JIA 112 (1985) 407-419

PENSIONS: THE PROBLEMS OF TODAY AND TOMORROW

A SUMMARY OF THE REPORT PUBLISHED BY THE INSTITUTE OF ACTUARIES AND OF THE DISCUSSION AT STAPLE INN ON 11 JUNE 1985

PREPARED BY S. HABERMAN M.A., Ph.D., F.I.A.

THE REPORT: INTRODUCTION

FROM the very outset of the formation of pensions schemes in the United Kingdom, actuaries have been involved in their design, investment, valuation and solvency. A review of issues of the Journal of the Institute of Actuaries in England and the Transactions of the Faculty of Actuaries in Scotland over the last 40 years would show how schemes have become more complicated and more comprehensive, how the economic and equity problems have increased and how the actuarial profession has successfully adapted its theory and practice to accommodate change. After World War II the rapid growth in occupational pension schemes together with the post-Beveridge expansion in State social security led to concerns about the overall effect on the national economy. As a consequence, in 1954 a report on "The growth of pension rights and their impact on the national economy" was presented to both the Institute and the Faculty of Actuaries by Bernard Benjamin, Francis Bacon and Donald Elphinstone.[1] This report was further regarded as a valuable contribution to the work of the Phillips Committee of 1954.[2] Much has happened since then. Many new issues have arisen. It was, therefore, proposed that a second review report should be prepared and that this should be organized by the newly created Centre for Research in Insurance and Investment at The City University. This proposal was strongly supported by Stewart Lyon who made pensions the central theme of his Presidential Address to the Institute of Actuaries in 1982.[3]

In the event the following authors have collaborated:

Bernard Benjamin, Ph.D., D.Sc., F.I.A., Foundation Professor of Actuarial Science at The City University and Director of the Centre for Research in Insurance and Investment;

Steven Haberman, M.A., Ph.D., F.I.A., Professor of Actuarial Science and Director of the Actuarial Science Unit at The City University;

George Helowicz, B.Sc., M.A., F.I.A., Lecturer at The City University;

Geraldine Kaye, B.Sc., F.I.A., Research Fellow at The City University;

A. David Wilkie, M.A., F.I.A., F.F.A., Part-time Professor, Heriot Watt University.

The Report is structured so as to deal first with the prospects for the future for population, dependency, employment and pensions and then to concern itself with current issues.

CHAPTER 1: THE DEMOGRAPHIC OUTLOOK

In Chapter 1, Bernard Benjamin looks briefly at the demographic history of the U.K. over the period from 1871 to 1981. A set of variant population projections is then described relating to the next 50 years, i.e. the period up to 2031. These incorporate two alternative fertility projections (corresponding to ultimate levels of completed family size of 2·0 and 2·1 children per woman respectively) and two alternative mortality projections (corresponding to a moderate level of future mortality improvement and a dramatic improvement[(4)]). The demographic trends from 1901 to 2021 are then reviewed by the use of an index of dependency to answer the question: what are the overall effects of past changes and anticipated future changes in population structure on the proportion of the population who represent the dependent groups? The index used is the ratio of children (under age 15), non-gainfully occupied women and persons who have attained State pensionable age for National Insurance purposes (i.e. 65 for men and 60 for women) to the rest of the population. The rest may be regarded as indicative of the supporting section of the population (although over 10% of this residual group are themselves currently dependents as members of the unemployed). The ratio is estimated to have fluctuated between 1·13 (i.e. 1·13 dependents for every member of the supporting population) and 1·43 over the past 80 years. It is anticipated to fluctuate between 1·11 and 1·29 over the next 40 years (on the projection assumptions made).

In discussing these numerical results, Bernard Benjamin's main concern is to dispel the hysteria evident in the Government and in other bodies about the relative growth in the elderly population. Strains there will be but not much greater than have already been faced and borne before. The major dependency strains arising from the lower birth-rate will not arise until 30–40 years from now and there is ample time for a resolute and farsighted Government to plan ahead.

Bernard Benjamin also refers to the important elements of dependency that tend to be overlooked by those concerned only with pensions—social and health care of the elderly, especially those with inadequate pensions, and unemployment.

The dangers of a simplistic, arithmetic comparison of dependency ratios are also emphasized. Thus future and past are not directly comparable because of the technological improvements which have greatly *reduced* the number of workers needed to produce the goods required by the dependent sections of the population. It could be that, in the future, there will be a greater demand for labour to provide the *services* (rather than the goods) that the dependents will require.

CHAPTERS 2 AND 3: EMPLOYMENT TRENDS AND FUTURE DEPENDENCY

In Chapter 2, Steven Haberman takes the argument of Chapter 1 further by considering employment as well as demographic trends. Past employment trends are fully described for both sexes. Using a methodology proposed by Joshi and Owen[5],[6] employment trends are projected. Assumptions are made regarding the levels of economic activity, part-time working, permanent incapacity and unemployment, leading to an estimate of the structure of the working lifetime of the average male retiring in 2031, 50 years from the base date. This involves the lifetime between ages 20 and 65 being allocated between the categories of student, retired, inactive, self-employed, unemployed and employed. The methodology enables the effect of changes in assumptions, in particular normal retirement age and unemployment, to be investigated. Attention is focused on that part of the working lifetime in the employed category.

Whereas for men there has been little change between birth cohorts in economic activity rates, for women there has been an increasing trend in labour force participation since 1951. This means that successive cohorts of women have an increasing probability and duration of economic activity over their lifetimes. For women, the approach to projection is thus necessarily cohort-based. The econometric and demographic analyses of Joshi and Owen[5] note the important relationship between female economic activity and the presence of young children. Because of this link, childless women and mothers are dealt with separately. In projecting the working lifetime of the average childless woman, three different levels of cohort-specific economic activity rates are assumed.

In order to derive figures for the average mother, adjustments are then made to allow for the effect of children on the mother's lifetime economic activity and on the level of their earnings.[6]

The results of Chapters 1 and 2 are combined in Chapter 3 and lead to refined projections of the dependency ratio over the period 1981 to 2031 with explicit allowance being made for employment trends, in particular for women. The dependency ratio is projected to lie between 1·19 and 1·38 for 2031. If attention is concentrated on that part of dependency relating to the pensioner population, the projection for 2031 may be summarized as follows. Under the medium mortality assumption, there would be 1·9–2·2 economically active persons per pensioner and under the low mortality assumption there would be 1·4–1·6 economically active persons per pensioner relative to a current level (1981) of 2·6.

CHAPTER 4: FUTURE PENSION EXPENDITURE

In Chapter 4, Steven Haberman looks at future pension expenditure in relation to the size of the national economy, using a range of economic, demographic and actuarial assumptions. The first part of the chapter reviews current occupational pension statistics, summarizing the latest data from the Government Actuary's Survey[7] relating to membership and benefit provision. The second section describes a simple model for the estimation of the aggregate loss of pension rights on the transfer of jobs, i.e. for 'early leavers'.

The projection of pension expenditure deriving from the social security system and occupational pension schemes involves a number of inter-relating assumptions. Apart from the employment and demographic assumptions discussed in earlier chapters, assumptions are required concerning the level of occupational scheme membership and the pattern of benefit provision. An increase in membership levels is projected for both sexes, consistent with the projected employment trends of Chapter 2. Among the benefit assumptions made are those concerned with the uprating of deferred pensions for 'early leavers' and the uprating of occupational pensions in payment in relation to increases in the levels of earnings and prices. The different practices of the private and public sectors in this regard are recognized. The economic assumptions used are deliberately fixed to correspond to those used by Field(8) and by the Government Actuary in the recent Quinquennial Review.(9) Two variants have been taken—those with average prices rising at 6% and 8% per annum while average earnings increase at 8% per annum. Allowance is also made for the guaranteed minimum pension (GMP) part of any occupational pension provided by a contracted-out scheme.

The results of Chapter 2 together with the estimates of the loss of pension rights on the transfer of jobs enable estimates to be made of the average effective pensionable service (EPS) for persons retiring in 2031 under a range of assumptions. The sensitivity of these EPS estimates to a change in the assumptions is investigated. Comparisons are possible with the work of Field(8) using appropriate bases—the estimates are in broad agreement.

Similarly estimates are made of the average number of years contracted out for persons retiring in 2031.

It is then possible to estimate, for persons retiring in 2031, the average weekly occupational pension per head and the total expenditure on occupational pension benefits. The latter estimates include expenditure on lump sum retirement benefits, death in service benefits and death after retirement benefits. The differential uprating of the GMP component of pensions in payment is incorporated. Again the sensitivity of the results is investigated and a comparison with the independent estimates of Field(8) (using appropriate bases) suggests a broad agreement.

The estimates of expenditure should be viewed relative to the U.K. National Income. As a substitute for National Income, the aggregate of U.K. wages, salaries and pensions expenditure (TWSP) is used. This surrogate definition excludes investment income. Such comparisons are rather crude also because income tax and the other Social Security benefits that pensioners might be receiving are ignored. The estimates are combined with those from the Quinquennial Review of the National Insurance Scheme which covers expenditure on State Retirement Pensions. Thus, the total pensions expenditure for 2031 (in terms of 1981 earnings levels) is estimated to lie between £32b and £38b (on the medium mortality assumption) and between £38b and £45b (on the low mortality assumption). Relative to TWSP these ranges of expenditure are 19–22% and 22–25% respectively. For 1981 the total equivalent is estimated to be £20b or 12% of TWSP. These figures should be seen against the background of a pensioner population which is 18% of the total U.K. population in 1981 and which is projected to be between about 22% (medium mortality) and 29% (low mortality) of the U.K. population in 2031. The striking point behind these complex comparisons is that total pension expenditure is projected to be a percentage of TWSP which is closer (than at present) to the proportion of the population that pensioners are projected to form.

If pensioners are anticipated to increase their share of 'National Income', this will be at the expense of the rest of the population—principally, the economically active.

This growth in pension expenditure could be accommodated, without depleting the standard of living of the rest of the population, or decreasing the amount devoted to new investment by the possible use of two control mechanisms, viz. by increasing the productivity per head of the working population or by postponing the normal pattern of retirement. In the absence of either of these controls, the promises to pay improved pensions (implied by the projections) can only be implemented by non-pensioners having a depleted standard of living.

Chapter 4 concludes that the increased financial strains caused by the continued ageing of the U.K. population, the maturing of the State Earnings-Related Pension Scheme and the possible increase in coverage of occupational pension schemes can be met if there is moderate growth in the future. These conclusions are similar in tone to those of Bacon *et al*[1] reported in 1954. The critical time is likely to be the second or third decade of the twenty-first century when the post-war bulge of births centred on the early 1960s reaches normal retirement age and those born in the current fertility trough are still economically active.

CHAPTER 5: FUNDED PENSION SCHEMES—MACRO ECONOMIC ASPECTS

In Chapter 5, David Wilkie writes about the macro economic aspects of funded pension schemes. The contribution of life assurance companies and pension funds to the personal sector is presented using 1983 data. The accounts of life assurance funds and pension schemes (including funded, unfunded and notionally funded schemes) are summarized. Estimates indicate that in 1983 about £15b was available for investment by life assurance companies and pension funds. all of which contributed to personal savings: of this £15b, about £2b went into fixed capital formation (mostly property investment); £5b was lent to the Government; £3b was used to buy U.K. company securities; £3b went into the purchase of overseas securities and the remaining £2b was mainly lent to banks as cash on deposit.

Further, David Wilkie examines the difference between Pay-As-You-Go (PAYG) pension provision (for example, the National Insurance Scheme) and funded pension provision. Pure PAYG schemes simply transfer purchasing power from one section of the population to another. But with fully funded schemes, contributions are in addition to savings which *may* then be used for additional capital formation. This will then create the capacity for higher production in future years. The pensioner of the future gets his entitlement, not from a current transfer like PAYG, but by receiving the investment income on the funds and possibly by selling or passing on part of his capital to subsequent generations.

However, it is possible that increased savings may not result in higher capital formation. An excess of savings may just lead to lower production and higher unemployment.

The method of saving may affect the quality and the aggregate quantity. Many people, if free to spend or save their incomes, would spend a higher proportion of it now and so have less in their old age. Pension schemes as currently set up provide an efficient way of saving. The prudent individual might feel that, without them, he has to save more because of the greater uncertainty about the particular investment returns he would get and how long he might live. The existence of insurance allows individuals to obtain a particular level of security for the future at a lower present cost.

The relationship between the flows of money associated with pension schemes and the wider economy are very complex and it has not been possible to produce in Chapter 5 projections along the lines of those appearing in Chapters 1–4. One aspect of this complexity relates to the current economic recession. Thus, one could ask what effect there would be if institutional investors, who can choose where to invest their funds, were to channel these monies into real capital formation in an attempt to stimulate economic growth and reduce unemployment. So rather than lending to the Government, funds were directed to lending to companies, for example. Would this stimulate an economic recovery or just lead to funds flowing round the economy with a zero net effect? At present there is no clear authoritative answer to these questions.

Chapter 5 concludes that the way in which pension funds (both State and private) operate tends to conceal the reality that present prosperity comes from present work, assisted by the accumulated capital that has been inherited from past work and that there is no-one to pay for our own pensions but ourselves.

CHAPTER 6: PENSION FUND INVESTMENT

In Chapter 6, George Helowicz discusses the large investment potential of pension funds and the desirability of directing this to the financing of the development and reconstruction of domestic industry and the creation of jobs.

He highlights the concentration of pension fund assets in the hands of relatively few investment managers including those of self-administered and self-invested funds, insurance companies and professional portfolio managers, such as merchant banks. This situation has attracted much attention, with the suggestion that the economic ills of the country can be attributed to a failure of investment management. George Helowicz points out that these large institutions undoubtedly have considerable influence in deciding where new investment is placed, which new property developments are carried out, which companies are able to raise money satisfactorily by rights issues, which new companies will be successful on the unlisted security market and so on, and he wonders whether this power is being used to national advantage.

Concern is expressed that the investment that most benefits the nation as a whole may not be that which provides the greatest return to the investor, that investment managers have too short a time horizon whether or not actuaries have, and that the constraints of Trust Law elucidated in the Megarry judgement(10) restrict pension fund trustees in the way that would not be the case for individual investors or even for the managers of a unit trust.

The chapter raises several important questions. Thus, as part of his discussion of pension fund investment, George Helowicz asks whether the presence of very large funds under unified management facilitates or hampers the flow of savings into the right sort of new capital formation. He also asks whether the expertise of the managers is worth anything or whether they too much follow the herd. He goes on to speculate whether Britain's relatively poor rate of economic growth and currently high level of unemployment are two separate problems and whether these are attributable to insufficient real capital formation, inefficient real capital formation or to some other institutional factors. A supplementary question is whether it is public sector or private sector capital formation that has been deficient.

CHAPTER 7: RETIREMENT INCOMES SOURCES

In this brief Chapter, Geraldine Kaye outlines the types of retirement benefit being provided by occupational pension schemes and by the social security system.

CHAPTER 8: CURRENT PROBLEMS IN PENSION PROVISION

In Chapter 8, Geraldine Kaye examines a number of topical issues, at the 'micro-level' of pension provision. These issues are partly economic, partly political since they are concerned not only with the relative roles of public and private enterprise in pension provision but also with, in the latter case, the question of whether the responsibility should be the employer's or employee's. The Chapter also considers the protection of the pension entitlement of the individual, especially in the event of a change of employment.

The Chapter first looks at the function of a pension scheme and how this has changed over time and the concept of a pension as 'deferred pay'. The history of the move to a final salary structure is described and the demise of money-purchase schemes is discussed, with particular reference to the Federated Superannuation Scheme for Universities (FSSU).

The Chapter then examines a number of important issues. Some of these are familiar issues of actuarial discussion, such as the problem of the 'early leaver' and the indexing of benefits to pensioners. Others have received less discussion but are, nevertheless, of interest, particularly in view of the current Government review of social security as presented in the recent consultative green paper.[11]

The Chapter contrasts the defined contribution type of pension scheme and the defined benefit scheme and, in so doing, asks to what extent contributions should be attributed to individual members and to what extent it is reasonable to have an unattributed float of aggregate contributions paid by the employer. The problem of cross-subsidies between sections of the membership is discussed. This leads to comments on the equity of a final salary scheme which includes some individuals who receive substantial salary increases throughout their working lifetime and others whose income is fairly constant throughout. The problems of devising a modern money purchase scheme which avoids the historic disadvantages of this type of scheme are also considered.

Geraldine Kaye also considers how much a pension fund should be run by and for the employer and how much it should explicitly represent the individual savings of the employee and how much the provision of pensions should be related to need and how much it should be on the basis of value for money. The wider problem of regarding pension funds as providers of services rather than purely as financial institutions is also considered.

CHAPTER 9: TAXATION OF OCCUPATIONAL PENSION SCHEMES

Chapter 9, by Geraldine Kaye, begins with a description of the present taxation position of occupational pension schemes with which practising actuaries should be familiar.

Section 2 contains a condensed discussion of the advantages and disadvantages of taxing pensions on the present roughly expenditure tax basis or on a possible income tax basis or on an intermediate basis in which only the investment income would be taxed, the treatment of contributions and benefits remaining as at present. This is a complex subject. The point is made in Chapter 9 and repeated in Chapter 10 that it is difficult to see why personal savings for retirement through occupational pension schemes should receive a favoured form of tax treatment when individual provision before retirement through personal savings does not, and until recently has been penalized. The plea is made that it would be a great simplification in the administration of occupational pension schemes if the Inland Revenue limits were removed entirely, thus making the work of the Superannuation Funds Office redundant. This would allow individuals, through personal pensions, additional voluntary contributions or self-employed provision to save as much as they choose through the medium of a pension fund or pension contract and similarly allow employers to save as much as they might wish, subject to the proceeds being taxable on withdrawal. Since the vast bulk of personal savings now go through either pension schemes or building societies, the loss in immediate tax revenue would be comparatively small and the potential gain in stimulating additional personal savings in the economy might eventually be large. An important concomitant of the abolition of Inland Revenue limits would probably be the taxation of lump sums at least in excess of some limit.

Chapter 9 concludes with the comment that an expenditure tax system has many advantages as a method of taxing savings and that the profession should be encouraging the Government to move steadily towards it for *all* personal savings.

CHAPTER 10: THE FUTURE OF PENSIONS

A final chapter draws together the main themes of each of the previous Chapters to weave a final statement of the problems that are seen ahead. These are:

1. The social and economic (especially financial) consequences of the potential increase in the pensioner dependency ratio.
2. The financial strains placed by an ageing population on the State pension scheme, particularly on the earnings-related component.
3. The future relationship between State and private occupational pension provision.
4. The future of final salary schemes in particular and of defined benefit schemes in general.
5. The advantages of defined contribution as compared with defined benefit schemes.
6. The taxation of pension benefits and pension funds.
7. The conceptual nature of pensions (for example, as individual savings or as deferred pay) and, linked to this, the question as to whether pension funds should be used to assist the achievement of the social and economic objectives of the State.

DISCUSSION

The discussion was opened by Steven Haberman and David Wilkie who respectively introduced the first five chapters (dealing with the macro problems) and the second five chapters (dealing with the micro problems).

In this summary of the discussion we shall present the comments broadly in the order of the chapters to which they relate.

Much of the discussion was taken up with the second half of the report. Among the comments made on the first half was a request for more information on the projections of pension expenditure covered in Chapter 4, with particular reference to the incorporation of investment income. It was also mentioned that the emphasis on long term projections left out of account those existing pensioners with low incomes and those who might have to rely on low pensions in the coming decades. The introduction of the State Earnings-Related Pension Scheme (SERPS) in 1978 failed to improve the income of many retiring in the period up to about 1990.

A number of speakers commented on the macro economic background to pensions schemes, the subject of Chapter 5, with reference to the data presented by David Wilkie from the 'Blue Book'. The importance of the growth of the capital stock in the economy was mentioned, together with its relationship to economic growth and increases in profitability. This is also tied up with demographic and economic dependency in a crucial way, since a significant part of the capital stock is owned by pension funds and the increases in this stock are supporting the rising living standards of the economically active population. This is the reverse side of the dependency discussion of Chapters 1 to 4.

One speaker, while reviewing the second half of the report, commented on the difficulty of maintaining an objective view on some subjects given the interaction between the issues being discussed and one's own political and economic leanings.

A number of speakers noted the provocative nature of some of the later Chapters, in particular Chapters 6 and 8. They also regretted, what they believed to be a selective list of references quoted and the lack of a broader critique of some of the issues involved.

Chapter 7 includes a quotation from the Government Actuary which refers to money spent on pensions being a diversion from the consumers of that time to the retired. Two speakers disagreed on this point, in particular on the difference between accumulating physical assets and accumulating promises to purchase those assets at some future time. A third commented on the desirability of creating more physical assets through the importing of workers from the less developed world.

Several speakers were concerned with the subject matter of Chapter 6 on pension fund investment. One speaker found that the questions posed in this Chapter on whether investment managers should have the freedom to invest irrespective of social and moral implications and whether the Government should set sound priorities were both misleading and tendentious. He also felt that the author, George Helowicz, had been dismissive of the 'free market philosophy'. There was sympathy, however, for the author's views on the failures and imperfections of the British system of allocating capital. The comments on the orientation of the capital markets towards investment overseas and on the increasing recent trend in such investment also led to much comment. One speaker supported the author's view that the British capital market, as presently constituted and viewed against its historical background, was more geared up for channelling money abroad than for channelling money into the British economy. A second speaker supported David Wilkie's view (stated in Chapter 5) that overseas pension fund investment was beneficial by pushing down the exchange rate which created employment opportunities at home. By having a balance of trade surplus, the country acquires foreign currency, with which something has to be done. This currency could be spent on increased imports or on acquiring overseas assets. The latter form of investment provides future investment income which adds to the National Income in future years, and, of course, the assets can be sold in the future.

Another speaker alleged that the money raised for overseas by the British capital markets was being raised largely from foreigners for foreigners. This view contradicted the other contributions described above.

Some reference was made to recent statistical estimates of the flow of funds overseas in the first quarter of 1985. But a second speaker warned of caution in this area, given the notoriously unreliable nature of balance of payments statistical estimates.

Several speakers were critical of the comparison of defined benefit and defined contribution schemes in Chapter 8, which was felt to be unbalanced without full recognition being given to the advantages of defined benefit schemes. The even-handed comments in Chapter 5 seemed to have escaped their attention. Speakers pointed out that the important advantages of defined-benefit schemes which should be emphasized are the adequacy of the resulting pension in relation to the employee's final salary, despite the burden being placed on the employer's shoulders, the security and stability from the employee's point of view, the 'guarantee' that benefit will be maintained even if investment conditions are unsatisfactory, the presence of a target benefit and the ability of such schemes to direct resources where they are needed. One speaker pointed to the similarities between the two types of scheme. He argued that all pension schemes are of the same type in that what comes out cannot exceed what goes in and, in practice, the difference between defined contribution and benefits schemes may be a fine one depending on whether, when a crisis is reached, it is the contributions or benefits which are first modified (and there is scope for either of these adjustments in either type of scheme). Few speakers responded to the comments in Chapters 8 and 10 that defined benefit schemes inherently involve a guarantee.

On the subject of cross-subsidies within final salary pension schemes raised in Chapter 8, several speakers commented. One speaker had some sympathy for the view expressed by the author, Geraldine Kaye. One felt that the author had started with a preconception that there should be an employer's contribution, as well as an employee's contribution, that can be allocated to each individual and that anything that departs from this is a cross-subsidy. Of course, many scheme members probably share this preconception! Another speaker mentioned that pension arrangements must be viewed in the light of the total remuneration package—if there were a shift away from defined benefit schemes, there would be a corresponding shift in relative remuneration levels. This view was supported by a speaker who emphasized the importance of the individual pattern of benefit provision within the framework of an overall cost. Another speaker agreed with the suggestion of Chapter 10, which mentioned the advantages of the career average revalued earnings design of scheme (like SERPS) with particular reference to cross-subsidies. As he pointed out, however, the Government did not agree with this view, as it was proposing to dismantle SERPS.[11] A further speaker felt that the discussion of cross-subsidies was an important subject, but had been dealt with too superficially in Chapter 8 with little reference being given to data on earnings collected by, for example, the annual New Earnings Survey.

Such data are referred to extensively in Chapter 4 by Steven Haberman. This particular speaker failed to explain, however, how such *cross-sectional* and summary earnings distributions can be used to comment usefully on *lifetime* earnings distributions for individuals.

On the subject of communication, it was pointed out that one area of weakness which remained was the extent to which the benefits, indicated as being available to the members, were dependent on continued investment returns sufficient to support them and on contributions also being available. This point may not have been spelt out in sufficient detail to members of schemes although the speaker, who raised this, did feel that employers were becoming more aware of the need for communication on this subject.

A number of speakers referred to the Government's consultative green paper, the Reform of Social Security[11] and some did so at length. These contributions have not been summarized here in that they do not refer directly to the report under discussion. However, one of these speakers, in his criticism of the Green Paper, emphasized his support for the discussions of the first four Chapters of the report. He commented on the Green Paper's failure to consider whether an economy that cannot afford universal earnings-related State pensions can build up liabilities for universal private pensions with equanimity. Part of this argument ties up with the detailed presentation in Chapter 4 of the report.

Some speakers were critical of the tone of Chapter 10, and one identified some differences of view and emphasis between Chapter 10 and the earlier ones which it was attempting to summarize. This point was covered by Bernard Benjamin in his brief reply to the discussion. The authors, having decided to write chapters individually in their allotted part of the total subject, attempted to produce a sort of summary and conclusions in Chapter 10. The authors attempted to identify areas of agreement but this endeavour appeared, in retrospect, to have been a mistake since it resulted in a summary that really represented no consistent view at all. Also, Chapter 10 has been misquoted by the Press without reference to earlier and fuller Chapters. The authors now agree on one thing—Chapter 10 was a mistake!

REFERENCES

(1) BACON, F. W., BENJAMIN, B. & ELPHINSTONE, M. D. W. (1954). The Growth of Pension Rights and their Impact on the National Economy. J.I.A. **80,** 141–202 (with discussion).

(2) Committee on Economic and Financial Problems of Old Age (1954). Cmnd 933. H.M.S.O., London.

(3) LYON, C. S. S. (1983) Presidential Address: The Outlook for Pensioning. J.I.A., **110,** 1–16.

(4) BENJAMIN, B. & OVERTON, E. (1981). Prospects for Mortality Decline in England and Wales. *Population Trends,* **23,** 22–28.

(5) JOSHI, H. E., LAYARD, R. & OWEN, S. J. (1985). Why are More Women Working in Britain? *Journal of Labour Economics,* **3,** 147–176 (S).

(6) JOSHI, H. E. & OWEN, S. J. (1983). *How Many Pensionable Years? The Lifetime Earnings History of Men and Women.* Govt Economic Service Working Paper No. 65. Economic Advisers' Office. D.H.S.S.

(7) Occupational Pension Schemes 1979 (1981). Sixth Survey by the Government Actuary. H.M.S.O., London.
(8) Field, J. L. (1983). Projections of the Costs of Occupational and State Pensions. J.I.A., **110,** 243–270.
(9) National Insurance Fund Long Term Financial Estimates (1982). Report by the Government Actuary on the First Quinquennial Review. H.M.S.O., London.
(10) The Mineworkers Pension Scheme Case—Judgement by Sir Robert Megarry, April, 1984.
(11) Reform of Social Security (1985). Volumes 1–3. Cmnd 9517, 9518, 9519. H.M.S.O., London.