PENSION PROBLEMS AND THEIR SOLUTION

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“...as a great profession we must expect—more, we must desire—a troubled life.”

JOHN GUNLAKE 1960.

1 Whichever way you look at it, pensions are a problem. The Policy Studies Institute\(^{(1)}\) has expressed concern at the increased burden of State pensions fifty years from now when the number of pensioners increases in relation to the number of contributors. The Institute for Fiscal Studies\(^{(2)}\) too is anxious for the same reason and makes the criticism that insufficient consideration was given to the long-term cost when the State scheme was extended in 1978 so as to provide an additional earnings-related pension. The report of the Scott Committee\(^{(3)}\) has reduced but not wholly eliminated controversy on the extra value of index-linked public service pensions compared with the pensions commonly provided in the private sector. Employers, on whom the financial burden finally rests, are hard pressed to finance the accrued pension rights of their employees in final salary pension schemes and are unable to make the additional contribution necessary to preserve the values of the pensions and deferred pensions of former employees. The Government, as employer, stands this on its head; it is committed to increasing pensions in payment and deferred pensions in line with the cost of living but does not make similar increases in salaries or pensionable salaries, so that public servants retiring find that their pensions are lower than the pensions of those who retired a few years earlier. Private sector pensioners fear the effect of continued inflation on the value of their pensions and contrast this with the security of an index-linked public sector pension. Public sector pensioners keep their fingers crossed and those not yet retired hope that the law will not now be changed, and the index-linking of pensions abolished, as they consider that they have paid for the extra benefit. These are only a selection of the views being expressed. If the pension scene has to be described in two words, those words would be alarm and discord.

The demographic problem

2 How did this situation arise and could it have been foreseen? Certainly some problems were foreseen when the Phillips Committee\(^{(4)}\) was appointed in 1953 with the terms of reference:

To review the economic and financial problems involved in providing for old age, having regard to the prospective increase in the number of the aged, and to make recommendations.

In order to illustrate what they meant by “the prospective increase in the
numbers of the aged” the Committee examined three population projections for Great Britain provided by the Government Actuary covering the period 1954–2029. In the central one of the three projections the long-term fertility assumption was 95% of replacement, with ‘higher’ and ‘lower’ projections assuming fertility 10% higher or lower than the ‘basic’ projection. Migration was taken as zero throughout.

3 The first 25 years are now past and the ‘basic’ projected population for the year 1979 may be compared with the official inter-censal estimates for that year. The projected populations for later years may be compared with the latest official projections covering the period 1979–2019 and extended to 2059 for purposes of the Government Actuary’s Quinquennial Review of the social security scheme. Comparative figures are shown in Table 1.

Table 1. Comparison of the Phillips Committee’s basic population projection for Great Britain with the latest official projection

<table>
<thead>
<tr>
<th>Mid-year</th>
<th>Phillips Committee</th>
<th></th>
<th>Mid-1979 official projection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total population</td>
<td>Proportion over pension age*</td>
<td>Proportion over pension age* (%)</td>
<td>Total population</td>
</tr>
<tr>
<td></td>
<td>(m)</td>
<td>(m) age* (m)</td>
<td>%</td>
<td>(m)</td>
</tr>
<tr>
<td>1954</td>
<td>49.63</td>
<td>6.89</td>
<td>13.9</td>
<td>54.41</td>
</tr>
<tr>
<td>1979</td>
<td>52.23</td>
<td>9.50</td>
<td>18.2</td>
<td>57.80</td>
</tr>
<tr>
<td>2004</td>
<td>51.83</td>
<td>9.33</td>
<td>18.0</td>
<td>61.41</td>
</tr>
<tr>
<td>2029</td>
<td>50.48</td>
<td>9.89</td>
<td>19.6</td>
<td>59.14</td>
</tr>
</tbody>
</table>

* Pension age 65 for men and 60 for women.

4 Of particular interest is the closeness of the ‘actual’ and projected numbers over pension age in 1979, 9.46 m compared with 9.50 m. The estimated numbers in 2004 are also very close; 9.35 m compared with 9.33 m. At younger ages, however, the Phillips Committee projection for 1979 has proved to be much too low. Births in the 25 years 1954–79 were in fact about 20.72 m compared with the Phillips estimate of 17.95 m and the difference of 2.77 m more than accounts for the difference of about 2.4 m between the ‘actual’ and projected numbers. (Migration and mortality differences will account for the remainder). After 1979 the two projections of total population diverge even further but it is not until the unforeseen extra births in the period 1954–79 reach pension age about 60 or 65 years later that the numbers over pension age begin to diverge. However, looking at the percentages over pension age, the new projections are lower than the Phillips projections both now and 25 years from now, but almost the same in the year 2029 although the new projected total number for all ages in 2029 is much bigger.

5 In other words, “the prospective increase in the numbers of the aged” foreseen by Phillips will almost certainly be less of a problem in the next 20 or 30 years than was feared because the population at the working ages has increased more than was expected. Looking further ahead, uncertainty concerning the
future level of fertility makes the prognosis rather speculative but, for what it is worth, the latest official projection gives much the same percentage over pension age in 2029 as in the Phillips 'basic' projection, neither higher nor lower. If there has been a significant change since the time of Phillips, it is probably to be found in the rather greater optimism concerning the prospects for mortality improvement in future, and pessimism concerning the level of fertility. If the mortality optimists and the fertility pessimists are both right, the percentage of the population over pension age will be considerably higher than 19.8% in the year 2029. Moreover, if present economic difficulties persist and result in the pension age for men being reduced from 65 to 60 (as has been suggested) then that too would increase the percentage over pension age.

The basic State pension

6 The Phillips Committee did not confine its attention to the increase in the number over pension age. It pointed out that although that number was estimated to increase by 38%, from 6.9 m to 9.5 m in 25 years, the proportion entitled to a State retirement pension also increased very considerably so that the number of pensioners increased by 77%, from 4.3 m to 7.6 m. But that was not all; they pointed out that increments earned for deferment of retirement resulted in an increase in the average pension in payment so that pensions expenditure would double between 1954 and 1979.

7 How does that estimate compare with what has actually happened? There has been very much less deferment of retirement than was supposed and increments thus contribute only a fraction of the extra cost anticipated in 1979. However, the other side of that coin is that a much larger proportion of men now aged 65–69 and women aged 60–64 are retired and receiving pensions, so that the change to earlier retirement is unlikely to have reduced the cost; it may indeed have increased it but only detailed calculations would show which.

8 In 1954 the State retirement pension for a single person was 32s.6d (or £1.625) a week, i.e. about 16% of the average weekly wage of £10.22 for adult male manual workers in October of that year. By October 1979 the average wage had risen to £96.94 a week and the retirement pension was increased from £19.50 to £23.30 a week in November 1979, i.e. from 20% to 24% of the average wage in October. Phillips' estimates anticipated that the contribution required to meet the cost of State pensions would have to double in 25 years. It can be seen that, in terms of earnings, the required increase has been more like 2½ or 3 times, depending upon whether you look at the pre or post-November 1979 pension rate. In fact, an increase in the numbers at the working ages compared with the 1954 'basic' projection, and an increase in the proportion of married women employed (their employers pay a full contribution although most married women choose to pay a much reduced rate), has moderated the strain. Nevertheless, it may safely be concluded that the level of contribution required to meet the cost of the basic State pension is significantly higher than was foreseen in 1954.
Pension Problems and Their Solution

The introduction of earnings-related pensions and contributions

9 Long before 25 years had passed and long before the flat-rate of contribution had doubled it had reached an unacceptable level for lower paid workers and some alternative had to be found. The answer was to increase the amount of contribution for the better paid, i.e. the introduction of earnings-related contributions. This could hardly be regarded as a revolutionary step because as a nation we are well used to tax, if not social security contributions, being related to earnings and indeed being levied at a higher percentage rate on higher earnings, which was not being proposed for the social security contribution. However, it was decided that, in fairness, those paying a higher cash contribution should in return receive, when they came to retire, a higher pension.

10 The extension of the State scheme proposed in 1959, giving entitlement to graduated pensions in future in return for the extra contributions which were required in any case to cover the current cost of flat-rate pensions, meant that instead of facing up to the growing cost of State pensions an even greater cost would have to be met in the longer term. This stimulated the Institute and the Faculty jointly(6) to issue in 1959 "An Appeal to Statesmanship" on National Pensions. It was pointed out that:

The need to meet immediately the cost of any increase in the existing flat-rate benefits has hitherto imposed some restraint upon the obligations which have been put on future generations.

... a similar restraint is lacking in the proposals for graduated benefit since promises of increases can be given without incurring any immediate cost.

Future generations must—and will—determine the acceptability of the ultimate cost: we should hesitate to commit them to a greater cost than they may be prepared to accept.

11 It was recognized that such an extension of the State scheme would overlap with occupational pension schemes and provision was therefore made for employees who were members of pension schemes which satisfied certain conditions to be excused from participating in the new arrangements for graduated contributions and pensions which come into force in 1961.

12 The main reason for extending the scheme in this way was generally considered to be in order to increase contributions to meet the mounting cost of flat-rate pensions rather than a wish to provide graduated pensions for the next generation of pensioners. However, as time passed, more attention came to be paid to the needs of pensioners and in January 1969, with nearly 30% of State pensioners requiring additional means-tested benefits to supplement their contributory benefits, the then Government published its Proposals for Earnings-Related Social Security(7)—the Crossman Plan—aimed at providing earnings-related pensions for all (or almost all; as with all such schemes in U.K., the self-employed were excluded). This plan was abandoned with the change of Government so it is scarcely worth describing the proposals in detail but it may be useful to quote verbatim the 'Basic Objectives'. These were stated to be:

(1) Rights to benefit must be earned by the payment of contributions.
(2) Benefits and contributions must be related to the contributors' earnings.
(3) Benefits must normally be sufficient to live on without other means.
(4) Benefits must take into account changes both in price levels and in general living standards.
(5) Women will contribute on the same basis as men and earn similar benefits.
(6) The scheme will be run on the 'pay-as-you-go' principle.
(7) The State scheme will work in partnership with occupational pension schemes.
(8) People changing their employment will be legally entitled to have their occupational pension rights preserved.

13 The new Government presented its Strategy for Pensions\(^8\) in September 1971—the Joseph plan—with somewhat similar objectives in mind. These were to be:

(1) To clarify the essential differences between State and occupational provision and to establish conditions in which each can develop in the way best suited to future obligations and opportunities.
(2) To provide through the State scheme a firm foundation of basic benefits paid as of right in return for contributions, with additional benefits for special groups so that priority needs are met by priority action.
(3) To safeguard the living standards of pensioners and other beneficiaries in the State scheme by a system of regular increases in benefit rates which will, as a minimum, maintain their purchasing power.
(4) To establish the finances of the State scheme on a sound basis by providing an equitable and buoyant source of contribution income without the need to put up contribution rates every time benefits are increased.
(5) To simplify the collection and recording of contributions in the State scheme, taking full advantage of labour-saving techniques.
(6) To give every employee the opportunity to build, on the foundation of the State scheme, an earnings-related pension for himself or his widow through an occupational pension scheme or, failing that, a State reserve scheme.
(7) To ensure that a change of job does not mean the loss of occupational pension rights.
(8) To set up an Occupational Pensions Board for the effective and flexible administration of the new provisions affecting occupational schemes.

14 Again there was a change of Government but it was clear by now that both main political parties had the same general objectives in view and the Castle plan for 'Better Pensions' was published in September 1974 and became law in the Social Security Pensions Act 1975. The main features of the scheme are a basic flat-rate pension which represents approximately 21% of the average earnings of an adult male manual worker plus an additional pension (after 20 years' contributions) of 25% of a band of earnings above the level of the flat-rate pension but with a ceiling seven times the pension i.e. about 1\(\frac{1}{2}\) times average earnings. When the scheme is mature, therefore, an individual's total State
pension will range from 100% of earnings for those on minimum earnings to about 35% at the ceiling. On average earnings the total pension will be about
\[ 21 + (0.79 \times 25) = 41\% , \]
or rather more if one makes the reasonable assumption that selection of the best 20 years gives a pension above the average.

15 The report by the Government Actuary on the financial provisions of the
1975 Pensions Bill\(^{(10)}\) showed the standard rate of contribution (employee and employer combined and for short-term benefits as well as pensions) starting at 13% of earnings in the first year, rising to 16½% after 30 years, to about 18¾% after 40 years and still rising. Although figures for later years were not given in that report as "any estimates so far into the future must be very speculative", in a paper later submitted to the International Congress of Actuaries\(^{(11)}\) in Switzerland in 1980 by Mr G. G. Newton of the Government Actuary's Department a further increase of 2½% was shown in the subsequent ten years, by which time the new scheme—and, assuming replacement fertility, the future population—would just about have reached a steady state.

16 However, the Bill provided for members of pension schemes which met an approved standard to be contracted out of part of the new arrangements for additional earnings-related pensions. Contracted-out employees and their employers were allowed a reduction of contributions on the same band of earnings as that relevant to the calculation of the additional pension and in return the contracted-out pension scheme would in due course provide a guaranteed minimum amount of pension towards the full additional pension promised by the State. The number who would, in the event, be contracted out was unknown so estimates were made on alternative assumptions. With 8 m contracted out the standard contribution rate in the first year would have been about 15½% instead of 13%, in order to make up the loss of income from the 7% contribution reductions on earnings above the lower limit for those contracted out. In the very long term the loss of income from contribution reductions falls (as the percentage reduction falls gradually from 7% to begin with to about 3½% ultimately). Contracted-out schemes would then be paying guaranteed minimum pensions only a little more each year than the amount of the contribution reductions, so that the standard contribution rate would ultimately be much the same whatever the number contracted out. As the Government Actuary's report put it:

Over the years the saving in benefit expenditure [on account of guaranteed minimum pensions paid by contracted-out schemes] will gradually build up and may ultimately exceed the loss of contribution income. In this way the effect of contracting out is to require a higher initial rate of contribution but to moderate the increases which will be needed later and will thus tend to equalize contribution rates over the years.

17 In other words, instead of the standard contribution rate increasing steeply from 13% to about 21¼%, with 8 m contracted out the figures would be a 15½% and (21¼% -- M(8))% where M is the ultimate saving in the contribution rate from the contracting-out arrangements. The value of M(9) was given in G. G. Newton's Congress paper as -2. In the event, over 10 m employees were
contracted out and, on the 1975 basis of calculation, the run up would thus be from about 16% to 21%.

18 In very broad terms, what has happened may therefore be described as follows:

(i) In 1954 the cost of State pensions was expected to double by 1979 and to increase a bit further in the succeeding 50 years as the proportion of the population over pension age increased from 18.2% to 19.6% (see Table 1).

(ii) In fact, in relative terms the cost had more than doubled by 1979 because the increase in the pension rate had been steeper than the increase in average earnings (see § 8).

(iii) The increased cost in 1979 was being met to a significant extent by contributions which gave entitlement to even larger pensions later on, so the cost in the next 50 years is now expected to increase very considerably and not just by an amount sufficient only to meet the demographic changes.

(iv) The standard contribution rate (which covers the cost of short-term benefits as well as pensions) would have increased from about 13% to 21½% to meet the increasing cost of pensions. However, by paying in effect an actuarial contribution for part of the benefits (under the contracting-out arrangements) the estimated increase was from about 16% to 21%, i.e. an increase of 5% instead of 8½% over the next 50 years.

(v) The ultimate saving in cost from having, in effect, funded part of the State pension in advance, is likely to be relatively small and even that saving is contingent upon the assumptions underlying the estimates being borne out by events. In particular, if the annual rate of earnings increase turns out to be higher than the rate assumed in calculating the contracting-out contribution reduction from time to time, the relief to the State scheme from guaranteed minimum pensions may even be smaller than the amount of the contribution reductions and $M$ would then be negative.

(vi) As any saving in cost from the contracting-out arrangements is not likely to be significant, justification for those arrangements must be in the advantage seen for the economy of keeping up the flow of investment through occupational pension schemes and perhaps also in the effect which an enhanced State scheme contribution in the early years has in inhibiting the promise of even more generous State pensions in future.

19 The standard contribution rate of 16% rising to 21% (from 9% to 17½% for those contracted out) was not on its own sufficient to meet the whole cost of benefits. In addition a Treasury supplement of 18% of gross contributions, i.e. before subtracting the reductions for those contracted out, was required.

Revised estimates of the cost of State benefits

20 The Government Actuary's quinquennial review of the long-term finances of the National Insurance Fund under Section 137 of the Social Security Act 1975 (HC 451) was published in July 1982. There have been a number of changes
in the scheme since the Pensions Bill was presented in 1975 but the prospect remains generally the same—a significant increase in cost in the next 50 or 60 years as the new earnings-related pension scheme matures and the ratio of the number above, to the number below, pension age in the population increases.

21 Estimates on a variety of assumptions are presented in the Government Actuary's report. For purposes of this paper only those on basis (a) (iii) will be considered. (It is not predicted by the Government Actuary that this is what will in fact happen.) The principal assumptions are the following:

(a) The total population of Great Britain becomes stationary at about 60 m, with about 3 persons of working age (of whom only 2 will be contributing) per pensioner.
(b) Flat-rate benefits are linked to the general level of earnings but earnings-related additional pensions decline in value at about 2% a year from the time of award. (Essentially this means an increase in real earnings over prices of 2% a year.)
(c) 6% unemployment.
(d) Ultimately about 11 m employed contributors contracted out with rebates calculated on similar bases to those applicable in the first ten years 1978–88, so that the Fund benefits very little from the contracting-out arrangements.
(e) The proportions of men and women economically active at different ages remain much the same as at present, in particular the State pension age for men remains 65.

22 The main differences between those assumptions and the basis of the 1975 estimates referred to above are in (b) and (c) where, in 1975, the Government Actuary, on Government instructions, adopted 3% p.a. (approx.) real earnings increase and 2½% unemployment.

23 On the new basis (a)(iii) the standard contribution rate is estimated by the Government Actuary to increase from 15·3% in 1985–86 (9·05% for those contracted out) to 21·8% ultimately (18·25% for those contracted out). The Treasury supplement is 13% of gross contributions.

24 If contributions, contribution reductions and Treasury supplements are expressed in terms of the standard rate of contribution for the year (15·3% or 21·8%) the total income of the Fund appears as follows:

<table>
<thead>
<tr>
<th></th>
<th>1985–86</th>
<th>Ultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross contributions</td>
<td>15·3</td>
<td>21·8</td>
</tr>
<tr>
<td>Contribution reductions</td>
<td>2·5</td>
<td>1·4</td>
</tr>
<tr>
<td></td>
<td>12·8</td>
<td>20·4</td>
</tr>
<tr>
<td>Treasury supplements</td>
<td>2·0</td>
<td>2·8</td>
</tr>
<tr>
<td></td>
<td>14·8</td>
<td>23·2</td>
</tr>
</tbody>
</table>
25 If expenditure is expressed in similar terms, the result is:

<table>
<thead>
<tr>
<th></th>
<th>1985-86</th>
<th>Ultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat-rate and graduated</td>
<td>12·1</td>
<td>13·7</td>
</tr>
<tr>
<td>pensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnings related pensions</td>
<td>.4</td>
<td>8·7</td>
</tr>
<tr>
<td>(gross)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guaranteed minimum pensions</td>
<td>-.1</td>
<td>-1·6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other benefits and</td>
<td>12·4</td>
<td>20·8</td>
</tr>
<tr>
<td>administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2·4</td>
<td>2·4</td>
</tr>
<tr>
<td></td>
<td>14·8</td>
<td>23·2</td>
</tr>
<tr>
<td>N.B. Pensions include widows'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pensions and invalidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pensions payable before</td>
<td></td>
<td></td>
</tr>
<tr>
<td>retirement age.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26 National Insurance contribution rates are not levied on all wages and salaries. Those with earnings below the lower limit are not required to contribute and those with earnings higher than the upper limit do not pay contributions on the excess. Moreover, there are a number of categories which do not contribute at the standard rate. Nevertheless, as a first approximation we may take earnings on which National Insurance contributions are levied as nine-tenths of all wages and salaries, so that the total expenditure on State pensions is estimated to increase from 11·2% (12·4 x .9) to 18·7% (20·8 x .9) of total wages and salaries, or from 11·2% to 20·2% (22·4 x .9) if guaranteed minimum pensions (GMPs) payable by contracted-out pension schemes are included.

27 The reader is reminded of the dependence of those ultimate percentages on the bases adopted for their calculation. If the population were to decline in future because of continuing low fertility, if pensioners lived longer because of significantly reduced mortality and if the upper tier of pensions kept pace with the general level of earnings instead of falling away at a rate of 2% per annum as in basis (a)(iii), then the ultimate percentages would be higher.

State and occupational pensions combined

28 The Government Actuary's 1979 Survey of Occupational Pension Schemes\(^{(12)}\) gave £9·0 billion as the total contributions to occupational pension schemes in that year, including about £2·0 billion for unfunded schemes in the public sector. This represented about 9% of total U.K. wages and salaries (£100 billion) but effectively it included the contribution reductions from the State scheme in respect of guaranteed minimum pensions for those contracted out. In 1979 those contribution reductions amounted to about £2·6 billion, or about 2\(\frac{1}{2}\)% of total wages and salaries, so that the contributions to pension schemes which did not represent the reassurance of part of the State pension was about 6\(\frac{1}{2}\)%.

Contribution reductions in 1985–86 are estimated above to be about (2·5 x .9) or
298

Pension Problems and Their Solution

2½% of total wages and salaries. A fall from 2½% to 2¼% is consistent with the cut in the reduction from 7% to 6¼% of relevant earnings from April 1983.

29 Unless there is a radical change in the number of occupational pension schemes or in the pensions they provide there is no reason to suppose that ultimately the total contributions to funded schemes will not remain at about 7% of wages and salaries although the 2% cost of unfunded schemes might increase to 3% as those schemes mature. The ultimate total cost of State pension payments and occupational pension scheme contributions combined, would thus be about 28½% of total wages and salaries (18·7+10) compared with 20½% (11·2+9) in 1985–86.

30 On the other hand, the 7% of total wages and salaries for funded schemes is currently insufficient to secure adequate benefits for early leavers and to preserve the value of pensions in payment in the majority of schemes. If those shortcomings were to be overcome without compensating cut-backs in other aspects of the schemes, the ultimate total cost would be even higher than 28½%.

31 In arriving at the total cost, it will be noted that for funded schemes this has been taken as the amount of the contributions. This is undoubtedly the cost so far as the employer and employee are concerned but from the point of view of the national economy a better figure might be the expenditure on benefits. In 1979 expenditure represented about 3¼% of total wages and salaries compared with contributions of 7%. Ultimately expenditure will be the same as the combined income from contributions and investments. In the case of the latter it is, of course, the real rate of return on investments compared with the annual increase in the general level of earnings which counts, not the actual cash yield, and if in the long term the yield were to be 1% or 1½% the total cost of pensions could be one-third or one-half as much again as the contribution income, depending upon whether 1% or 1½% were to be realized (see Appendix). If, therefore, the cost of funded pensions were to be taken as the expenditure on benefits, say at 10% instead of 7% of total wages and salaries, then the total cost of State and occupational pensions combined would be increased from 28½% to 31½%.

32 Summarizing, the cost of State and occupational pensions combined, expressed as a percentage of total wages and salaries and derived in the approximate manner described in the foregoing paragraphs, amounts to about:

<table>
<thead>
<tr>
<th></th>
<th>1985–86 (%)</th>
<th>Ultimately (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State pensions: flat</td>
<td>10·9</td>
<td>12·3</td>
</tr>
<tr>
<td>earnings-related</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(excluding GMPs)</td>
<td>.3</td>
<td>6·4</td>
</tr>
<tr>
<td>Occupational pensions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unfunded</td>
<td>2·0</td>
<td>3·0</td>
</tr>
<tr>
<td>funded</td>
<td>(say) 3·5</td>
<td>10·0</td>
</tr>
<tr>
<td></td>
<td>16·7</td>
<td>31·7</td>
</tr>
</tbody>
</table>

The cost of occupational pensions

33 The target pension for a typical occupational pension scheme is more than
half as big again as the 40–45% of average earnings of the State scheme. The coverage of occupational schemes is of course usually trimmed so as to avoid duplication with the State scheme but few if any have contribution rates applicable to whatever band of earnings is relevant half as big again as the ultimate cost of State pensions of 22.4% before deducting GMPs (see § 25). This is, of course, largely because they charge a discounted actuarial contribution whereas the State contribution is pay-as-you-go and does not benefit from discounting.

34 A few years ago there was a transitional stage for pension funds in which, although interest rates were increasing, inflation was persisting and actuaries showed a proper sense of caution and generally stuck to a valuation rate of interest of 3%, or perhaps 4%, regarding this as a rate net of inflation. But with rates of interest and rates of inflation in double figures it became necessary to be explicit about both, particularly because under the rules of the typical occupational pension scheme—the final salary scheme—the liabilities for the accrued pension rights of those still at work increased automatically with rising earnings whereas the liabilities in respect of those who had left were generally frozen in cash terms by reference to what the final salary had actually been.

35 The rate of interest net of inflation thus applied only to the period before retirement on pension, or before changing job with a ‘frozen’ deferred pension where the rules of the scheme provided for such a benefit. This net rate referred to the difference between the yield on investments and the annual increase in the general level of earnings (earnings increases with promotion would be allowed for separately in the salary scale adopted) and is not to be confused with the “real rate of return on investments” which is an expression in general use for the difference between the yield on investments and the annual increase in the cost of living, the latter determined by reference to the index of retail prices. For example when the Scott Committee gave a range of figures recently in reference to the estimated cost of inflation-proofed pensions in the civil service, the upper end of the range was based on a real rate of return on investments of zero. Implicit in that calculation was a net rate of minus 1½% in the period up to retirement, and an actuarial contribution higher than the pay-as-you-go contribution would have been. The pay-as-you-go basis for the civil service contribution on Scott’s formula would have been zero up to retirement and plus 1½% thereafter.

36 It is only in the public sector that pensions in payment are index-linked to the cost of living and the “real rate of return on investments” is applicable to calculations for the post-retirement period. For that purpose, the net rate used is thought to be in the region of 3%. It would not generally be considered prudent today to assume a net interest rate higher than 1% or at most 1½% for the period up to retirement. Public sector pension schemes being funded on the basis of say 1% net before retirement and 3% net after retirement have had to charge a considerably higher rate of contribution than previously when the interest rate used might have been 3% both before and after retirement. In the private sector, on the other hand, a reduction from 3% to 1% net before retirement and perhaps
an increase from 3% to 7% net after retirement (because pensions in payment are not guaranteed in the rules to be inflation-proofed) might leave the contribution rate unaltered. The consequence would be that a private sector scheme which had not increased its contribution rate would not be able to match the pension increases being awarded in the public sector but would be able to apply for that purpose only such profits as it might make from earning more than 7% interest on its investments. If at the same time it earned less than 1% net in comparison with earnings, then (as actually happened in some years) that strain would be a first charge on investment income surplus under the rules of the scheme (which is presumed to be a typical final salary scheme) in which case investment income would have to be considerably higher than 7% before there would be a surplus from which those on pension could benefit.

37 It is a convenient rule of thumb that a change of 1% in the net interest rate for the period before retirement has much the same financial effect on the actuarial contribution as a change of 2% in the net interest rate for the period after retirement. Interpolating in the table of contribution rates for a typical pension fund published in Mr C. D. Daykin's paper(13) to the Students' Society in February 1976 gives the following contribution rates:

<table>
<thead>
<tr>
<th>Net interest rate before retirement (%)</th>
<th>Net interest rate after retirement (%)</th>
<th>Contribution rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>14½</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>

To change from a 3%/3% basis to 1%/7% basis makes little alteration to the contribution rate but to change to a 1%/3% basis, which would be necessary if it was hoped to finance pension increases in line with the cost of living, would require a very considerable increase in the contribution rate—at a time when industry is experiencing severe financial strain.

38 The cost of occupational pensions is considerable. In those parts of the private sector operating on a 1%/7% basis the contribution rate might be 14% of reckonable earnings and yet the pension would be unsatisfactory because it loses purchasing power rapidly with current inflation rates. Funded pension schemes in the public sector, and private sector schemes which have increased their contribution rates, might be paying 19% of reckonable earnings and thus be able to maintain the purchasing power of pensions in payment. Unfunded schemes which happened to be mature might have a pay-as-you-go contribution rate about 24% of reckonable earnings (on a 0%/2% basis, say) although most schemes are presumably well short of being mature and will for the present have considerably lower pay-as-you-go costs.

39. It must be borne in mind that for convenience the above comparisons consider only the new entrant contribution rates. In many schemes additional contributions are being paid to offset past deficiencies or would have to be paid if scheme provisions were improved in the future.
The ultimate total amount of pension funds

40 It has been shown above how large the actuarial contribution becomes when the net rate of interest used is very small. The amount of the liabilities is similarly increased and, when mature, the total assets of funded pension schemes become large. In the case of an individual scheme the fund might be several times larger than the company’s annual wages bill. For a nation as a whole, if the funded element in the overall pension arrangements is large, there may be difficulty in finding sufficient investments.

41 This matter was considered by Dr K. H. Wolff (Austria) in a paper to the International Congress of Actuaries in Switzerland in 1980 in which he indicated that, for a country with pension age 60 for both sexes and pensions amounting to four-fifths of final salary with post-award increases linked to the general level of earnings, the contribution rate on a 3½% / 3½% net interest basis would be about 12½% and the total funds, should funding be attempted, would be about 6½ times total wages and salaries which was considerably more than the investments available in Austria. On a zero/zero net interest basis, the contribution rate would be 34½% and the total funds about 10 times total wages and salaries. In the latter case, the interest income received would be applied entirely towards maintaining the value of the fund in real terms and the actuarial contribution would thus be the same as the pay-as-you-go contribution.

42 It may be deduced that Dr Wolff’s model would give a contribution rate of about 22% on a 1% / 3% basis and total funds amounting to about 7:2 times payroll (see Appendix). However, that was for a pension of four-fifths of final salary at age 60 for men and women. If we translate this to Daykin’s model for a typical U.K. scheme with a contribution rate of 19% on a 1% / 3% interest basis, the total funds would be about 6:2 times payroll, or £620 billion in 1979 terms on a national scale. In fact, as shown in § 28 above, contributions to occupational pension schemes in U.K. in 1979 amounted to about 9% of total wages and salaries. Excluding unfunded public sector schemes reduces the figure to about 7% of total wages and salaries. If those contributions were to be applied by pension funds towards providing only pensions with full preservation on transfer of employment (as is presupposed in Dr Wolff’s model) and funded on a 1% / 3% basis, then the total funds in the U.K. would ultimately be about £(620 × 7 ÷ 19) billion, or about £230 billion in terms of 1979 earnings levels.

43 The Government Actuary’s estimate for the Wilson Committee showed the total assets of pension funds increasing from over £40 billion in 1978 to about £150 billion in the year 2000 in terms of 1978 prices. As a difference of 1½% per annum between earnings and prices was assumed this would represent a little over 100% of total wages and salaries in the year 2000, when schemes would still be far from mature. Whether the ultimate amount would exceed twice total wages and salaries, as Dr Wolff’s model would imply, or not, would depend upon what part of the contribution income of pension funds going to make up the present 7% continued in future to be applied to benefits other than non-forfeitable and non-commutable pensions.
44 Whatever the answer, there will clearly be a growing demand in the next 40 years for assets suitable to match the liabilities of occupational pension funds as at present constituted. If it were sought to increase the funded element in pension provision in U.K., the demand would be even more substantial. The conclusion to be drawn is that there is little scope for keeping down the cost of State pensions in the long term by increasing the proportion funded. If we must be resigned to only a small positive real rate of return on investments in future, any expansion of the present scope of funding arrangements would be likely to produce a greater demand for investments of the types at present in pension fund portfolios than could be met.

45 In 1979 the total value of investments listed in the London Stock Exchange was £328 billion, of which about three-fifths were overseas investments. These are large figures but the London market would still not find it easy to meet the needs of pension fund investment managers in future on the scale indicated as well as satisfy all its other customers.

Overprovision

46 In §§ 28 to 33 above it is deduced that the cost of State and occupational pensions together seems likely to increase from about 20¼% of total wages and salaries at the present time to perhaps 28¾% ultimately if contributions are taken as the cost for funded schemes and from 16²/₃% to 31¾% if expenditure on benefits is taken as the cost. The ultimate figures could be considerably larger if instead of becoming stationary the total population of the U.K. declines, because fertility remains below replacement level and as a consequence the number of school leavers is insufficient to maintain the size of the workforce and (it is assumed) the shortfall is not made up by immigration.

47 One thing should be made quite clear. The future increase in expenditure on pensions (as distinct from the level of contributions) has nothing whatever to do with inflation. On the contrary, if it were not for inflation the ultimate expenditure on pensions from funded final salary pension schemes would be greater than the 10% included in the 31¾% overall cost, because the pensions paid to those in retirement and the deferred pensions promised to early leavers would not be so seriously eroded in comparison with the level of earnings as they are at present. Without inflation, we might be considering an ultimate cost in the region of 34% or 35% instead of 31¾% although the figure of 28¾% could be unchanged if without inflation the real rate of return on investments were to be increased sufficiently for the 7% actuarial contributions to remain adequate.

48 Does this represent a greater allocation of resources to the retired members of the population than will ultimately be feasible? Will the increase from the present 16²/₃% or 20½% be more palatable in the long term because the massive investment implicit in the growth of occupational pension funds will increase the GNP to an extent that will make possible in the future what would seem impossible today? I confess that I do not know the answer to this question. Intuitively one feels that setting money aside today in a pension fund and
applying the balance towards productive investment enhances the prospect of the pension promised ultimately being paid but on a national scale will future generations of workers accept the increase in capital's share of the GNP and the reduction in labour's share?

49 So much for macro-economics. Do the present arrangements represent overprovision for individuals? If we consider a man on average earnings who is not a member of an occupational pension scheme, his total State pension is likely to be close to 45% of national average earnings at the time of retirement, inflation-proofed in later years (see § 14). If he is married, which is likely, and his wife never worked full-time since leaving school, which is unlikely, she will receive a pension of about 12 1/4% of average earnings while he is alive to be replaced by the whole 45% pension when he dies.

50 If the wife in this case worked full time on exactly three-quarters of average earnings for 25 years and had home responsibilities for the remainder, her pension would be about \(21 + \frac{1}{4}(75 - 21) = 34\frac{1}{4}\%\) of national average earnings or 46% of her average earnings. On her husband's death she could also inherit her husband's earnings-related pension, giving a total additional component of 37 1/2% of national average earnings but this is limited by law to \(\frac{1}{4} \times (1.50 - .21) = 32\%\) of average earnings so that her total pension as a widow would be 53% of national average earnings or 71% of her average earnings during the 25 years when she was at work and contributing.

51 Who is to say what level of pension would be proper or excessive in this case? The joint income would fall to 57 1/2% of pre-retirement income in the first case and then to 45% when the marriage terminated on the death of one of the partners. Where the wife had worked, the joint income would fall from 175% to 79 1/2% of average earnings and then to 53% of average earnings after the first death, i.e. to 45 1/2% of the joint income before retirement and then to 36%.

52 If the earnings in this case had been three-quarters of average earnings for the man and half the average where the wife worked then the joint pension in the first case would be about 63% of his earnings, or perhaps 65% allowing for the selection of the best 20 years' earnings, falling to 48% on the first death. In the second case, the joint income would fall from 125% to \((34\frac{1}{4} + 28\frac{1}{4}) = 62\frac{1}{4}\%\) of average earnings on retirement and then to 41 1/4% on the first death, i.e. to 50% of the joint income before retirement and then to 33 1/2% on the first death, equivalent to 81 3/4% of the wife's average earnings during the 25 years when she was at work.

53 Compared with the final salary occupational pension scheme's usual target of a pension of two-thirds (or its equivalent in pension and lump sum) there is no obvious overprovision by the State scheme although it has been suggested that the provision for a married woman is too generous in relation to her own contribution to the scheme. If there is overprovision it arises either because the occupational pension scheme's usual target of two-thirds is itself excessive, or where two-thirds is exceeded because the occupational scheme is not integrated, or not fully integrated, with the State scheme.

54 If in the first case mentioned above the married man was a member of an
occupational pension scheme which was fully integrated with the State scheme and no loss of rights had been suffered on changing jobs, the joint pension would be $67 + 12\frac{1}{2} = 79\frac{1}{2}\%$ of pre-retirement income. Where the wife worked for 25 years with earnings three-quarters of the national average her State pension would be $28 + 18 = 46\%$ of her earnings. If she were also a member of an occupational pension scheme her additional entitlement in that scheme might be $25/60$ths reduced by $25/44$ths of $46\%$, or $15\frac{1}{2}\%$, so that the total pension would be $61\frac{1}{2}\%$ of her earnings. Husband and wife together would receive $64\frac{1}{2}\%$ of joint pre-retirement earnings.

55 Where the husband's earnings were three-quarters of the national average the joint pension would be $83\frac{1}{2}\%$ of his earnings where the wife did not work. Where the wife worked for 25 years on half average earnings her total pension would be $42 + 14\frac{1}{2} = 56\frac{1}{2}\%$ of her earnings. If she were a member of an occupational pension scheme her entitlement in that scheme might be about $9\frac{1}{2}\%$, making a total of $66\%$ of her earnings. Husband and wife together would receive $66\frac{1}{2}\%$ of joint pre-retirement earnings.

56 In both cases the total pension where the wife has worked is in the region of two-thirds of joint earnings, although it can still be pointed out that the married woman's pension is earned after only 25 years at work. After she becomes a widow, inheritance from her husband's occupational pension and from his State earnings-related pension brings her pension to significantly more than two-thirds of her earnings. The implications of this are that the considerable increase in future in the married woman's independent entitlement to pensions related to her own contributions (or contribution excusals while she has home responsibilities) means that the need to regard her as a dependant of her husband is no longer nearly so apparent as it once was and that treating her as both may produce overprovision in widowhood.

57 Earnings at or below the national average have been considered above. With earnings at, say, double the national average, the total State pension would be $21 + \frac{1}{4}(1.50 - .21) = 53\%$ of the national average, or $26\frac{1}{2}\%$ of actual earnings. For a married couple with the wife not working the total pension would be $32\frac{3}{4}\%$ of the husband's pre-retirement earnings.

58 If entitled to an occupational pension of $67\%$ of actual earnings, the total pension would be $67 + 6\frac{1}{2} = 73\frac{1}{2}\%$ of earnings. If the wife also worked at double national average earnings for 25 years her occupational pension might be $25/60$ths ($41\frac{1}{2}\%$) of her earnings reduced by $25/44$ths of $26\frac{1}{2}\%$ (15%), so that the total pension would be $26\frac{1}{2}\%$ from the State plus $26\frac{1}{2}\%$ from the occupational scheme, 53% in all. Husband and wife together would receive 60% of the joint pre-retirement income, which does not appear excessive although again the widow's total pension would be significantly higher than two-thirds of her earnings when at work.

59 A number of occupational pension schemes providing a pension of two-thirds of final salary are not modified to take account of the flat-rate State pension. Assuming that the State scheme upper tier is covered by the
occupational scheme provision, the total pension for 40 years service at different earnings levels represents the following percentages of earnings:

<table>
<thead>
<tr>
<th>Earnings as a percentage of national average</th>
<th>Occupational scheme (%)</th>
<th>State (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>67</td>
<td>42</td>
<td>109</td>
</tr>
<tr>
<td>75</td>
<td>67</td>
<td>28</td>
<td>95</td>
</tr>
<tr>
<td>100</td>
<td>67</td>
<td>21</td>
<td>88</td>
</tr>
<tr>
<td>150</td>
<td>67</td>
<td>14</td>
<td>81</td>
</tr>
<tr>
<td>200</td>
<td>67</td>
<td>10½</td>
<td>77½</td>
</tr>
<tr>
<td>300</td>
<td>67</td>
<td>7</td>
<td>74</td>
</tr>
</tbody>
</table>

60 If the occupational pension is 50% of earnings, the totals will be smaller than shown, but as a lump sum is also likely to be paid in such schemes it is fair to regard the pension as 67% of earnings. It is apparent that for those on sub-average earnings the total pension may reasonably be regarded as excessive in comparison with pre-retirement income, having regard to the expenses associated with going out to work which cease or are much reduced on retirement. For those with high earnings the State pension becomes less significant in relation to earnings but in view of the high tax rates applicable to top earnings the net income reduction on retirement may not be great and overprovision may be present there also.

61 It is difficult to be dogmatic about overprovision. Those with earnings significantly below the national average would feel more acutely any reduction in their standard of living at retirement than those with very high earnings who, with reduced outgoings on tax, etc, would still be able to live in comfort with even a substantial reduction. On the other hand, a situation in which the major part of the workforce aimed to be able to maintain an unreduced standard of living in retirement would be difficult to justify in principle and would almost certainly be unattainable in practice in view of the very large transfer of resources which would be necessary.

Unequal provision

62 The second category of problem described in the opening paragraph of this paper is that of unequal provision. In principle there is no good reason why there should not be unequal provision. For example, one self-employed person may choose to set aside a larger proportion of current earnings than another and will as a result have a higher income in retirement. Similarly there is no reason to object if the employees in one firm negotiate a different split of their total pay package between take-home pay and deferred pay (i.e. pension provision) than in some other firm. There may be problems in assessing the value of the pension promised in terms of current pay when there is not an actual contribution to a real fund but I do not propose in the present paper to reopen that argument. The problem is that the unequal provision was unintentional, and thus appears unfair, although it cannot have been unforeseen since the time, some years ago
now, when inflation was no longer at a low rate and no longer regarded as a
temporary feature.

63 The inequality exists largely, but not wholly, between public and private
sector final salary pension schemes and can be attributed to the fact that in the
former the rules were changed so as to provide for inflation-proofed pensions and
in the latter they were not. This leaves the private sector pensioner in the
uncertain position of not knowing what the value of the pension will be in future.
In this respect private sector pension schemes are not performing their intended
function of providing security and peace of mind in old age. They are not meeting
the objectives of the main political parties (see §§12 and 13) that pensions should
maintain their purchasing power and that a change of job should not mean a loss
of pension rights. It may be argued, of course, that while these are proper
objectives for a State scheme they are not appropriate for an occupational
pension scheme. I can see some force in that argument but the present
uncertainty is not a satisfactory alternative, especially when compared with the
secure expectations of public sector pensioners.

64 How did this inequality arise? It was not intentional. Final salary pension
schemes in both public and private sectors aimed to provide a standard of living
in retirement related to (if rather lower than) that immediately before retirement.
The inequality has arisen because of the different reactions to the effect of
inflation on pensions defined in terms of final salary.

65 In pay-as-you-go unfunded public service pension schemes the cost of
pensions falls as a percentage of payroll if pensions are not uprated in line with
earnings. If pensions are uprated in line with prices and that is a smaller increase
than the increase in earnings then expenditure on inflation-proofed pensions still
represents a smaller percentage of payroll than when there was no inflation.
Inflation-proofing is thus relatively painless for such schemes, in the sense that
the advent of inflation is likely to reduce the pension contribution even when
pensions are uprated in line with prices.

66 Funded schemes did not find it so painless, though, because although in-
terest rates had risen with inflation the real rate of return on investments over earnings
movements fell—to a negative figure in some years—so that actuarial bases had
to be strengthened and, if advance provision had been made for pension increases
as well, contribution rates would have had to be increased significantly. For such
provision to be made, the rules would have had to be changed. By doing nothing,
the valuation basis for the period after retirement age would be significantly
weakened and a contribution increase perhaps avoided. In public sector funded
schemes, however, a commitment to benefit upratings in line with prices has been
accepted and such schemes have, as a result, required significantly higher
contribution rates than private sector schemes which have not followed suit.

67 The reason for the inequality in treatment of early leavers in the public and
private sectors is not so clear cut. It may originate in the greater extent to which
pension rights are treated as deferred pay in pay negotiations in the public sector
and a significant loss of rights on changing job would seem inappropriate,
particularly when moving from one part of the public sector to another. In the private sector, on the other hand, pensions may be seen more as a reward for service, paid for largely by the employer who, particularly at a time of financial stringency, would have no incentive to change the scheme’s rules in order to enhance at his expense the provision for those who may leave, or who have already left his employment. It remains to be seen how employers react to recent exhortations from the Government and the Occupational Pensions Board to improve the provisions in their scheme rules.

68 The disparity between public and private sector will be much reduced in future as the new State scheme matures. For example, for a man on average earnings the State scheme will ensure an inflation-proofed pension of something like 45% of earnings, with full preservation on changing jobs, even for contracted-out schemes. It will only be on the excess of the pension above 45% that any difference can arise. It will not, however, become easier over the years for employers to find the money to provide full preservation and inflation-proofing of the excess. We have already seen that employers’ National Insurance contributions are going to have to increase considerably in the long term.

69 It has been said that one reason for the reluctance of schemes to promise inflation-proofed pensions has been the absence of a suitable form of investment to match such a liability. The argument is understandable but loses some of its force when one realizes that the same schemes have, by promising pensions related to final salary, been promising inflation-proofing—and more—up to the time of retirement.

70 The issue of index-linked Government stocks with both interest payments (2 or 2½%) and the nominal amount linked to the index of retail prices is a new factor. As yet the amount of such stock issued is not sufficient to have a major impact on pension fund portfolios of assets but the terms on which pension funds and other investors have been willing to purchase the new stocks is a pointer to the future. The real rate of return has varied but has generally been a little lower than 3%. If further issues are made, with a range of redemption dates, this would appear to provide a suitable form of investment to match the liabilities under inflation-proofed pensions, always assuming that employers are able and willing to meet the cost of funding on a 3% net interest basis. I suspect that in the majority of cases it has been the cost rather than the absence of suitable investments which has been the obstacle.

71 If funding on a 3% net interest basis for the period after retirement would require too great an increase in contributions, the possibility of specifying pension upratings 1 or 2% below the rate of inflation, with funding rates of 4 or 5%, would moderate the cost considerably. This would be an improvement so far as the pensioner is concerned and although it would not eliminate the disparity between the private and public sectors it would remove much of the uncertainty concerning the difference in value of the respective pension rights. In my view, however, it would be a far from satisfactory solution. It is one thing to fail to preserve the value of a pension because of circumstances beyond one’s control
but for the rules to prescribe failure does not seem to me to be an adequate aim for occupational pension schemes. If there is no other alternative it would be better to reduce the pension fraction in the rules and provide for full indexing.

72 Removal of the inequality need not, of course, take the form of bringing the private sector up to the standard of the public sector; the change could be made by reducing the public sector provision but that would achieve only equal dissatisfaction if it meant no more than abolishing index-linking for the public sector since it is generally conceded that the insecurity in the present arrangements in the private sector is unsatisfactory.

73 It is difficult to see a satisfactory solution within the present system of final salary pension schemes other than full inflation-proofing, albeit with a reduced pension fraction. A more radical alternative, however, would be to define the retirement benefit in some other way. For example, the target could be a lump sum of 6 years' pensionable salary of which three-quarters would have to be applied to purchase a pension with whatever scale of increments the pensioner preferred. Such a system would have the advantage that the advance provision would be sufficient to purchase something resembling an inflation-proofed pension. If the pensioner's financial circumstances led him to choose a fixed pension instead of an increasing one, so be it. He would have a basic provision fully inflation-proofed from the State underpinning his total income in retirement and he would no longer be in the uncertain position of not knowing what pension increases his erstwhile employer would be willing, or able, to finance. It defeats the object of pension funding if part of the benefit is contingent upon the employer's remaining in business.

74 An even more radical alternative would be to return to something like the old F.S.S.U. scheme under which the joint contribution (then 15% of pay) was applied as an insurance premium on a policy in the member's name. Such a system removes all problems for the early leaver; the value of the pension in terms of current pay deferred is clear and indisputable; as the final tranche of pension above the State provision it would not matter what scale of increments the member chose; and the employer's financial obligation would extend no further than paying whatever was his share of the insurance premium.

75 The consequences of adopting either of those radical alternatives in order to achieve equality would mean that public service pensions would become funded from the time of retirement in the case of § 73 and from the time the contributions were paid in the case of § 74. If it was considered that this would create too great a demand for investments (even more than is suggested in §§ 40 to 45) one solution would be to cut back on the State scheme's advance funding i.e. to abolish contracting out. In any case, such radical changes in occupational pension schemes would inevitably call into question the complicated partnership agreement which has been in operation since 1978, with contracted-out schemes guaranteeing an earnings-related pension paid at a flat rate from the time it is awarded, with the State providing inflation-proofing, and with unending controversy concerning the separate values of the two elements.
Conclusion and summary

76 This paper was not an attempt to produce a detailed prescription for change which would solve all our pension problems. Nothing nearly so ambitious. The problems are more intractable than that and if the solution had managed to elude all the experts in the pensions field it seemed unlikely that it would reveal itself to me. Nevertheless, I did feel that I might try to make some positive contribution to the debate from a viewpoint a little different from that of most other members of the profession. I have since heard that both the Institute and Faculty have set up working groups who will bring a great deal more knowledge and experience to bear on the subject than I have been able to. I hope that what I have written—or, more likely, the discussion which it might elicit—will help those groups in their studies.

77 The main problem has been caused by inflation. If we think that inflation will go away soon, then we need do nothing. On the other hand, the prudent course would be to assume that inflation is here to stay and to plan our pension schemes accordingly. If (as seems unlikely to me) inflation does disappear, then that will be a bonus.

78 The reduction in the real rate of return from investment which has accompanied inflation has made the funding of pensions more costly. Either the contributions have been increased or the end product—the pension—has disappointed, or even dismayed, the pensioner, as in the private sector where the pension is generally allowed to fall in value after it is awarded.

79 The first requirement would seem to be to get the rules right for future service pension rights. Final salary schemes as at present constituted ought in my view to prescribe in their rules for inflation-proofing so that the contributions paid during working lifetime would provide for it, even if that meant reducing the pension fraction so as to limit the cost to what employee and employer decided could be afforded. It is not satisfactory to provide in the rules for a pension which loses value every year at an unknown rate except to the extent that the employer is willing and able to pay for increases.

80 Alternatively, funded and unfunded occupational schemes might equally define the retirement benefit as a multiple of final salary and all pensioners would then receive whatever the proceeds would buy. Another possibility would be to abandon pension funds operated and financed in the last resort by employers and to credit each year’s contributions to the individual member. In both cases, the financial provision would be made during working lifetime, which should be axiomatic for funded pension schemes.

81 Under the individual contribution credit system early leavers would be protected automatically. In other systems, the scheme rules would have to be changed. Earnings and prices indices are readily available for the purpose and ought, in my view, to be used, although I would have no rooted objection to the benefit fraction being rather smaller for the early leaver than for the stayer, on the principle that part of the employer’s contribution would be regarded as the employee’s as of right and the remainder as a reward for long service.
Once it was decided what changes were to be made for future service benefits it would be necessary to consider past service. Conversion of the accrued rights to an individual contribution credit is unlikely to be feasible. For those already retired, conversion to a smaller pension fully inflation-proofed would perhaps be feasible; any improvement in total value would however, have to look to the employer for the necessary finance—no doubt after discussion with his present workforce who would probably prefer to see their own benefits improved if there was extra money available. For those still at work, it would be possible for the employee and employer to make future contributions towards improving past-service rights.

The need is to provide explicitly in pension fund rules for a satisfactory benefit so that the necessary assets will be accumulated during working life. The intractable problem is that the funds of most pension schemes are not adequate to provide inflation-proofed pensions in respect of past service and there is no obvious source for the extra money which would be required to put that right.

The thought has been growing that, as a nation, we have set our sights too high in holding out the hope of providing pensions of two-thirds of final salary for all, fully inflation-proofed, and that the difficulties already being faced by funded schemes are an early manifestation of further difficulties to come. According to the crude estimates described in the paper it is presently promised by the partnership of State and occupational pension schemes that total expenditure on pensions will come to represent some 30–35% of total wages and salaries in 50 years’ time—and it could be even greater—compared with about 17% today.

A final word. It must be stressed that any opinions expressed in this paper are my own and should not be attributed either to my colleagues in Government service or to my employer.
REFERENCES


APPENDIX

1 In a paper submitted to the 21st International Congress of actuaries in Switzerland in 1980 Dr K. H. Wolff (Austria) gave some estimates of the capital needs of funded pension schemes. For a population in which all persons contributed from age 20 and then retired at age 60 on a pension of 80% of final earnings the contribution rate was put at 12.2% of earnings and the total funds, in the ultimate situation, at 6.4 times total annual earnings, assuming a rate of interest of 3½% per annum. With zero interest the contribution rate would be 34.8%. In both cases it was assumed that, if the general level of earnings was increasing, pensions too would increase at the same rate from the time of award.

2 These results can be reproduced fairly closely with a simple model which ignores mortality and assumes that pensions are paid for 17 years exactly. Thus:

(i) With zero interest:
   Contribution rate = \( \cdot 8 \times 17/40 = 34\% \)

(ii) With 3½% interest:
   \[
   \text{Contribution rate} = \frac{8a_{17}/s_{40}}{17/40} = 12\%
   \]
   \[
   \text{Total funds} = \frac{12 \times (s_{40} - 40)}{\delta} + 8 \times (17 - a_{17})/\delta
   \]
   \[
   = 160 + 96
   \]
   \[
   = 256, \text{ or 6.4 times total annual earnings.}
   \]

3 The same model may be used to give a broad indication of the contribution income, investment income, pensions expenditure and total funds in the ultimate situation on different assumptions concerning the real rate of return on investments over earnings increases \((I-E)\) and over the annual increase in pensions once they have been awarded \((I-P)\). The table below gives the following results on the bases indicated:

<table>
<thead>
<tr>
<th>(I-E) (as defined)</th>
<th>(I-P) (as defined)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(TE) = Total earnings = 40 on all bases</td>
<td></td>
</tr>
<tr>
<td>(TP) = Total pensions = (8 \times a_{17}) where (i = E-P)</td>
<td></td>
</tr>
<tr>
<td>(PGC) = Pay-as-you-go contribution rate = (TP/TE)</td>
<td></td>
</tr>
<tr>
<td>(AC) = Actuarial contribution rate = (8 \times a_{17}/s_{40}) where (a_{17}) is based on (i = I-P) and (s_{40}) on (i = I-E)</td>
<td></td>
</tr>
<tr>
<td>(TC) = Total contributions = 40 ((AC))</td>
<td></td>
</tr>
<tr>
<td>(II) = Investment income = (TP - TC)</td>
<td></td>
</tr>
<tr>
<td>(TF) = Total funds = (II/\delta) where (i = I-E)</td>
<td></td>
</tr>
<tr>
<td>(TF(A)) = Value of accrued rights of active staff</td>
<td></td>
</tr>
<tr>
<td>(TF(P)) = Value of pensions already awarded</td>
<td></td>
</tr>
</tbody>
</table>

4 \(TF(A)\) is calculated as \((AC) (s_{40} - 40)/\delta\) where \(i = I-E\)

\(TF(P)\) is calculated as \(8 \int_0^{17} v' \cdot a_{17} \cdot dt\) where \(i = E-P\) (or more accurately \((1 + I-P)/(1 + I-E) - 1\) is used for \(v'\) and \(i = I-P\) for \(a_{17}\)).
The integral reduces to:

$$\frac{\bar{a}_{1\|} (E-P) - \bar{a}_{1\|} (I-P)}{\delta (I-P) - \delta (E-P)}$$

5 As the main purpose of these calculations is to indicate by how much the cost of pensions is increased when the concept is changed from 'contributions paid' to 'pensions paid' (see §31 of the paper) the final row of figures in the table gives $H$ as a percentage of $TC$.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>.035</th>
<th>0</th>
<th>.01</th>
<th>.01</th>
<th>.015</th>
<th>.02</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I-E$</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>$I-P$</td>
<td>.340</td>
<td>.340</td>
<td>.289</td>
<td>.289</td>
<td>.217</td>
<td>.289</td>
<td></td>
</tr>
<tr>
<td>$TE$</td>
<td>.340</td>
<td>.120</td>
<td>.289</td>
<td>.218</td>
<td>.164</td>
<td>.188</td>
<td></td>
</tr>
<tr>
<td>$TP$</td>
<td>13.60</td>
<td>4.79</td>
<td>11.55</td>
<td>8.70</td>
<td>6.58</td>
<td>7.53</td>
<td></td>
</tr>
<tr>
<td>$PGC$</td>
<td>13.60</td>
<td>11.55</td>
<td>8.70</td>
<td>6.58</td>
<td>7.53</td>
<td>6.75</td>
<td></td>
</tr>
<tr>
<td>$AC$</td>
<td>13.60</td>
<td>4.79</td>
<td>11.55</td>
<td>8.70</td>
<td>6.58</td>
<td>7.53</td>
<td></td>
</tr>
<tr>
<td>$TF$</td>
<td>288</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>$TF(A)$</td>
<td>272</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td></td>
</tr>
<tr>
<td>$TF(P)$</td>
<td>272</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td>151</td>
<td></td>
</tr>
<tr>
<td>$%$</td>
<td>0</td>
<td>184</td>
<td>184</td>
<td>184</td>
<td>184</td>
<td>184</td>
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</tr>
</tbody>
</table>

6 The most interesting feature revealed in this presentation is the prime importance of $I-E$ rather than the conventional “real rate of return on investments”, $I-P$. Arithmetically, there is no difference between the situation in which $E=P$ but pensions are prescribed to fall in value at 2% per annum, and in which $E-P=.02$ and the fall in value is only in relation to the level of earnings. In either case $PGC$ would be .289 and if $I-P$ were .02 the actuarial contribution $AC$ would also be .289. With $I-P=.03$, $AC$ would be only .218 and the extra $(.289-.218) \times 40 = 2.84$ (approx.) required to balance expenditure would come from 1% of the total funds, not 1% of $TF(A)$ plus 3% of $TF(P)$ as might have been thought at first sight.

7 However, although the two results are the same arithmetically they occur in different economic situations, one where the economy is static and the other in which there is a 2% per annum increase in real earnings, and their significance in economic terms may therefore be different.
Mrs G. D. Kaye (opening the discussion): Many of the current pension problems are due to the low level of understanding persisting among the lay public. No rational changes can be made in the social security system or in the structure of occupational pension schemes whilst the public does not understand how the benefits are to be paid for and by whom. There is much educational work for actuaries to do.

There is in the Institute Library a pamphlet by a Mr Wilkinson entitled “Pensions and Pauperism”, subtitled “This contribution to a great social question of the day is by his permission dedicated to the Right Honourable John Morley, M.P. in the assurance that he will approach its consideration with open mind, clear vision and full conception of the many interests and difficulties involved in its solution”. It was written in 1892. Times change, but not the problems. It opens; “To a student of the history of the English people the present phase of State Socialism should be one of absorbing interest. In the closing years of the nineteenth century he will find much to remind him of the same period in the eighteenth century”. Could not the nineteenth and eighteenth be replaced by the twentieth and nineteenth respectively? Quoting another extract, “Even at present there is no need for the working man to make one insurance with his club for sickness and another separate contract with the State for a deferred annuity. Members of a Friendly Society can already, if they so wish it, make their annuity payments to their society, the managers of which can open an account, on behalf of the society, with the Post-Office. The only drawback here is that there is a good deal too much red-tapeism to be gone through, and somehow or other the Post-Office officials are not distinguished for the encouragement they afford to the practice of mutual thrift”. The pamphlet shows the pension problems have been with us for a very long time, even if they now attract more publicity. Pension problems may remain with us because the subject of pensions falls so clearly into the political arena.

Pensions are, to use the President’s words in his inaugural address, “a question of how far one generation can stake a claim to the next generation’s production and get away with it”. We may not like Government interference in the field of pensions, but the protection of the rights of future generations is one area in which it would be difficult to argue that Government did not have a real purpose. It is the duty of this Institute to enlighten, so that Government is able to use its power wisely.

This paper has set out the basic objectives and underlying philosophy of both the original Labour and Conservative proposals for a State earnings-related pension scheme. The proposals culminated in the Social Security Pensions Act 1975. The new partnership between social security and the occupational pensions movement was complex and took much time and effort to bring into operation. Because of this the debate on the principles of pension policy and possible new departures subsided. The time for the debate to recommence has come again. There is much worry about the true cost of the State scheme and the author has given considerable detail about the parameters which made up the original assumptions, describing where and why the actual results have departed from the expected results. However, he only comments in passing on the assumptions regarding employment and its trends. In the current economic climate and with the introduction of new technology at an ever-increasing pace, this is an important omission. If the current level of unemployment is maintained, this could jeopardize the worker-to-pensioner transfer.

The author progresses to the wider issue of the cost of the State and occupational pensions schemes combined. The first approximation to their ultimate cost is in excess of 30% of the country’s wages and salaries bill. With the introduction of further assumptions the figure goes even higher, but surely there is an upper limit which the working population is prepared to place on benefit levels and costs. If the working population felt that the retired population were enjoying too high a level of living at their expense they might rebel in at least three different ways: they could change the benefit structure of the State scheme and possibly, with a little more difficulty, of the occupational schemes; they could restrict dividend payments, thereby reducing the real rates of return on the assets of the occupational pension schemes; they could increase the taxation of pensions in payment. In the context of determining how large a share of resources the working population is prepared to pass over to the pensioner, we must not forget the many miscellaneous but financially unquantifiable benefits for pensioners such as the health service and free transportation.
Pension Problems and Their Solution

It is vitally important that we obtain reliable projections of the future cost of pensions. At present all projections rely on more approximations than we would desire as no data is publicly available on accrued benefits. This lack will become even more important if the rights of early leavers are improved, and the collection of these essential statistics should be organized. When investigating the size of pension fund cash flows the size of the funds must be considered. The author warns us that, as a nation, if the funded element in our overall pensions arrangements is large, there may be difficulties in finding sufficient investments. In §48 he asks whether the investment implicit in the growth of occupational pension funds will increase the GNP to an extent that will make possible in future what would be impossible today. He does not, however, pursue this line of questioning. The funds being produced are not being matched by real investment thereby generating this further opportunity and growth, and I wonder why not.

The author next turns his attention from the national situation to that of the individual, and asks whether pensions are costing too much because we are trying to provide each individual with too much. The approach is novel, but his presentation makes it difficult to follow the examples. His first set of examples dealing with the cases of husband or husband and wife earning round about national average wages leads him to the conclusion that there is no obvious overprovision in the State scheme. He then extends the conclusion to say in §53 that “if there is overprovision it arises either because the occupational pension scheme’s usual target of two-thirds is itself excessive, or where two-thirds is exceeded because the occupational scheme is not integrated, or not fully integrated, with the State scheme”. There had been no prior discussion in the paper of these latter points.

A set of examples considers the widow’s pension where the widow is engaged in paid employment during all or part of her late husband’s lifetime. The author’s conclusions in §56 are far-reaching and cannot go unchallenged. They are based on an analysis of the widow’s pension as a percentage of her pre-retirement earnings. How many women would want their level of living during widowhood judged on their own earnings record rather than the joint family income? Women still do not receive parity with men in incomes. Except in well-regulated employment such as the Civil Service, there is still, age for age and job for job, widespread inequality.

The last set of examples in this series deals with the individual earning significantly below the national average earnings, and again I am unable to agree with the author’s conclusions in §60. The person on sub-average earnings is probably existing at a substandard level of living and if this is further reduced at retirement, even if only marginally, he would in a caring society such as ours become entitled to social security benefits. As the author says in §61 “It is difficult to be dogmatic about overprovision”.

The remainder of the paper is devoted to a discussion of the problems associated with unequal provision. The author argues that the main problem of unequal provision is that in general it is unintentional and therefore appears unfair. He blames inflation for the emerging inequality of the benefit levels provided by different organizations. I fear that by concentrating on the evils of inflation, he has missed a much more pernicious evil. Scheme designs differ between employments and cause inequality of benefits even before the ravages of inflation take their toll. The wide variety of schemes is often praised as an achievement of free enterprise, but this praise is based on too superficial an assessment of the situation. From the employees’ standpoint, free choice does not exist when dealing with pension schemes. If a decision is made by an employer, or even by the majority of employees, the only way an individual can exercise freedom of choice if he disagrees with the decision is by changing his employment. An employee locked in an inadequate company pension scheme does not even have the right to supplement his pension independently. Additional voluntary contributions may only be a case of throwing good money after bad. The needs of each individual are different. Why, when dealing with pensions, do we assume each person conforms to some average which is appropriate to the company for which he works and then make the even more far-fetched assumption that if he changes jobs he will conform to a different average? The State scheme is deemed to provide for basic needs, and occupational schemes for additional comforts. Has the time come to say that the concept of pensions provided by the employer is paternalistic and outmoded? The money at present used for contributions could be given as additional salaries which could then be used as insurance premiums for pension policies if the employee so wished. This controversial suggestion has only been touched on in §§74 to 75.
Pension Problems and Their Solution 317

Mr N. D. Freethy: To what extent the visions of the year 2029 conjured up by the author offer reassurance is open to speculation, and some of us might well wish he had used another crystal ball. We are informed that total expenditure on pensions will approximately double from its present level of 17% of total salaries; that the contribution of private occupational schemes to this pension bill is only 41% of the total, the rest being provided by the State; that inflation actually reduces the cost of pensions as a percentage of salaries under current regulations, so curing it would presumably not help; that contracting-out hardly affects the standard contribution rate and the principal justification for its continued existence is to keep up the flow of investments; that eventually there may not be enough investments to go around; and that a typical pension scheme's rules prescribe "failure to preserve the value of a pension".

Until I read the paper I had considered the view that "in years to come we'll all be Government Actuaries anyway" as extreme and facetious. Although the picture painted by the author is gloomy it appears that there will be plenty of work for Government to do, but what it holds for the private sector is rather cold comfort.

In §79 the author concludes that all pension schemes should provide full indexation and he appears to have reached this conclusion simply because public sector schemes provide such inflation-proofing. He does not question whether this is desirable. I visualize that far-off day when all schemes are fully mature and picture an 80-year-old man, having retired 20 years previously on an integrated State-plus-occupational two-thirds pension with an additional 12% p.a. of earnings from the State for his wife. That is a total pension of almost 80% of final earnings which has been fully price-protected for 20 years. He and his wife sit in their bathchairs thinking of how to spend all this money. Their needs by now are frugal in the extreme. They can afford to alleviate the problem of the 50 million unemployed by paying someone to tend to the physical needs they can no longer fulfil for themselves, but there is still plenty left. Should they start saving for an even rainier day or give it to their children? Does the author regard this latter course as a national priority with which the community as a whole should be charged? According to the author's calculations, this octogenarian couple are likely to receive a pension from the State of over half of the total amount which is automatically fully price-protected. Surely a fully price-protected pension is not required from the balancing occupational pension as well. By all means give post-retirement increases, but at a rate of no more than two-thirds of the increase in the Retail Price Index, which, as the author points out, could be afforded by many occupational schemes on current contribution levels given a reasonable investment performance.

The example I have cited of 'mature' State and private benefits is unlikely to apply until the next century, and the prospect of maturity will recede further without 'leakproof' leaving service benefits. In the meantime pensions as a proportion of retirement earnings will be lower and those retiring will welcome as much inflation-proofing as they can get. So we are faced with an interim situation during which full indexation of pension benefits above State level will be more desirable than it will be in the ultimate. As we can see in the public sector, fully-indexed pensions will be remarkably difficult to retract once they are granted. High earners will benefit less from full State inflation-proofing and would therefore be more affected if the majority of their pensions came from private sector schemes offering less than full indexation.

I am concerned that funded pension schemes are virtually forced to use their money to purchase pieces of paper entitling them to streams of income depending on companies' continued existence, or in any asset which they are relying on to be around for 30 or 40 years. The author's account of the situation in Austria where ultimately there would be insufficient investments to go round did nothing to alleviate this concern. We are slightly better placed in the U.K. where the author has calculated total investments of £328 billion at 1979 prices, against £230 billion as the ultimate figure, similarly expressed, for total U.K. pension fund liabilities. Even so the figure for the assets depends substantially on continuing to be able to invest overseas, and what remains has to accommodate all other institutional investors. It is not clear whether the £230 billion includes life assurance companies' investments as well as the direct investment of pension funds. One conclusion concerns the continuing importance of pension funds being able to invest overseas without restriction. The danger must also be recognized that ever-growing pension funds seeking investment outlet in a pool of assets which is arbitrary in its total size might lead to those assets being over-priced. If pension funds pay too much
Pension Problems and Their Solution

for their investments, the object of funding is defeated and it re-emphasizes the importance of assessing an investment's potential by a critical analysis of the yield likely to be produced in terms of price paid. How often is any uncertainty factor to allow for the possibility that the asset might not exist in 20 years' time built into such calculations? How can we really justify buying shares in blue-chip companies with yields of 2% p.a. implying hostage to future fortune and excessive demands? If there are times when no investments look cheap enough on a price/value analysis, investments should not be made. If investments are made, it must be recognized that a short-term view that the market will go higher against the judgment of its long-term value is being taken. This implies a willingness to sell at a later date before the market eventually collapses.

In all this confusion and despair where are the protagonists of funding to turn? The paper sheds a new light on long-dated index-linked Government stocks which, despite the 2.4% total return for periods of 30 years or more in time of falling inflation, few appear to want. This is the only type of security which can be analysed with sufficient accuracy to determine its value to a pension scheme with inflation-related liabilities. Even if it is necessary to tighten up the actuarial valuation basis and slightly increase the contribution rate to match current terms for these investments, there is a case for investing a large proportion of pension funds in indexed-linked securities. Does it make sense to prefer a stake in the largest quoted company whose chief claim to fame is its collection of cash to a Government-backed RPI-protected 2.4% stock when that company yields just 1.8% at present? Imagine what would happen to indexed-linked stocks if inflation starts to climb again. The 2.4% yield would fall and there would be capital gains similar to those on fixed-income gifts over the last year. The lower yield available would set stiffer targets for actuarial valuation bases and require a look at adequacy of contribution rates. Our dependence on this new type of security brings us back full circle to dependence on the State to meet its onerous commitment to pay out in the next century. Struggle as we may, it seems impossible ultimately to escape the need for state benevolence, so perhaps we will find in the end, that the author got his emphasis about right.

Mr G. T. Pepper: I have been increasingly concerned about the trend towards over-generous pension benefits. What concerns me is the combination of two-thirds final salary, indexation for inflation and the preservation of pension rights. The debate about the difference between the levels of Civil Service and private sector pensions illustrates the point. It is not just that Civil Service pensions are indexed. In effect, Civil Servants have preservation of pension rights to a large extent. If someone changes jobs within the Civil Service, say, from the Treasury to the Department of Trade, their pension rights are preserved, and the Civil Servant may retire with 40 years' service qualifying for pension. His counterpart in the private sector may retire, having changed jobs, with only 20 years of qualifying service. It is the combination of 40 years' service plus the indexation which is over-generous.

Doubts have been expressed that in the future the current generation of wage earners will not be prepared to drop their standard of living sufficiently to support the payments for pensions being promised at this combined level. Putting it another way; inflation is fundamentally caused by incompatible claims on national income—a hundred in the pot and people demanding 110. Whilst we are in the process of getting rid of inflationary pressures from which we have suffered during the last two decades, we may be in the process of promising a major increase in pensions, that is, the demand from pensioners from that pot will increase but who is going to drop their demands? Are we in the process of guaranteeing a return of inflationary pressure? I am not arguing against indexation or against the preservation of pension rights, but I am arguing for the two-thirds final salary to be reduced as part of a package deal when indexation and the preservation of pension rights are introduced.

The actuarial profession has been making too little noise about the cost of these pension benefits. When a trade union is bargaining with an employer, there is a temptation for the employer to concede something for which the cost is in the future rather than a wage increase where the cost occurs at once. A horrifying example occurred during the last Labour Government. There was a very tight restraint on wage increases, but the Government was encouraging an increase in pension benefits. I was present at a discussion with a number of actuaries when the problem was being debated, and I was alarmed that the profession should congratulate itself on the way pension schemes in the U.K. were funded in contrast to certain countries on the Continent; the way we had a conservative valuation basis for
funding; and the way that the basis was so conservative that it could be relaxed so the funds could accommodate the increase in pension benefits being granted at that time without a deficiency being disclosed. I think that the profession should have publicized the discounted present value of the increased pension benefits being granted. If the employers had been made aware of the capital value they would have been less ready to grant the increases.

I can appreciate why those senior actuaries took the view they did. They were advisers to pension funds and were correctly reflecting the positions as far as those funds were concerned, but they were involved with micro-analysis. In economics there are plenty of examples of a clash between micro-economics and macro-economics. Many economists who specialize in micro-analysis completely miss the big issues in terms of macro-policy. There is a danger that this profession does the same thing.

Mr J. L. Field: If any of you have been interviewed this month in the Government's General Household Survey, the GHS, you will know about one pension problem mentioned by the opener that is being tackled. This year about 20,000 employees chosen at random are to be asked for the name and address of any occupational pension scheme they belong to, for their length of membership and so on. This is a pension problem that is being tackled, because there is a dearth of information about the accrued rights in aggregate of the 11 million people who are currently members of schemes. Unfortunately it will be at least 2 years before the results of the above survey are analysed, in conjunction with the Government Actuary's own 1983 survey, which will be addressed to employers of the employees in the GHS sample.

Over the last five years I have gathered what information there is available on the working of schemes. It is fairly reliable on the pensions payable per year of pensionable service, on the actual ages at retirement, and the number of people covered, but is very weak on people's numbers of years of effective pensionable service, partly because we do not know what back-dating of service there was when schemes were set up or improved, but mainly because we do not know how often members change jobs and how much effective service they thereby lose. However, we know from General Household Surveys and elsewhere about job changes for employees in general, and it is possible to construct a model consisting of career patterns and estimate which employments are pensionable. Despite considerable doubts over this procedure, the projections of pension scheme expenditure produced are enlightening. As an example, in §§28 to 29 we are told that contributions to schemes in 1979 amounted to about 9% of wages and salaries, but that this might rise to 10% as unfunded schemes mature. On my calculations this historically high rate of contribution would allow private sector schemes to give in future full price-indexing to both early leavers' deferred pensions and pensions in payment in excess of GMPs. This is on the basis described in §21 with prices assumed to increase at 6% p.a. and investments yielding 2½% more than price increases. If contributions continued at 9%, rising to 10%, of all wages and salaries, pensioners over State retirement age would have a combined State and occupational pension of over double the average amount they have now—about £75 a week per capita in today's money. £75 a week is the current average if you spread all wages and salaries over the whole population under pension age, counting each child as a third of a person. If we continue to contribute to occupational schemes at the same rate as in the recent past we could have pensions so large that there is the same pre-tax income per capita at both working and pension ages.

This hypothetical situation poses two questions. First, would the working population of the twenty-first century be willing to give the elderly double the size of the slice of the national cake that they receive now? This is not inconceivable, but it is likely only if the whole cake increases in size, say, even only by a modest ½% p.a. If there were no such increase in the size of the cake the second question is: would pensioners be satisfied with, say, the same size of slice as today's pensioners? The answer is tied up with the relationship between the standard of living and age, which has already been mentioned. The official Family Expenditure Survey shows that the average weekly expenditure per capita in a household (again counting children as a third) is almost the same whether the head of the household is aged 25, 35, 45 or 55, but falls substantially at age 65. Despite this fall, research has shown that pensioners were generally content with their standard of living. This contentment with a lower income than in the years just before retirement is not surprising, as, because of the rapidly rising
standard of living from the end of the war until the mid-1960s, pensioners in the 1970s had a higher standard of living than during most of their working lives. If from now on there is no economic growth and pensioners get no increase in the size of their slice of the national cake, they will have a standard of living lower than at any time during their adult lives. This will not be acceptable politically when 40% of the electorate in the next century will be over the age of 55.

Current projections of occupational schemes are somewhat tentative, however made, and this limits the arguing power of actuaries, but we hope for better data. All such projections need examination not just to sort out questions of actuarial funding, but also in a broad economic and social context, which accepts that work and spending patterns are bound to change enormously in the next 20 years.

Mr H. A. R. Barnett: I doubt whether anyone will find fault with the author's statement of the problems, but his suggested solution is neither the only one nor the complete one. He castigates those who think inflation will go away, and wisely suggests it should be assumed that it is here to stay. But can we assume that it will never be at a higher annual rate than we have already seen in the U.K.? Would the author's solution cope with inflation of 200% p.a. as has sometimes been experienced in certain republics? Could any solution cope with it? Some may say the answer lies in 'assessmentism', but this puts the retired population entirely at the mercy of the working population who may not be prepared to see an adequate proportion of the national income go to those who are no longer productive.

One of the roots of the trouble is that pensions themselves, whether funded or unfunded, are inflationary unless appropriate disciplines are accepted by or imposed on the producing population. The author suggests the lowering of sights, that is, that two-thirds final salary plus inflation-proofing is too high, but I would suggest lowering sights in a different way by raising retiring ages. This would have the effect not only of reducing the actuarial value of pensions, but also of enabling those who are willing and able to continue producing and contributing for a larger portion of their lifetimes. I do not accept that this solution would aggravate the unemployment problem. When the pension fund movement started to gain momentum, as a device to secure tax-free savings for old age, few people visualized a situation where most people retire between the ages of 60 and 65. I am not advocating deferring retirement just to keep people in what one might describe as 'non-employment'. What I want to see is an increase in national productivity by using the skills, talents and experiences of many people of all classes and of both sexes, which would otherwise be wasted. We have recently seen a Social Services Committee Report suggesting, after a long run-in period, flexibility of retiring ages between 60 and 65 for both sexes with the possibility of staying on to age 70. This does not go far enough in either direction. I would like to see retirement in the State scheme between ages 50 and 75 with a sliding scale, for example, of the order of 75% of basic (including earnings-related) pension on retirement at age 50, increasing by 2% for each additional year in the age of retirement to 95% at 60, 105% at 65 and 125% at 75 for both sexes. My central retirement age of 62½ may not be right, perhaps it ought to be 65, but continuing the example, those retiring under age 62½ would need to have two calculations; as one according to a sliding scale, and one of a pension subjected to actuarial reduction. This would give a lower percentage to which the pension would revert during any subsequent period of gainful employment, but these reduced percentages would not be sufficient for those who have to retire permanently through ill-health, redundancy, or inability for any reason to remain in productive employment. That is why I suggested an ad hoc sliding scale with two alternatives at any period of time. For those who first retire after the central age of 62½ the reverse would apply; those remaining retired would receive the higher pension given by the actuarial calculation, whilst those who resume working would go down to the sliding scale pension. The earnings rule could be abolished. Either the individual is in paid employment, or self-employment or he is not, but he would continue to receive his pension on one calculation or the other. By this means those who have lost the ability, will, incentive or opportunity to work could draw their pension any time from age 50, but those who retain all these attributes will also have the incentive to remain producers. Similar arrangements should be introduced into occupational schemes. Retirement on pension is a form of paid unemployment, and the inflationary pressures of pension schemes can only be relieved if the numbers in such paid
unemployment are kept down to manageable proportions. There would be administrative difficulties and inevitably some deceptions, but these will be inherent in any system that may be devised.

The opener mentioned three ways in which the working population can reduce the effect of unlinked pensions. They can also reduce them in their purchasing power by extravagant demands for increased salaries or wages. Every demand for an all-round increase in any form of income for the working population is, intentionally or unintentionally, an attack on those who rely on fixed incomes. She also referred to the wide variety in occupational pension schemes, but she omitted to point out that a pension scheme is only part of a package, and those people in employment who have apparently less generous pension schemes may have some other form of benefit or perk which makes up for it. She also mentioned certain people with under-standard pension schemes who are not able to top up their retirement income, but anyone can effect an endowment assurance on which, admittedly, he or she will not get full tax relief. However, the lump sum provided at the proposed age will be completely tax-free.

Mr Freethy mentioned that maturity of pension schemes will not be reached until the next century. We are nearly in the next century and I doubt whether maturity of pension schemes will be reached even in the twenty-second century.

Mr K. G. Smith: The author has loosely assumed that because a pension scheme can provide a maximum 40/60ths pension, or its equivalent, the normal pension will be two-thirds of final pensionable salary. It is not true in the private sector where a recent sample of a large scheme showed an average of only 20 years' pensionable service at retirement, and even in the public sector it is not true of many of the nationalized industries with widespread redundancies and early retirements. Furthermore, it is rare in the private sector for the whole of any workers' earnings to be pensionable. I am not referring only to the deduction of an allowance for the flat rate National Insurance retirement pension, but to overtime, bonus, shift allowance and holiday pay, which are rarely treated as pensionable. Looking at any pension scheme accounts and calculating the average pension payable it can be seen that the percentage benefits quoted in §59 do not accord with current percentage entitlements in relation to national average earnings. For example, the schemes I am currently associated with paid an average of £10 per week in 1982 to pensioners. The schemes of a nationalized industry with which I was formerly associated paid £33 per week to staff pensioners and £12 per week to manual grades. These averages are way below the National Insurance married couples' pension which exceeds £52 per week.

Another false analogy is to relate the total funds of pension schemes to the value of investments quoted on the London Stock Exchange. A substantial part of pension schemes assets is invested in U.K. property and a significant proportion is in overseas assets and property, none of which is quoted on the London Stock Exchange.

By comparison with the provisions of other nations of Western Europe, for example, France, Holland and Germany, our existing arrangements for national and occupational benefits combined look rather mean. Also, it is clear from the figures quoted by the author in §§23 to 26 that pension provision by National Insurance on a pay-as-you-go basis costs more than twice, and is likely to rise to three times, current funded pension scheme provision which includes contracted-out benefits. So much for our usual assumption that we have properly funded pension arrangements in the U.K.

Our present arrangements for tax approval are anomalous. The Inland Revenue ignores National Insurance benefits in assessing the maximum approvable benefits of a pension scheme, whilst at the same time insisting on taking account of retained benefits in other schemes. As an early member of the OPB I fought a losing battle with the Superannuation Funds Office to get identical limits for contracted-in and contracted-out employees by taking account of the State earnings-related pension. Nor is there any logical basis for the favourable pensions tax treatment of lump sums which does not apply in most other advanced countries and which has distorted the pattern of U.K. pension arrangements. All approvable benefits should ultimately be payable as taxable earned income, aggregating National Insurance and retained benefits with current occupational pension, but with a scale for maximum approvable pension which could be more generous at the lower end, for example, up to 100% of national average earnings, with a reducing proportion above. Looking only at the cost of pension provision for the retired is to ignore the equally important growing charge for health care
of the elderly in the form of hospitals, medical services, home helps and social workers, which are no less significant than the amount of pension benefit. The wider picture also requires consideration of other social security charges such as provision for the unemployed, whose current and likely future numbers bear little relationship to those assumed in the paper. The issues raised by the paper cannot be considered solely in the context of pensions. What is at stake is whether the principles of the welfare state in providing minimum levels of subsistence and health care to all whether children, unemployed or pensioners should now be abandoned in favour of some apportionment of Gross Domestic Product which will leave many below the subsistence level and without medical care as they are in undeveloped countries.

Mr E. F. Rogers: The scope of the Government Actuary’s report on the National Insurance Fund was necessarily confined to an investigation of the long-term outlook for the present scheme, assuming broadly that there will be a return to previous employment patterns from the abnormal conditions of recent years. The paper makes broadly the same assumptions, but I do not think the author can be fairly criticized for this, because he would not have had the resources to consider any major enlargement of the model. There is, however, something uncomfortably unreal about projections into the twenty-first century of a world that may already have ceased to exist.

Mr Barnett’s view on changes such as extending the retirement age are admirable in principle, but we should not ignore what is happening in practice. Some of the other countries of the European Economic Community have introduced formal early retirement systems which demonstrate the trend towards early retirement. The situation is less obvious in the U.K. because early retirement tends to be handled in an ad hoc way, but if you ask virtually any major employer the average age at which his employees now retire, you will find that the term ‘normal retirement age’ has become a fiction preserved primarily as a necessary condition for Inland Revenue approval. One of our largest industrial companies has more current pensioners than pension fund contributors, a situation which would have been inconceivable only a few years ago. Major companies are not doing this without careful thought for the consequences. They have to reduce their costs, and cannot see, under current conditions, viable projects to produce that additional employment for the elderly that Mr Barnett would like. Maybe it is a temporary consequence of the recession and we shall revert to what we have regarded as more normal employment patterns. Alternatively, we may be witnessing a fundamental restructuring of the economy, and an irreversible shift could occur in the balance between the active and the dependent sections of the community.

These issues, complex and uncertain as they are, can hardly be ignored in any serious study of the nature and extent of the pension commitments that future generations can be expected to bear. I hope that the working group set up with the Institute’s backing will have the resources to attempt a much fuller assessment of possible shifts in the pattern of dependency.

I agree with the author that more adequate inflation protection of pensions-in-payment is an essential feature of any satisfactory pension system, even though I think it will need to be accompanied by lower starting levels of benefit. Mr Smith referred to the position in other nations of Western Europe, but they have a very serious overprovision problem too, and are now wondering what the solution is. It is only of limited consolation that our problem, though serious, is less acute than theirs.

I was alarmed by the author’s suggestion, supported by the opener, that a possible solution to our pension problem might be a switch to money purchase methods.

A pure money purchase system, with all its problems of determining an equitable bonus distribution policy, leaves employees exposed to an intolerable degree to the uncertainties of the stock market. We need change in our pension systems to give better protection to both pensioners and early leavers. I feel that we need to cut back on benefit levels in certain areas, particularly for those long service, lower-paid employees whose benefits are inadequately integrated with the State pensions, but it would not be right to depart from the principle of defining benefits by reference to length of service and pay, ‘pay’ for that purpose being pay in the final years of service or, more suitably perhaps for most manual workers, indexed average pay over the whole career.
Professor A. D. Wilkie: In the example in the Appendix I take it that it is sensible for the pension to be thought of as 80% of final earnings excluding the pension fund contributions, so that contribution rates are added to earnings to get the total wage costs, rather than being taken from nominal earnings. It would be silly to provide a final pension of 80% of gross earnings with those earnings being subject to a 30% reduction as a contribution to pay for the pension and with the net income being increased after retirement. So we should take it that a 30% contribution rate means that the total gross income is 130 and therefore 30/130ths gives 23% of total gross income being required for the contribution rate. In practice some contributions come from nominal money salaries, and the rest are added by the employers after that. Actual contribution rates are a percentage of something that is neither 100 or 130; neither a gross nor a net figure.

All the income in the U.K. belongs in some way to people somewhere. We can take the Appendix as an example of the total economy. In the first column of the table in § 5, the total earnings of individuals are 40, the total contributions are 13·60 which exactly equals the payment to pensioners, and, adding those together, the total national income is 53·6. The total funds of 388 are about seven times national income, but this is an example with zero interest which is not the best assumption. The fourth column is the most useful where total national income is 51·57; the total funds are 288 which is 5·58 times total national income; pensions actually amount to 22% of national income, contributions are 17% of national income, rather than the figures 28·9% and 21·8% quoted which are percentages of the net 40. The net increase in the funds after deducting any benefits is available not just to buy Stock Exchange securities, but for real capital formation in the U.K. The financial mechanism through which it is done is fairly irrelevant to the reality of the position. This money is not being made available for people to spend on current consumption, but it is available to build new plant and machinery, houses, and roads, and the rate of return on the investment depends on the real rates of return which will eventually be obtained in the future on this real fixed capital investment. We cannot tell how much that may be, but we hope it will be positive in real terms. The higher the amount that is available to go into real physical investment, the higher the potential rate of growth of real earnings in the future, the higher the rate of growth of real gross national product. We should try to separate the reality of the position from the financial assets through which the reality is implemented.

The Government's figures prepared in the National Income and Expenditure Blue Book (1982 Edition) give values of the net capital stock, which is an estimate of the replacement cost of the physical stock of machinery, durables, etc., in the U.K. At the end of 1981 this was £782 billion (Table 11.7) which is 4·3 times the net national income of £181 billion (Table 1.2), so we are not far away from the position in the Appendix. The net profit on this, that is the gross profit of companies and corporations, property, rent, etc., minus the capital consumption, that is the replacement and allowance for replacement of the physical capital, (Table 1.2) was about £22 billion, which is a return of about 2·8%. As this is in current money terms, we can assume that it is current real return, and that it is rather a poor rate of return compared with previous years. The net increase in pension funds and life assurance companies' funds was about £13 billion in 1981 (Table 4.5), and this was in principle available for real capital formation. Although real net capital formation had often been at this level in previous years, it was only about £8·8 billion (Table 11.3) in 1981. The money that pension funds and insurance companies saved was not used in 1981 to construct additional plant and machinery. I suspect that it was largely used to pay people who were unemployed to do nothing, which is not the way of increasing the national product.

We should think in terms of real capital formation much more like 2% of the capital stock, in which case we might hypothetically get a 2% p.a. increase in real earnings. We should aim for capital formation of nearer £16 billion than £8 billion. I do not know how we get the political structure so that this can actually happen. We should think of pension funds and life insurance as well, which is included because the figures do not separate them satisfactorily, as being the main way in which the real saving in the economy is channelled into the formation of real capital assets. We can to some extent choose how high a contribution rate we want, and the higher the contribution rate the higher the rate of growth should be in the future. If people decide that they want lower contribution rates, then net saving will be lower and we shall get a lower growth rate in the future.
Mr A. F. Wilson: In § 1 it is stated that "Employers' are hard pressed to finance accrued pension rights of their employees in final salary pension schemes and are unable to make the additional contribution necessary to preserve the values of the pensions and deferred pensions of future employees". My initial reaction of disagreement with this statement reflected my experience of a restricted class of pension schemes, namely those which are long established (and therefore have plenty of pensioners) and which have always been funded on sound actuarial principles. Nevertheless, it is just such schemes which we should use as our guide for what might happen to pension schemes in the future. In the mid-1960s well-funded final-salary pension schemes were typically valued at a rate of interest of 3½%, with no overt allowance for salary inflation. The conclusion in § 35 that the rate of interest refers to the "difference between the yield on investments and the annual increase in the general level of earnings" is incorrect. Looking at the salary scales commonly adopted at that time it can be realized that a stable active population implies a payroll which is inflating at between 1% and 2% p.a. In consequence, 3½% represents the difference assumed between investment yield and cost of living. This basis is similar to those currently adopted. By considering the surpluses which have been disclosed at successive valuations of such schemes it is clear that had the first priority for the application of surplus been to increase pensions and deferred pensions fully in line with the increase in the cost of living, this could have been achieved without any extra cost being involved. That such increases were not given is due mainly to the bargaining power of active members to obtain better benefits. The past service cost of benefit improvements was often a first charge on surplus, and it was only after these were met that pensioners were considered. There were also subsidiary influences, such as the reluctance of employers to establish a customary practice which might be onerous to continue, as well as some strengthening of actuarial bases.

I believe that this pattern is unlikely to persist, and in consequence that pension schemes will generally give better increases in the future than they have in the past, notwithstanding the increased pressure to give better benefits to early leavers. This conclusion would appear to be contrary to the statement that the real return on pension fund assets has recently been poor. I believe that statement is a myth, at least as far as equities are concerned. The myth arises from a general lack of understanding of the nature of the returns which have been gained on equities. Thus, for a pension fund the important aspects are the initial terms on which the equity is bought and the subsequent performance of dividend increases as compared with inflation. By this criterion the terms of investment were poor in the early 1970s, but have since been satisfactory.

It follows that good pension schemes should be able to give reasonable increases in pension, which is very different from promising them. The author suggests that consideration could be given to promising inflation-proofing of benefits once employment has ceased. He reasons that this is simply an extension of the inflation-proofed promises given whilst members are in service by linking benefits to final salary. However, it is one thing to promise protection for employees who are creating the wealth to meet the promise, but once those employees cease to work, they may only reasonably look to assets already built up to secure their pensions. Nevertheless, promises could be given to pensioners and deferred pensioners which link their increases in benefit to the performance of those assets on which they depend. Professor Wilkie has shown that, over extended periods, increases in equity dividends have rarely failed to keep abreast of cost-of-living inflation by more than 2% p.a. In consequence, reasonable protection against inflation would have been gained in the past if a fund had been invested in equities and had, whether promised or not, given increases to pensions and deferred pensions in line with the increases received on dividends. Whilst there can be no guarantee that such a link would be so efficacious in the future, such an arrangement has much to commend it. It is totally wrong for an occupational pension scheme in the private sector to guarantee pension increases in line with cost of living, or even as a proportion of cost of living, because there can be no certainty that that promise can be fulfilled. However, a promise of pension increases which can be met providing that the fund invests appropriately does have merit, and it will not be long before we see some pension schemes using this approach.

From § 40 onwards, the author points to the growing problem of finding sufficient, suitable assets for a pension fund. Too many people have concerned themselves with the dangers of too little asset cover in pension schemes without also considering the long-term danger to the economy and to pension schemes of too much asset cover. I welcome his observations, and for the purpose of studying
Pension Problems and Their Solution

the question, the Appendix. At first sight the method contained therein would seem too simplistic to be of much practical use. However, on closer inspection it can be seen to be a very powerful tool for two purposes: to estimate the ultimate size of pension funds, as in the paper; and possibly more important, to model and test the behaviour of different methods of funding and what they mean in terms of asset cover for the potential beneficiaries and of stability in varying circumstances. There is much work to be done in this area. Consider the figures given in § 5 of the Appendix. The first two columns show the effect of moving from a nil real rate of return to one of 3½%. Such a large change in basis leads to a reduction in the total fund required of only one-third, although the contribution rate reduces by two-thirds. Such figures come from the new entrant funding method. If we are concerned with the ultimate size of pension funds, we should be considering whether it is in the general interest to strengthen valuation bases thus exacerbating the problem and, more importantly, whether other funding methods should be adopted which lead to smaller funds being accumulated. There are such funding methods, which also have the merit of leading to more stable contribution rates, not least because financial deviations from assumptions are by reference to the smaller funds.

Mr R. E. Brimblecombe: In § 36 the author implies that private pension schemes which do not promise post-retirement increases or which only pay increases on a discretionary basis, but do not prefund them, have, nevertheless, calculated contributions at the same net rate of interest post- and pre-retirement, and thus can achieve a saving in cost by switching onto a basis which assumes a gross rate of interest after retirement. I would question this, as many actuaries would normally assume a gross rate of interest after retirement, or overlay a net rate of interest pre-retirement by a salary scale. Even if a scheme does prefund discretionary increases, I would suggest that many actuaries would not wish to advise schemes to abandon such prefunding and thereby reduce cost. In §§ 46 to 61, I had the impression that the author felt that the case for overprovision had not been proved. I suggest that where a widow receives both her husband's pension in full and a full pension based on her own earnings from the State, there is overprovision, particularly since this is further exacerbated by the increasing coverage of women by occupational pension schemes. This will ultimately lead to the position where the widow not only receives a widow's pension under her husband's old scheme, but also a pension under her own occupational pension scheme in her own right. I suggest that as long as there are two wage earners in a household there is overprovision, and that when the earnings-related State scheme matures, a case could be made out for ultimately reducing the dependent's pension under the State scheme.

The paper gives a salutary lesson on the cost of State and private occupational pension provision over the next few years. Perhaps the cost of private occupational schemes is over-stated, since over the next 20 years those schemes currently providing a good level of benefits will have matured, and the current benefit structures of many schemes are perhaps as far as employers would wish to go. Once they have matured the cost will stabilize, unless they can be persuaded to turn their attention to maintaining the real value of benefits for early leavers and pensioners. I refer to this cost of occupational pensions despite Mr Smith's comments on current levels of pensions in the private sector, because those relate to people retiring in 1983, and the picture of people retiring under occupational schemes 15 or 20 years hence will be substantially different. On the other hand, I hope that projected cost of State provision into the next century will deter a future government succumbing to the temptation to extend the State pension scheme, for example, by extending the period of accrual under the earnings-related State scheme from the present 20 years to, say, 30 or 40 years.

The author has exploded the common myth that the issue of index-linked Government stock would immediately lead to widespread indexation of private occupational pension schemes. He points out in § 70 that cost is the obstacle which many schemes face, and not the actual provision of index-linked securities. Actuaries have been saying for many years that it is this cost that is the obstacle. Index-linked securities make it possible for schemes which can afford indexation to guarantee it for the first time.

The author dismisses partial indexation in § 71. I suggest that, in the private occupational sector in particular, a guarantee of partial indexation is far preferable for pensioners than reliance on discretionary increases, the generosity of which at a particular time is unlikely to be correlated with inflation. As Mr Freethy pointed out, particularly with the benefits currently provided under our
Welfare State, the financial needs of pensioners do reduce in real terms as they get older, and I think this should be reflected in the degree of indexation.

Considering early leavers, if extra resources are not forthcoming either by way of additional contributions or diverting additional contributions which would otherwise have been available to improve the benefit structure, improvements can only be achieved by redistribution of existing resources, for example, by reducing the personal pension accrual rate. I suggest, particularly in the current climate, that it is unrealistic to expect long-serving members of pension schemes to give up their expectation of benefits at retirement for the benefit of increasing resources to early leavers.

I have an alternative suggestion to that in §§ 73 and 74 on the question of reversion to money purchase schemes. Some commentators feel that the early leaver problem can be solved by switching back to the money purchase system which is admirable for the early leaver who, incidentally, under such a scheme could have the option when he retires of having a level or increasing pension, but, Mr Rogers has stated, what does this do for the people who stay until retirement? Under current employment patterns it would be possible to back up money purchase benefits with a final salary guarantee to those who stay at little extra cost. Some specimen calculations I have made show that a new scheme guaranteeing 10% money purchase benefits could provide for those who leave by reducing the personal pension accrual rate. Improvements can only be achieved by redistribution of existing resources, for example, by reducing the personal pension accrual rate. I suggest, particularly in the current climate, that it is unrealistic to expect long-serving members of pension schemes to give up their expectation of benefits at retirement for the benefit of increasing resources to early leavers.

Mr R. B. Colbran: Both this paper and the Government Actuary's quinquennial review suggest that the effect of contracting-out on the long-term finances of a national insurance fund may be trivial. This arises because, in the stationary situation such a low rate of real return on the assets is being postulated, that is, on the accumulated rebates which the private schemes have received, the amount they can afford to pay out in pensions at any time is little more than the rebates they are being given.

The effect of the feature that on GMPs the State picks up the cost of the price protection in retirement is not brought out in either of these papers. The Government Actuary has shown a considerable range of figures, but I have not found a separate cost for this particular item. It would be revealing to see how much is projected in the long-term as the cost of the State of inflation-proof GMPs and to see this on alternative bases. There is an assumption throughout that 8½% compound is to be the long-term rate of earnings increase, but when dealing with relationships between prices and earnings, the absolute rate does not matter too much. However, the absolute rate does matter. An appreciably lower rate must throw a considerably higher burden onto private schemes, and it would be useful to see what sort of differences are involved.

It would appear that the author wants occupational schemes to promise more or, at least, to promise in such a way that they have no escape route because of more index-linking, but, if everything the State promises is indexed, then the State has to have an escape route, even the painful one of altering the promises which have been made. This might extend to index-linked gilts.

One feature of the many figures shown is the wide variation, as would be expected, in possible long-term costs. The basic projections assume that fertility recovers to replacement level, and at the end of the Government Actuary's paper are further figures showing that in 40 years' time if fertility is one-seventh down on replacement levels, there is another 11%; if unemployment is 3% more than assumed there is another 6%; if mortality improvement of pensioners doubles there is another 6½%, so perhaps another 25% altogether. The overall message of the paper is that we are promising too much, and we do not know how much it is going to cost.

Some speakers have made adverse comments on money purchase for the private sector. The one advantage of money purchase is that it leads to the position which the self-employed would normally be in, that is, they wait until they see how much they have accumulated before they decide to retire.

Mr T. H. Beech: When I began my actuarial career I was moved to come into pensions by a sense of idealism. I thought I might help to move the benefits being produced from the active population
Pension Problems and Their Solution

It appears that actuaries now regard this as leading to overprovision, which we must avoid at all costs.

I find it difficult to accept the statement in §61 that an attempt to retire with "an unreduced standard of living would be difficult to justify in principle". I agree it is difficult in practice, although it is not difficult to justify in principle. We should realize that we live in a rather sheltered world. We talk about overprovision and the difficulty of the future generation of the working population making over their product to the older generation, but a pensioner is merely a worker seen in later life, and a worker is only a potential pensioner. It is not a question of one generation grabbing from another.

I think that in §§ 73 to 75 the author should have used the word 'reactionary' instead of 'radical'. If he is using 'radical' in the sense of a fundamental change, then it is true, but what he is advocating would be a very serious step backwards. Mr Freethy suggested that the author was strongly in favour of index-linking, but §§ 73 to 75 would appear to undermine the whole concept. The approach in §§ 73 to 75 gives the appearance that everything will be lovely in the garden, whereas it would really mean the removal of index-linking. Most laymen, particularly of the older generation, regard pensions without index-linking in some way as pure fraud. In § 84 the author says that "on certain assumptions total expenditure on pensions will come to represent some 30-35% of total wages and salaries in 50 years' time—and it could be even greater—compared with about 17% today". Taking the figure as 33% and looking at wages and salaries plus pensions expenditure, it is not 33 being compared with 17, but 133 and 117, which does not look so bad. Taking the pool as being wages plus salaries, we are saying that 86% of that pool will go to the active population today, and in 50 years' time 75% will go to the active population. With only a 1½% p.a. increase in productivity that would be 75% of a doubled pool. Is this really an awful cross for people to bear for the sake of themselves when old?

Mr T. G. Arthur (closing the discussion): There is general agreement about the problems which the pensions field faces, and I feel perhaps not sufficient mention was made in the paper of the point made by the opener that education about the financial impact of pensions is one of the main solutions. Mr Pepper also mentioned in another way the importance of education, and suggested that a number of actuarial values should be publicized much more often because people do not appreciate the cost of providing pensions.

The central section of the paper concerns the development of the State scheme and its costs, and projections into the future with regard to both cost and ultimate funds. Regarding the particular calculations themselves and the development of the State earnings-related scheme, the one objection I can find is Mr Colbran's suggestion that doubt could be cast upon the statement that there is not much to be gained for the State from contracting-out. He made the point about the real rate of interest assumed in retirement when the State is picking up the tab for inflation of GMPs. I should like to see this investigated, but I would disagree with the conclusion the author makes, even if it is correct, that little is to be gained from contracting-out. I would turn the question the other way round, especially in view of the remarks concerning overprovision, and I would say the justification that is needed is not for contracting-out but for contracting-in. Why have a second tier at all?

I was very interested to hear the opener raise the point about the value of accrued benefits in the State scheme. Having arrived at the value of accrued benefits, it would be interesting to add it to the national debt and see what figures are obtained.

Professor Wilkie made an attempt to put together the question of pension fund investment and capital formation. I am doubtful about the question of an investment problem. The equilibrium between supply of and demand for money should be balanced somewhere, and if we are getting extremely low investment returns because of the demands of investors with very large funds, it follows that those low returns will choke off some funds for investment. The consequence could well be that it will not be the pension funds that become unfunded, but that pension benefits become smaller relative to salaries as that is a perfectly sensible reaction to low investment returns. Mr Freethy suggested that poor investment return would suggest we do not fund benefits, but I think that suggests the benefits themselves are reduced rather than the extent to which they are funded.

Much of the discussion concerned the question of overprovision. The opener suggested, quite rightly, that this whole question of overprovision should be looked at more carefully, and she drew particular attention to the question of certain women whom she suggested may not be overprovided...
Pension Problems and Their Solution

at all. Mr Brimblecombe drew attention to women whom he thought were already overprovided. Mr Pepper added that sights had been set too high, and that was indirectly the cause of inflation which we have experienced over the past 10 or 20 years. Mr Field gave an insight into calculations which have already been carried out and those which are still to come. I was surprised to hear that we may be talking about total pensions equal to total salaries in the future.

A number of speakers mentioned the question of allocation of total resources in the future as between the working population, whom we call the producers, and the retired population. There is a tendency to treat funded schemes and unfunded schemes in the same way and to call all the resources of the future the property of the producers, and it is a matter of how much those producers decide they will give to pensioners. But there is a big difference between funded schemes and unfunded schemes. A sizeable portion of the total available resources of funded schemes in the future can be argued as being owned by the pensioners. The question of allocating these resources to pensioners does not arise as they already own them. It could also be argued that in the practical world the producers have the power to alter this and so it does not matter very much, but I would rather be a pensioner with a disputed claim to assets than a pensioner with no assets at all.

There was disagreement about the general level of provision and whether it is too high or too low. Mr Rogers felt that there is a good deal of overprovision. Mr Smith felt that there is not. The opener and Mr Brimblecombe found specific and conflicting examples. Mr Colbran thought we are promising too much at the moment, and Mr Beech pointed out that workers and pensioners are the same animal at different times of their existence.

The paper states that labour's share of GNP would be reduced if there was high investment. I am not sure about that. A number of workers are also capitalists which is taking Mr Beech's point. It is also quite possible for high capital investment and possibly associated low returns from that capital investment to mean not only a greater absolute product for labour as opposed to capital, but a greater proportion of a very much higher GNP would be available to labour than if there were not that high investment.

The paper suggests that index-linking of the private sector would solve some of the major problems, but there was considerable dissent from the floor. Mr Pepper would not like it, and I agree with him. Mr Freathy points out that full inflation-proofing is not needed because the requirements of pensioners fall naturally as they get older. The opener says that one of the problems which should have been addressed, but was not, was the rigid paternalism in occupational schemes, and she suggests we should give the employees the money and let them do what they like with it. I have sympathy with that view, and I would also apply it to the State scheme.

Mr Barnett suggested that retirement ages should be altered, normally upwards, because we have been promising ourselves far too much, and he outlined a possible system by which this suggestion of a flexible period of retirement with pension rising according to age at retirement could be implemented. Mr Rogers told us that we have to live in a real world and the proposal could not be implemented. Mr Smith made a plea that whatever else we did we should not abandon the Welfare State and leave a number of people below subsistence level. Mr Rogers asked for the money purchase system not to be extended for reasons connected with exposing members to fluctuations and their not being able to plan correctly. I would not dismiss it out of hand and feel it should be investigated. In many instances we are forced to look at that alternative. Mr Wilson felt fairly comfortable that the costs of post-retirement indexation could be encompassed but suggested they should not be promised whether they can be afforded or not, and would like to see a system under which post-retirement pension increases were linked to investment performance, another novel idea which it would be as well for us to consider. Mr Brimblecombe hoped that the costs which are shown in the paper will help to prohibit any further extension of the State scheme because it is now far too expensive. He then suggested an unholy mixture of money purchase and final salary schemes, the cost of which, did not seem to be exactly insignificant.

I feel that the indexed-gilt is not the panacea it is made out to be, not only for the reason that the purchase of it is costly but also for other reasons. I would like to echo Mr Pepper in saying that inflation is effectively an engine of redistribution and indexing is simply some more redistribution within the system of redistribution which has already been created by inflation itself. You could get yourselves into a worse mess as a result because it is impossible to index everything. If you could, you
Pension Problems and Their Solution

would not have inflation because you would simply move straight on to the indexed currency and remove inflation at a stroke. So only some things can be indexed, and so there will be some winners and some losers. Retirement pensioners and occupational scheme leavers happen to be two of the losers in this system of inflation and indexation. There are many other losers and some winners, and I should like to see more attention paid to removing this iniquitous inflation that we have, and less attention paid to seeking means by which selected small groups of people can effectively have its effects alleviated.

The President (Mr C. S. S. Lyon) (proposing a vote of thanks): It is crucial to the standing of our profession that we should not be seen to be limiting ourselves to a narrow band in the spectrum of pensions and their financing. There is room for much debate on the funding objectives for final salary occupational schemes and the security their achievement provides for members' benefits. I have to say quite unequivocally that the profession will fail the nation if it concerns itself only with the trees and ignores the wood. This paper is about the wood. How healthy is it? Will the soil support the number of trees growing in it? Do they all get their fair share of the sunlight? Or are many of them being allowed to outgrow their strength so that, when felled, the timber they produce will be too thin for its purpose?

The author has misgivings, as I do, about these things. He tells us the history of the wood and wonders whether we need to replant in part with trees of a sturdier species. Uprooting pension trees and replacing them with new ones is a difficult and costly business, but it may be necessary if we want timber of more even quality and do not want to exhaust the soil. The paper does not pretend to analyse the soil and its ability to bear the increasing demands being made on it, though that is the most crucial issue of all. For that we must wait for the outcome of our research project at City University.

The author, in reply, expressed satisfaction that the opener had found the paper to have been 'even-handed' and to have presented a 'balanced view', because it was only on such a basis that it was proper for a senior civil servant like himself to contribute to public discussion on what was a relatively controversial subject. He also explained that his purpose in writing such a short paper on what was a very wide subject had been to focus on the main issues— to concentrate on the wood and ignore the trees—and he was therefore pleased that the President considered the paper to have achieved that objective. He commented briefly on some of the points raised in the discussion but asked leave to submit a more comprehensive reply in writing.

WRITTEN CONTRIBUTION

The author subsequently wrote as follows: The estimates of future expenditure on State pensions were taken from the Government Actuary's Quinquennial Review. Although the paper reminded the reader (in § 27) of the dependence of those estimates on the bases adopted for their calculation, the opener and Mr Rogers were wise to draw attention to the current very severe economic conditions, with high unemployment and pressure for a reduction in normal pension age. If those conditions persist, the burden of pensions will indeed be greater than indicated by the figures selected for presentation in the paper.

Mr Colbran expressed the view that the Government Actuary's estimates were pessimistic because in the future the contribution reduction for contracted-out employees would be calculated on a higher net rate of return on investments compared with the movement of earnings than at present. Coming so soon after the hostility shown to the Government Actuary's decision to retain his previous assumption of 1% I find it difficult to share Mr Colbran's optimism. More often I hear it said that the estimates are excessively optimistic because the actual rate of earnings inflation will always be higher than the Government Actuary assumes from time to time in calculating the contribution reduction, with the result that the relief to the State scheme from GMPs paid by occupational schemes will always turn out to be lower than estimated. A balanced view might be to disregard both the optimists and the pessimists and follow the Government Actuary.
My estimates of future expenditure on occupational pensions were very crude, effectively assuming that contributions to funded schemes would remain constant. Mr Brimblecombe surmised that this implied some improvement in future in the real value of benefits for early leavers and pensioners. I agree. Contributions to funded pension schemes still include an element to pay off past deficiencies and if a positive real rate of return on investments is achieved in future then funds will be able to provide better benefits for the same contributions. (Alternatively, of course, contributions could be reduced.) Mr Field’s recent work, which he described briefly and which was subsequently published at greater length (*J.I.A.*, 110, 243) confirms what Mr Brimblecombe and I have surmised.

I agree with Professor Wilkie that we should think of pension funds as being a way in which real savings in the economy may be channelled into the formation of real capital assets, but I don’t see this happening on the scale represented by Dr Wolff’s whole-country model in the Appendix. My purpose in applying a simple compound interest model to Dr Wolff’s results was to obtain a ready reckoner which would show the relationship between contributions, the real rate of return and size of fund in the ultimate situation. By using total wages and salaries as my common denominator I was able to obtain estimates for State and occupational pensions which could be aggregated. Mr Beech followed Professor Wilkie in looking at GNP (or rather, earnings plus pensions) instead of total wages and salaries and concluded that with a regular small increase in GNP the larger share going to pensioners in future gave no cause for alarm. I hope they are right, that the money flowing into funded pension schemes will be suitably invested, will indeed contribute to growth in GNP and offer the possibility of an increased share of an increased national cake for pensioners.

The opener took me to task for suggesting that there might be overprovision for widows whereas Mr Brimblecombe thought that I should have said quite firmly that there undoubtedly would be under present arrangements. Perhaps it will satisfy them both if I clarify my view, which is to acknowledge that there is still room for improvement in earnings as well as pensions for women, but that improvements in State and occupational pensions should be directed towards the benefits which all women receive in their own right rather than in improved benefits for only those who end their days as widows.

Mr Freethy thought that the needs of pensioners declined with advancing age, so that pensions which were adequate at the time of retirement would become overgenerous if their real value did not decline. He thought that pension upratings at two-thirds of the rate of inflation should be adequate and a number of other speakers too thought full inflation-proofing to be excessive or even wrong in principle. On the other hand, Mr Pepper saw no objection to inflation-proofed pensions so long as the pension fraction was reduced from sixtieths to eightieths so as to avoid overprovision. I would not insist upon occupational pensions being fully inflation-proofed but as stated in the paper I do consider that pension scheme rules should be quite explicit on what is to be provided. My order of preference for final salary schemes would be the following:

(i) Full inflation-proofing to be provided for.
(ii) Provision of a lump sum on retirement, to be applied in the purchase of the form of pension which the pensioner preferred.
(iii) Full inflation-proofing less 1% or 2% to be provided for.

I would see (ii) as one way of satisfying Mr Wilson who thought that inflation-proofing in the private sector would be wrong but that reasonable protection against inflation could be given by paying investment-linked pensions and deferred pensions. What I do not think is possible is to achieve that in a single fund in which the accrued rights of those not yet retired are earnings-linked.

I did not go so far as to advocate a return to money purchase arrangements, which would alarm Mr Rogers, but I would find it difficult to argue against such a move if other types of arrangement continued to make what I would regard as totally inadequate provision for early leavers. In this connexion I was interested in what Mr Brimblecombe had to say about a money purchase scheme with a final salary guarantee for stayers. If I understood him correctly, there would be a final salary pension scheme with a joint contribution of perhaps 13% and a pension fraction of eightieths. The scheme would hold as an investment a policy in each member’s name to which perhaps 10% would be paid—alternatively I suppose it could be a simple account in which 10% contributions would be accumulated at a suitable rate of interest. Such an arrangement would be in line with the thought
which I expressed in § 81 of the paper, that part of the employer’s contribution should be regarded as the employee’s as of right and the remainder as a reward for long service. A not dissimilar result would be achieved in a privately administered final salary scheme by uprating deferred pensions in line with prices, or paying a transfer value equivalent in value to such a pension.

I was interested in Mr Wilson’s suggestion that, if pension funds were thought to be getting too big, we might consider a lower level of funding. This was not a matter which I had considered in the paper although I had read with interest Mr Colbran’s paper in J.I.A. 109, 359, and I have recently expressed some views in the course of the recent discussion of Mr McLeish’s paper at the Faculty.

In my own paper, I used Dr Wolff’s model fund (on the new entrant contribution method) in order to estimate how large the funds might ultimately be on different assumptions. If Mr Wilson was offering to consider instead the discontinuance approach to funding, perhaps with accrued rights based on estimated final salary or even on current salary revalued in line with the general level of earnings up to pension age, then that would in my view be a constructive suggestion which might help to narrow the present gap between advocates of the aggregate and discontinuance methods. But what would it mean for the type of scheme suggested by Mr Brimblecombe? Would funds for active staff represent only the proceeds of the 10% contributions or would reserves also be built up for those nearing retirement from the 3% contributions to cover the cost of the extra final-salary benefit promised?

It was suggested that the examples given in § 49 onwards would have been easier to follow if the results had been assembled in a table. An attempt at tabular presentation follows. It will be seen that only a few of the percentages are really high and even the highest one of all—114½% for the pension to a widow who, when working, had been on half national average earnings—represented a pension of only 57¼% of NAE. It is arguable whether this could be regarded as serious overprovision.

These examples assume an occupational pension based on 40 years’ service and full integration with the State scheme. Mr Smith reminded us that at the present time the average occupational pension is much lower that that, but we are entitled to assume that in the long term better provision will be made for early leavers. Paragraph 59 shows that it is when full occupational pension is paid in addition to basic State pension that overprovision becomes apparent.