of 60 under option 2 there could be a higher age with flexible retirement on an unreduced basis. This seemed like a possibility from a pensions viewpoint. It seems to address what is required. I am not sure if there are areas of the employee benefit such as redundancy which it might not address – there may be other areas of complication on this issue. In 4.4.5 he didn't believe there should be unisex transfer values until there was a requirement for unisex annuities for personal pensions. I agree entirely with this and this illustrates the problem of a lack of a level playing field at the moment. He questioned how the cap could make personal pensions attractive to some senior employees. I am aware of several cases where companies have been concerned about the cap and that they have decided the solution is to actually offer senior employees 30/35% going into their own personal pension. Their lack of understanding of pension benefits has made them believe that that is a good deal! They have totally undervalued the real worth of the final salary scheme and that is a lesson in communication.

Mr Low referred to section 12.3.1 and stated that EC legislation clearly required equal accrual of benefits. I agree entirely with this comment. Mr Bannerman asked the question as to what was meant by retrospection. He suggested that rather than 1990 or all service it should be service since the Treaty of Rome. I think this is probably the case but pensions legislation these days seems to be a minefield in which one only treads with caution – I think I would consult at least one QC before I give him a definitive answer. Mr Ballantyne gave us an interesting insight into when we might receive the new Social Security paper, perhaps the week before Christmas! I am sure the precedent will also be followed of giving us until the week after New Year to respond. He also suggested the answer to the question why employers stuck with final salary schemes was that this was because they gave the best level of benefit known for employees, while I agreed there was also truth in Mr Botterill's comment that the benefit was perhaps illusory in view of the complications of some final calculations such as early leaver pensions.

I hope I have covered all the points that people have raised but we will look carefully through the transcript and make sure that if I have missed any we will cover them later.

A. C. Martin replying to his part of the discussion said:- At this late hour I do not intend to emulate the recent antics of Mr Gerald Ratner at a CBI Conference and mention details of a Complete Retirement Annuity Policy!

I will start with Mr Sloan's comments, and thank him for his reliable repartee. He firstly mentioned the life office surrender position. My comments regarding the use of life office surrender quotations were based on pragmatism. These are free; they are generally quickly available and for relatively small amounts of money they are generally sufficient. It is difficult to justify actuarial fees, (however reasonable the consultant's fees may be!) to look at a more exact figure. His second point on my reference within the withdrawal allowance section on the continuing service approach and leaving service transfer value and appropriate figures in between was in fact a loosely worded point for which I apologise. The wording in fact came from the decision of an Aberdeen Sheriff who looked at two extreme values, the certain retirement position and the leaving service transfer value, *he* looked for something in between. I agree entirely that the continuing service approach should automatically make allowance for withdrawals. Mr Sloan mentioned events after the relevant date and my understanding of the legislation here is that although the courts look to the arithmetic being completed at the relevant date they do take into account events after the relevant date in relation to the individual's ability to pay. It is therefore relevant I think to ascertain whether somebody still is in employment just in case you have to make reference to the withdrawal transfer value that has already accrued. He finally referred to the uniform basis i.e. a common approach by actuaries. I would say on behalf of actuarial practitioners and indeed a lot of solicitors that most like to avoid the courts. Pension values are not things that need go to the court. Court time involves significant additional expense (again irrespective of the modest consulting actuary's fees involved!). A point legal aid authorities may be interested in – most cases that do go to court are in fact sponsored by the legal aid authorities. In terms of standard approaches I think standard tables with exceptions may be a way forward. Exceptions for long service of 20 or 30 years maybe, ages perhaps over 50 or indeed values coming out at over £100,000 may be a reasonable way to proceed.

Mr Brimblecombe briefly mentioned the position and consideration south of the Border. There is of course very different legislation there as Mr Duffin referred to when he mentioned the valuation of spouse's reversionary entitlements on retirement. In England and Wales it is spouses' entitlements that tend to be valued (spouse's entitlements pre and post retirement) and generally only for those who are close to retirement. At the moment a significant element of the different legislation is that Gretna Green may figure twice in matrimonial proceedings – a lot more money may be available on action north of the Border.

My second apology of the night goes to Mr Scott, I did not mention his excellent article in the Law Society Journal in the paper, my excuse is simply that the paper was drafted before he wrote it. It was however mentioned in the Harrogate handout and I would refer anybody who wants to see arithmetic and indeed solicitors who want to see an excellent insight to the arithmetic to Mr Scott's article. I was somewhat surprised by his figures on extreme values, £5,000 and £24,000, I thought I had enough problems with senior police officers where the values ranged from £150,000 to £210,000! There can be more extreme values obviously. He did mention a standard approach and tables. These do exist elsewhere in the form of injury tables produced by the Government Actuaries Department. They give varying interest rates based on index linked gilts, I think 1½ to 5% are quoted. He did not feel tables were the complete solution, one of the points being the potential plethora of tables. The solution there may simply be to use the good services of a software provider that can actually allow buttons to be pressed to give you every possible choice. These are used elsewhere with transfer values.

Mr President you mentioned where the money comes from on settlement. Most generally it is from the proceeds of the matrimonial home or other liquid assets. Where there are no other assets, and there have been a few such cases, the tendency is, "its just tough you don't get anything of the pension!" A leaving service situation matter has been debated in court. The few cases in which it has been aired, where I have been involved, the sheriffs have normally taken the view that leaving service, and thereby crystalising a potentially lower transfer value, is one of the considerations of changing jobs and that should be viewed alongside higher salaries etc. Lower transfer values is however a consideration in the case of redundancy, although the number of compulsory redundancies are thankfully not 100% of the total. Redundancy after the relevant date has applied in one Court of Session case. It produced very serious considerations on the ability to pay. There was a £25,000 lump sum paid on redundancy, as well as enhanced pension benefits, so it was taken into account to a small extent.

Mr Duffin very clearly pointed out the difficulty of getting information, again an item the legal aid board may wish to note. If actuaries are not involved the solicitors may have the problem. A large number of employees do not know what their pension scheme is really all about. A lot don't know of the existence of a booklet and those that do know of the booklet haven't read it. Asking lay individuals about their pensionable salary is absolutely fraught with problems. There are great difficulties in the information gathering process and indeed this constitutes a very large part of the overall valuation process. Mr Duffin kindly mentioned the suggestion of transfer values being paid to personal pensions. He may have mentioned this because he kindly drafted my press release from the Harrogate conference! I would however give credit for that suggestion to Mr Scott who mentioned it first, probably at least a year ago. Mr Bannerman mentioned one question on the inclusion of National Insurance benefits – I think the point there is that State benefits do not constitute an occupational pension scheme entitlement which is what the legislation requires valued. Mr Hurcombe, raised a very serious point of whether the actuaries involved are really being actuaries or advocates. My experience is very much that expert witnesses are expected to give a value and there can be extreme difficulties with giving a range of values. I do however concede the point, it is very relevant. At the outset of the legislation, back in 1985 and indeed before, there was no actuarial input and hence a lot of the actuarial topics that we are now facing were not considered. In the true spirit of Scots Law, it was the "intention" or the "outline" that was put in the legislation, to keep it simple, with the details being thrashed out with case law. Finally on the tax point, there is very serious considerations to be given to spouses close to retirement. It is very difficult in practice to rely on the availability of PEPs, National Savings, or TESSAS for tax free investment. It is equally difficult to try and stand up in court and outline the taxation bases of immediate or deferred personal Purchased Life Annuities. Finally, Mr Ballantyne mentioned the use of standard tables. He however neglected a very crucial "vested interest" that he has in this point and that is quite simply if these tables were prepared I can think of no better organisation to do so than the Government Actuaries Department!

My thanks to all contributors.