JIA 113 (1986) 341-409

THE LIFE ASSOCIATIONS' INTER-OFFICE EXPENSE INVESTIGATION

BY G. G. LUFFRUM, M.A., F.I.A., A. G. O'LEARY, B.A., F.I.A. AND A. D. SHEDDEN, B.Sc., F.F.A., F.S.A.

[Submitted to the Institute, 28 April 1986]

1. PROLOGUE

1.1.1. In the course of the discussion of the paper by Praetz[7] at the International Congress of Actuaries in Sydney, reference was made to the existence of the ongoing Expense Investigation conducted amongst life offices in the United Kingdom. Considerable interest was aroused and it was subsequently suggested that a paper describing this investigation be presented to the actuarial bodies in order that data on life office costs might be made available to the profession and its significance discussed. In agreeing to present such a paper the authors considered that its scope should be extended to include a study of the attitudes of offices and actuaries to expense analysis and control and of the uses made by offices and actuaries of the results of the Expense Investigation and other expense analyses.

1.1.2. The paper has been prepared in the following six sections:

1. Prologue
2. The Investigation—Its Origins and Development
3. The Investigation—Some Problems Encountered
4. The Investigation—An Assessment of the Results
5. Expense Analysis and Control—The Views of Offices
6. Expense Analysis and Control—Some General Comments

The inter-office comparisons and their results are described in Sections 2 to 4. Section 5 records the findings from a questionnaire issued to participating offices and Section 6 contains some general comments reflecting the authors' views of expense control and likely future developments.

1.1.3. The expenses of life offices in the U.K. were examined as long ago as 1959 by Dyson and Elphinstone[2] who presented a paper to the Institute describing a series of regression analyses carried out on published accounting data of twelve offices. Some comments made by the Institute President, F. M. Redington, at the conclusion of the discussion of this paper are recorded as follows:

He would like to suggest, however, a further line of approach to which the authors' extensive data could be applied and which they could be used to explore. It was on the lines of Pedoe's analysis of the Canadian companies' expenses, which was interesting and, he thought, had some value. The method

was to adopt a set of standard expenses, using rough, common-sense co-efficients from actual experience—actual costs of collecting each renewal, paying surrenders and so on—and apply those standard expenses for each office for each year and so obtain a set of actual and expected expenses which provided a useful comparative set of data.

As will be seen, the approach described by Redington was, in fact, adopted for the Inter-Office Investigation, although not as a result of his suggestion.

1.1.4. The authors are grateful to the Life Associations* for giving permission for the Inter-Office Investigation to be the subject of a paper and to the life offices and their actuaries for their ready co-operation in supplying information for this purpose.

2. THE INVESTIGATION—ITS ORIGINS AND DEVELOPMENT

2.1. *Inter-firm Comparisons*

2.1.1. Towards the end of the 1960s there arose considerable interest in the U.K. in the development of inter-firm comparisons within particular industries with a view to obtaining more meaningful information and, possibly, stimulating an improvement in productivity and efficiency. By 1967 the BIA* Research and Productivity Committee had become involved in this subject and a year later, in August 1968, had issued circulars inviting companies to participate *inter alia* in a limited voluntary investigation which would involve comparisons of staff numbers, staff costs and staff utilization.

2.1.2. The first move towards inter-firm comparisons within the life assurance industry, as distinct from the insurance industry generally, was taken by the members of ASLO*, who agreed that the information given by life offices in their published accounts did not enable meaningful comparisons to be made between the performances of individual offices. In November 1968 ASLO decided to set up a working party to investigate making inter-firm comparisons with a view to measuring efficiency and costs. The ASLO Productivity Research Working Party, as it was called, was charged "with the task of determining:

(a) what statistics are required to enable inter-firm comparisons to be made between life offices; and
(b) how these statistics might be collected (in a form suitable for use if the LOA* members are subsequently invited to join in the extended investigation), with a view to measuring new business and renewal costs today separately for pension and non-pension business and separately for assurances (substantive and temporary) and annuities."

* The Life Associations consisted of the Life Offices' Association (LOA) and the Associated Scottish Life Offices (ASLO). On 1 July 1985 the LOA was absorbed within the newly-formed Association of British Insurers (ABI), which also took over the functions previously performed by the British Insurance Association (BIA). The Investigation is now carried out under the auspices of the ABI.

2.2. *The ASLO Investigation*

2.2.1. The ASLO Working Party, in its subsequent report, confirmed the unsuitability of crude expense ratios derived from figures of expenses and premium income in published accounts, even where these figures were available over a series of years or when they were adjusted for the levels of new business. It asserted the need to obtain more detailed figures from individual offices and for expenses to be broken down into various main classes of business, such as ordinary life, immediate annuities and group pensions, and, again, into new business and renewal expenses. However, it rejected the approach of having offices express expenses under each heading in the form of stated units, such as per £100 new sum assured or per policy. Having more than one unit for an item of expense and having different units for various items would make comparisons between offices difficult: for example, it would not readily be apparent how costs compared between two offices whose respective new business costs were in the one case A per cent of sum assured plus B per policy and in the other case C per cent of sum assured plus D per policy. Also, it would not usually be possible to amalgamate figures for different items, as the units would probably not be the same.

2.2.2. The approach suggested by the Working Party was on the lines adopted by the Canadian Association of Actuaries for its own inter-firm expense comparison, and referred to by Shedden[5] in a paper to the Actuarial Students' Magazine. (The Canadian investigation has been described in detail by Pedoe[1, 3] in two papers to the Society of Actuaries.) In this approach the expenses are again divided up into various classes of business, and into initial and renewal categories, but for each item a notional rate of expense is assumed. The notional expenses can be calculated fairly readily for each item and can then be compared with the actual expenses incurred by the office under this heading, the result being expressed as a percentage of the actual to the notional expenses for each item. By this method percentages could be arrived at for various classes of business, initial and renewal combined, and for all classes combined. The fixing of the amounts of the notional rates of expense would not be critical but it would nevertheless be desirable that they should be realistic and the units used those likely to be most effective in neutralizing the result of the different compositions of the business of the offices.

The various notional rates of expense for different categories of business were more commonly referred to subsequently as expense factors. These had been initially derived by testing against some, but not all, of the ASLO offices' results. An alternative method, raised in subsequent discussion of the report, would have been to derive the notional expense factors from the aggregate actual expenses and statistical data (i.e. numbers of policies, sums assured, etc.) of all offices, so that the ratio of actual to notional expenses for each class of business (or alternatively for all business combined) would be 100%. The Working Party felt that this second method offered no advantages over the one proposed and, indeed, had disadvantages in that the first method would enable comparisons to

be made not only between the expenses of individual offices in the same year but also between the expenses of an individual office in successive years. The system of notional expense factors which were independent of the aggregate figures would be simpler and quicker, and would avoid offices having to disclose any absolute figures; they would only have to disclose percentages. On the matter of disclosure, the Working Party felt that anonymity was essential, and although it recommended that results of individual offices be disclosed (rather than showing statistical figures only, such as medians, etc.) it recommended that offices be identified by number only.

2.2.3. Attached to the Working Party's report was a table of the various items for which ratios were to be calculated, together with the recommended notional expense factors, and notes to offices for compiling their figures; the table of items and notional expense factors is set out in Appendix 1.

The Working Party's report was adopted, but when the first year's results were submitted to them it appeared that the participating offices had experienced difficulty in allocating actual expenses and commission to all the categories of business for which notional expense factors were given. Accordingly, the offices were asked to re-submit their ratios on the basis of grouping non-investment expenses into nine categories of business and commission into three categories of business. Later on in the Investigation, because of continuing allocation difficulties expressed by the offices, these nine categories of expenses were further condensed into three categories only, as for commission, i.e. new business expenses (excluding group business), renewal expenses (excluding group business) and group expenses.

As recommended, precautions were taken to ensure that the identity of individual offices did not become known to those collating the results.

2.2.4. Appendix 2 sets out the aggregate results for the ASLO Investigation over each of the five years for which figures were obtained. It had always been the view of the Working Party that, ideally, the median figures for the various ratios ought to be around 100% and it is obvious that the original factors chosen did not meet this criterion in every case. This fact had been recognized from the outset but it was considered inadvisable to make frequent changes in the notional expense factors, the advantage of continuity over a period of years outweighing any disadvantage in having somewhat inappropriate factors. Nevertheless, in reporting on the Investigation after three years of operation, the Working Party recommended a number of changes in the various factors. However, these changes were held back in the hope that there might be some agreement as to common expense factors between the ASLO Investigation and the comparable LOA Investigation which was currently being planned and to which the ASLO offices would contribute. In the event, after consideration of the ASLO offices' results for the first two years of the LOA Investigation, it was decided that there would be little advantage in the ASLO offices contributing to two different investigations; accordingly, it was decided to wind-up the separate ASLO

Investigation rather than amend it. As will be seen the LOA Investigation† provided similar comparisons in respect of insurance expenses, albeit with commission combined with other expenses, whereas the ASLO Investigation gave separate information in regard to investment expenses, number of new business staff per £ million (sums assured) of business, and cost for clerical staff of accommodation, pensions and staff administration as a percentage of remuneration. The basis for obtaining the first two of these additional items was becoming increasingly suspect, however, and the usefulness of the information obtained from these ASLO figures was not sufficient to merit continuing the separate investigation on that account.

2.3. *The Pilot Study*

2.3.1. In view of the wide-spread interest in inter-firm comparisons, already referred to, the LOA had, early in 1970, set up a Productivity Committee to examine questions concerned with the productivity and efficiency of the life assurance business. The terms of reference of this Committee were to make recommendations and, where necessary, appoint Panels to carry out appropriate investigations. Later on in the year, the LOA Management Committee proposed that the Productivity Committee be asked to carry out an industry-wide investigation into expense ratios along similar lines to those adopted for the ASLO Investigation. In making this proposal the Management Committee suggested that it would be desirable that the notional expense factors should be realistic and that the units used should be those most likely to be effective in neutralizing the results of the differing compositions of the member offices. However, it felt it necessary to warn against these notional expense factors being considered either as 'expected' expenses (although, in fact, they came to be so called) or as suitable for premium calculations.

2.3.2. The proposal was accepted, and it was accordingly agreed that a Working Party (which came to be called the Expenses Panel) should be set up to explore the possibility of the Associations (i.e. LOA and ASLO) carrying out an industry-wide investigation to facilitate inter-firm comparisons of expense ratios. This Expenses Panel reported about a year later, in October 1971, and made recommendations which took account of the replies to a questionnaire sent to offices asking them to indicate the level of analysis of actual costs likely to prove acceptable to them and their methods for dealing with certain expenses. The Panel recommended that some twenty offices be invited to take part in a pilot study based on the results for 1970, so that the workings of the suggested scheme be tested in practice, and the results of this pilot study were incorporated in a second report by the Panel, made in September 1972, recommending that all offices be invited to participate in an annual survey commencing with data for the year 1971. The original proposals of the Panel were slightly modified in the light of the experience of the pilot study.

† In practice, the LOA Investigation was run under the auspices of both the LOA and ASLO until the ABI took over.

2.3.3. Although the approach to be adopted for the LOA Investigation was in principle the same as that adopted for the ASLO Investigation there were differences in detail. These can be summarized as follows:

(i) In the LOA Investigation the various categories of policy were extended so as to distinguish investment-linked and group endowment policies. The latter were included with group business whereas, in the ASLO Investigation, they had been included with sponsored individual pension business. The investment-linked policies were put into a separate category of business.

(ii) There were some differences in the notional expense factors, the most notable being an allowance of £10 per policy for new full premium policies (instead of £20), a renewal allowance of £2 per policy (rather than one of £1 per rider) for low premium assurances, and annuity payment expenses of £3 per annuity (rather than £·75 per annuity).

(iii) No ratios were to be supplied in the LOA Investigation in respect of investment expenses, new business producing staff and clerical overhead costs.

(iv) While, as in the ASLO Investigation, the actual expenses were to be analysed for various categories of business, rather than for each category of policy for which notional expenses were calculated, the grouping for presentation of actual to expected ratios was different.

(v) The instructions for completing the expense returns were, on the whole, more specific than for the ASLO Investigation and the various statistics to be related to the renewal notional factors, i.e. total sums assured, total number of policies in force etc. were to be based on mean in force rather than on end of year figures, as in the ASLO Investigation.

(vi) Offices were to submit amounts of the notional and actual expenses, and not merely the ratios. (This was to facilitate future regrouping of the data and testing for the effect of using different notional expense factors.)

(vii) No separate ratios in respect of commission were to be derived.

(viii) Ratios for individual offices were not to be published. Instead, offices were to be grouped by type and by size, and statistical ratios published for the various categories of business within each office group.

An edited version of the form used in the 1971 Investigation for calculating the various hypothetical expenses is set out in Appendix 3.

2.4. *The Format of the Initial Investigation*

2.4.1. The major justification for the difference in format between the LOA and ASLO Investigations lies in the wide diversity of LOA offices compared with the relative uniformity of ASLO offices. The ASLO offices all sold more or less the same categories of business, albeit in different proportions, and operated with very similar structures. In contrast, the LOA offices included a mixture of direct-selling and agency system offices, industrial life offices, composite offices and

branch offices of foreign insurers. This militated against any meaningful comparisons of expenses as distinct from commission, since one office's commission might be another office's sales expense. Similarly, ratios relating to the new business producing staff and proportion of costs spent on accommodation, pension and staff administration were omitted because a useful comparable basis would be difficult to define. (Even with the ASLO offices these ratios were causing difficulties.) The Panel also decided to exclude investment expenses from the Investigation because wide variations could arise in the levels of this expense for reasons unconnected with relative efficiency and because interpretation of the significance of any such ratios would be highly controversial.

2.4.2. In spite of the wide variety of offices, the LOA Investigation followed the ASLO Investigation in setting its notional commission factors as being in accordance with the maximum scales of commission allowed under the Associations' Commissions Agreement. The expense factors, on the other hand, were chosen on a basis that was thought to be 'reasonable' having regard to the spectrum of offices likely to be contributing. Although more or less the same as for the ASLO Investigation, they tended to be somewhat lower for new business and somewhat higher for renewal business, even though the ASLO results had indicated that the expense factors that had been used were on the low side. Nevertheless, the ASLO offices' ratios, on the LOA basis, for expenses and commission combined were not unreasonable. This arose partly because the ASLO offices paid, on average, somewhat less than the maximum commission allowable, as is obvious from their results shown in Appendix 2.

2.4.3. Six categories of business were chosen for analysis: ordinary new, ordinary renewal, index-linked (i.e. investment-linked), annuities in payment, sponsored group and sponsored individual (including self-employed). Ratios were to be published for each of these categories of business and for all categories of business combined. The categories of business chosen were all ones which offices were accustomed to identifying in completing their statistical returns.

The office groupings were determined after consulting with the prospective participating offices as to their preferences and considering the nature of the offices contributing to the first full investigation in 1971. The aim was to compare offices in what were considered might be broadly homogeneous groups, which were as follows:

by type—purely life offices, IB/OB offices (i.e. offices transacting both industrial branch and ordinary branch business), composites, and U.K. branches of overseas offices;
by size—large, medium and small.

The different types of office varied in number, with about half the offices falling into the purely life group. The groupings by size were determined so that about half the offices fell into the medium group and the remainder were split more or less evenly between the large and small groups.

2.4.4. The Panel considered that the ASLO practice of publishing ratios for

each office would not be acceptable to the LOA members in view of their concern to maintain confidentiality. It was therefore decided to express the results in terms of median ratios for each category of business within each office group and to show, in addition, upper and lower quartile ratios for the larger office groups and, in every case, the range of the ratios. In the pilot study weighted averages for each office group had also been published but this practice was not adopted for the full Investigation as it was realized it could have led to identification of some particular offices.

2.5. *The 1977 Review of the Investigation*

2.5.1. In view of the support received for the 1971 Investigation, annual surveys were instituted, and throughout the period from 1972 to 1976 the basic format of both the Investigation and the results remained substantially unchanged. However, one change in presentation of the results implemented in this period was the introduction, for 1975 onwards, of an additional table identifying the offices by office number and showing their individual ratios. Offices are included in this table at their own discretion, and although the publication of individual ratios represents a loosening of the strict anonymity applying at the outset of the Investigation almost all of the participating offices have chosen to have their ratios published.

2.5.2. Once one or two years' results had been obtained it became obvious that the initial choice of hypothetical factors was not entirely satisfactory, and there was also considerable concern over the wide dispersion of the results. The Panel made changes from year to year in the instructions to offices in an attempt to reduce inconsistencies in reporting and to clarify uncertainties which offices had experienced in completing the questionnaires. In addition, in 1976, the Panel organized a number of group meetings with offices to discuss the Investigation and expense analysis in general. (This process of consultation with offices has persisted throughout the life of the Investigation.)

Although a number of problems and possible solutions were identified (some of which are discussed in Section 3 of the paper) it was felt advisable, as with the ASLO Investigation, to persist for a number of years on the original basis rather than attempt to adjust the hypothetical factors and other features from year to year. Nevertheless, at the inception of the Investigation it had been agreed that the Panel should review its operation every five years or so. Since a review would have been necessary in any case in order to accommodate the Associations' proposed new premium-related commission scales, consideration of possible changes was delayed until the introduction of these scales.

2.5.3. As part of the review of the Investigation a regression analysis was carried out on the data for 1971–1976. The Panel had hoped that the results would give them guidance on the level of hypothetical expense factors to be adopted, but it became apparent that the wide dispersion in ratios prevented suitable answers from emerging and the analysis was abandoned. However, considerable time was devoted to testing the suitability of alternative sets of

hypothetical expense factors and considering possible changes in the groupings of the data. In 1977, proposals for changes in the Investigation were submitted to offices for comment and, with a few amendments, introduced for the 1977 survey. These changes can be summarized as follows:

(i) The hypothetical factors were updated to take account of both the increase in costs since the start of the Investigation and the change to a premium-related commission scale. With one exception, all the sum assured-related factors were replaced by premium-related factors in respect of both expenses and commission.
(ii) It was affirmed that in future the per policy hypothetical factors would be indexed each year to reflect the general level of inflation in earnings.
(iii) The investment-linked category of business was no longer to be identified separately but was to be included with ordinary business. On the other hand, self-employed business, which previously had been combined with individual sponsored business, was now to appear as a separate category.
(iv) Offices transacting predominantly investment-linked business were to be grouped separately from the other purely life offices for the purpose of presenting the results.
(v) An additional grouping of offices by type of sales organization was introduced, the three groups being direct selling offices, offices paying commission on the Associations' scales and offices with other types of sales organization.
(vi) An 'expenses-only' investigation was introduced, giving median and quartile ratios (excluding commission) for the group of offices that contributed. Inclusion in this investigation was voluntary and offices were instructed to supply figures in respect of actual expenses excluding commission only if they were predominantly commission-paying.

2.6. *Subsequent Developments*

2.6.1. Group meetings were held in October 1978 to discuss any problems that had arisen with the new format of the Investigation and, as a result, a number of small changes were made to the hypothetical factors and to the instructions. Also, because of difficulties in interpretation, the new grouping by type of sales organization was amended so as to distinguish two types of office only—offices paying commission on the Associations' scales and other offices. With this change in definition it became quite clear that only those offices paying commission on the Associations' scales could contribute to the expenses-only investigation.

The expenses-only investigation proved very popular and at the request of offices a further table was introduced, listing 'expenses-only' ratios by individual office. To preserve anonymity, the office number allocated to participating offices was different from that used in the main Investigation.

A second new table was introduced at the request of a number of offices,

mainly composites. This showed ordinary individual new business ratios re-calculated using expense factors giving greater weight to number of policies and lesser weight to yearly premiums. The basis used, which has remained unchanged, is to double the normal per policy factor and halve the normal percentage of yearly premiums factor.

2.6.2. The changes described in §2.6.1. affected the 1978 and subsequent surveys but offices were asked to re-submit their 1977 figures on the new basis, with the result that figures on the new basis are available from 1977 onwards.

A further minor change was made in 1979, when it was decided that the number of offices in the group of U.K. branches of foreign companies was too small for separate identification and these offices were grouped instead with the purely life offices, there being no reason to suppose that their expense structure was significantly different.

2.6.3. Consultation with offices continued and, under the auspices of the Panel, a series of group meetings of offices participating in the Investigation was held in 1979 and 1980 on the subject of functional cost analysis. The practicability of extending the Investigation to cover functional costs was considered but rejected, as it was clear at the time that few offices could attempt a full functional cost analysis. However, an attempt was made to identify useful ordinary business functions for non-pension business and the agreed list of functions is reproduced in Appendix 5.

2.6.4. The Panel carried out its second quinquennial review of the Investigation at the end of 1982. The results of this review did not indicate that any pressing changes needed to be made to the expense factors and, after consultation with the participating offices, it was agreed that the Investigation should continue substantially unchanged. However, following some experimentation, it was decided to reduce the size groupings from three to two and at the same time to introduce similar size groupings for purely life offices and for offices contributing to the expenses-only investigation. These changes in format were introduced for the 1982 and subsequent surveys.

The only change in format since then has been the addition to the published ratios of ratios for ordinary individual new and renewal business combined. However, in 1983, the design of the questionnaire was altered to accommodate the introduction of a computer system for capturing and manipulating the data supplied by participating offices. It is hoped in future to carry out more extensive testing of data than has been possible hitherto.

3. THE INVESTIGATION—SOME PROBLEMS ENCOUNTERED

3.1. *Introduction*

3.1.1. As noted in Section 2 of the paper, there have been several changes in the structure of the Investigation since its inception, although the basic format has remained unaltered. These changes in part represent the response of the Panel

and the participating offices to the experience of successive Investigations and in part reflect changing external circumstances. To illustrate the current structure of the Investigation an edited version of the form used in the 1984 Investigation for the calculation of the various hypothetical expenses is set out in Appendix 4(a) and the notes for completion of the 1984 forms are reproduced in Appendix 4(b).

In this Section some of the problems encountered at the start of the Investigation and during its subsequent development are discussed in more detail.

3.2. *Division by Category of Business*

3.2.1. As was the case with the ASLO Investigation, the number of categories of business identified for application of hypothetical expense factors has always been greater than the number of categories of business for which separate ratios were to be calculated. It was felt that offices would have difficulty in analysing their expenses into too many categories and that if they did so the resulting ratios would be so inaccurate as to be useless. Only the broadest categories of business were therefore to be analysed. Individual life business and group business were obvious categories for which separate ratios were to be calculated, but this left decisions to be made regarding the remaining categories of business and the Panel's treatment of these has reflected both their changing importance and the nature of the results obtained from the earlier surveys.

Although the hypothetical factors reflect a distinction between new and renewal costs for individual policy business it has not been felt useful, so far, to show separate ratios for new and renewal business except for individual life business. Indeed, the increasing difficulty of distinguishing between new and renewal operations within the self-employed and sponsored individual categories of business has not encouraged further breakdowns of the figures.

3.2.2. At the outset, it was decided to treat the relatively new, but growing, investment-linked business as a separate category of individual life business, but linked individual pension business has never been separated in this way. The early experience, and the comments at group discussions, suggested however that, on the whole, the expenses associated with the investment-linked category of business are not significantly different from those associated with the corresponding traditional business, at least for annual premium contracts, and from 1977 such business has not been separated. Since then, offices transacting mainly linked business have been grouped separately and there is no particular reason why traditional offices, having a linked subsidiary, could not include such a subsidiary within that group.

3.2.3. Pension business has always been categorized into individual business and group business, although it has proved difficult to arrive at a satisfactory demarcation between sponsored individual and sponsored group business. Initially, self-employed business was included with sponsored individual business, in part because in most offices these contracts were administered similarly, but the growing importance of both categories of business prompted the Panel to separate them following the 1977 review. By this time there was increasing

evidence that the costs for self-employed and individual pension business were significantly different. One difficulty which has persisted, however, is the treatment of individual policy scheme business and arrangements whereby individual pensions are written under a master contract. In some cases such business hardly differs from a collection of individual pension arrangements but in other cases, especially where there is a large number of scheme members, the administrative and cost structure is closer to that of a group pension scheme and the Panel has had to leave it to individual offices' discretion to include such business with sponsored group business if they feel the administration structure and costs so warrant.

3.2.4. The treatment of annuities in payment has been a persistent problem, especially in view of the relatively small size of the business and the wide range of ratios returned by offices, some of whom obviously treat payment expenses as a residual in their analysis. It has been suggested at various times that this category of business should be merged with one or more of the other categories of business. However, the Panel has so far felt that, since some companies administer annuities in payment within a separate department, the category should be retained, particularly as it should grow in future as more deferred annuities under pension scheme business vest. This argument is not entirely convincing, nonetheless, since it could also be applied to the cost of collecting premiums. One advantage of allocating annuity payment costs to the various other categories of business (as was the case with the ASLO Investigation) would be to avoid the difficulties presently experienced in allocating the cost of vesting the annuity.

3.2.5. At the start of the Investigation it had been decided to exclude managed fund pension business. During the course of the 1977 review it was pointed out that, since linked sponsored individual contracts were included, managed fund schemes should also be included to the extent that they were administered by the life office. In the event, as a result of comments from offices on the 1977 proposals, it was considered that most managed fund contracts did in fact provide investment management only and it was therefore agreed to continue to exclude them from the Investigation.

3.3. *Choice of Hypothetical Expense Factors*

3.3.1. The expense factors are simply benchmarks, designed to reflect what may be regarded as the level of expense experienced by offices generally for the broad categories of business chosen for analysis. They do not by themselves indicate desirable levels of expense or appropriate functional costs and may not in any case be appropriate where the mix of policies within the various categories of business is unusual. Only a limited attempt has been made to distinguish different levels of cost for different types of policy within a particular category of business.

Broadly speaking, the approach for individual business has been to assume that a portion of the expenses may be represented by the payment of commission

in accordance with the Associations' Commissions Agreement (in force until 1982) and that a further portion of new business costs could be deemed proportionate more or less to the commissions paid and hence to the size of policy; the administrative costs of putting a policy on the books and of servicing a policy were deemed to be independent of the size of policy. Such an approach was consistent with prevailing actuarial loading practices and ensured that for offices paying commission on the Associations' scales about half of the expected expenses would be correctly estimated over the years, although not necessarily in the correct year.

3.3.2. Unfortunately, the industry change from sum assured-related commission scales to premium-related commission scales made the hypothetical factors less reliable predictors of actual commission paid. This was because the average rate of commission paid by an office depended on the average term of policy written by the office, a statistic not available to the Panel nor, probably, to the individual offices themselves and, moreover, one that obviously might vary from office to office. For individual business this problem was tackled by basing the factors on a combination of sum assured and premium, the formula used having been found on experiment to fit reasonably well for most ranges of term and age. However, such an approach was not possible with individual pension policies since they did not always have benefits expressed in terms of sum assured. Indeed, even for ordinary individual policies, this formula is now less appropriate, especially for certain types of linked policies where the sum assured may vary at the policyholder's option for any particular premium being paid.

3.3.3. At the outset of the Investigation, a distinction was made between full premium and low premium ordinary individual business. The Panel did not go so far as to follow the ASLO practice of having different hypothetical factors for both new and renewal administrative costs but confined its distinction to new business only. In addition, the Panel did not follow ASLO in making an allowance for renewal costs of riders. With the introduction of premium-related commission factors the new business expense factors, other than the per policy factors, became based on premiums rather than on sums assured. Prior to the 1977 revision of these factors the relationship between those for full and low premium business was such that, on the not unreasonable assumption that the average sum assured for low premium business was five times that for full premium business, the hypothetical expense allowance was equal for the two classes. The change to premium-related factors gave more weight to full premium business but, although the per policy factors were adjusted to compensate, the new factors were criticized by a small number of offices, mainly composite, transacting large amounts of low premium business, on the grounds that they distorted these offices' ratios relative to those of other offices.

The new factors were inevitably a compromise. The Panel would have liked to use a higher per policy factor and a lower percentage of premium factor but preferred in the end to put more weight on the premium factor. This was in order to avoid giving undue weight to policies in circumstances where the office had the

practice of splitting large policies into smaller ones or of writing term benefits as separate policies rather than as riders. An extreme example of such a practice is where offices issue clusters of policies, but here they are required to count a cluster as a single policy where, for practical purposes, the policies within the cluster form part of a single office record. Most offices have expressed themselves happy with the new factors, but in order to satisfy those offices that felt that the factors were unsuitable for them an alternative table is now published, as noted in § 2.6.1.

3.3.4. The expense factors for ordinary individual business have also had to accommodate the development of single premium business both in the linked market and in the guaranteed bond market. For new offices in particular such business accounted for a substantial proportion of their total costs and inappropriate single premium expense factors could distort their results. The choice of new business per policy factor for annual premium business, while unsuitable perhaps for low premium policies, was considered suitable for single premium business, but in the light of comments from offices it was decided to adopt a lower renewal factor for paid-up policies compared with premium-paying policies. This distinction was introduced in 1977, the paid-up renewal factor being somewhat arbitrarily selected to be two-fifths of the corresponding premium-paying factor. It was provided, however, that single premium bonds under which a series of payments was being made in exercise of an income option could be treated as premium-paying contracts.

3.3.5. Considerable problems have arisen in dealing with sponsored individual business and self-employed business. The difficulty is partly one of determining suitable levels of new business and renewal costs and partly one of defining new business and renewal activities. Theoretically, there is much to be said for dealing with 'members' or 'arrangements' rather than with policies, but such a solution is impractical. As an expedient, therefore, the per policy new business factor has been extended to apply to increment benefits attaching to original policies, it being understood that 'policy' would mean any documents or certificate recording an individual member's benefits.

It is recognized that one inherent difficulty in determining suitable factors for this business is that over a period the proportion of additional incremental policies will increase and the average size of policy will probably decrease as a result. Thus, factors which may be suitable where most of the business is represented by first policies of high average size may be quite unsuitable when the business has aged and the proportion of incremental benefits has increased. A related difficulty lies in distinguishing between annual and single premium policies, especially where recurring single premium contracts are involved.

Although there are grounds for supposing that sponsored individual business will be relatively more expensive than self-employed business the same hypothetical factors have been used for both categories of business and, indeed, these are closely related to the factors used for ordinary individual business. The published results, however, do not suggest that the factors are too far removed

from reality and it must be supposed that the higher average size of policy associated with individual pension business offsets the higher costs experienced.

3.3.6. When the Investigation was first being planned, sponsored group business was seen by the Panel as a major problem area, and it was felt that any attempt at an elaborate analysis of group expenses (e.g. into new and renewal) would prove impracticable and unrealistic. The Panel also found it difficult to decide whether the hypothetical expense factors should relate mainly to premium income or to number of schemes or members. These problems were resolved by deciding initially to use the same factors as were being used in the ASLO Investigation. Thus, for the 1971 investigation, the factors were based on premium and, for endowment schemes, sum assured.

The heterogeneity of the costs involved, dependent as they were on the size of scheme, method of costing, standard of servicing etc., was fully recognized then and subsequently. At the 1977 review of the Investigation it was felt that, for simplicity, a percentage of premium factor only should be used, although in theory an allowance per member could be appropriate. During later discussions it became clear that an allowance per member would not in fact be feasible, because some companies could not count the number of scheme members accurately. A factor per new scheme was considered desirable, however, in view of the large initial cost of setting up pension schemes. Number of schemes is used as the parameter, rather than number of policies, since the practices of offices vary as to whether or not the group life or widows' benefits are issued as separate policies.

3.3.7. In dealing with annuities in payment a number of suggestions have been made for separating group and non-group business and for distinguishing between direct and bulk payments and allowing different factors for each. On examination, however, it has been found that, despite the merit of the suggestions, it would be extremely difficult in practice to define precisely what is meant by the separate categories chosen, which depend very much on the practice of individual offices. Nonetheless, it has been considered feasible to take account of the different frequency of payment of annuities by allowing a sum per annuity and a sum per individual or bulk payment. The combined allowance produces approximately the average expense levels observed.

3.4. *Miscellaneous Adjustments*

3.4.1. Prior to 1977 it had been the Panel's view that the per policy factors should remain fixed over a period of years, rather than be indexed, so that the trend of expenses might appear more clearly. However, it was pointed out that the commission and those expense items relating to premiums or sums assured were already indexed, in effect, and it would therefore be consistent to index per policy expenses also, so as to produce actual to hypothetical expense ratios on a fully-indexed basis. The Panel accepted this argument at the 1977 review and since then has indexed the per policy expenses on a basis consistent with the increase in average earnings. The Earnings Index was chosen in preference to the

Retail Price Index because it seemed reasonable to assume a relationship between earnings and premium income etc.

3.4.2. At the time of the start of the ASLO Investigation FSSU and similar business represented a significant part of the total pension business. Such schemes were deemed to incur a lower level of expense than normal pension business and to take account of this the ASLO Working Party decided that a factor of 50% should be applied to the notional new business and renewal expenses and that commission should be ignored. A similar instruction was included in the forms to be completed for the LOA Investigation but was eventually dropped in 1982, by which time FSSU business had become a relatively insignificant part of the total pension business.

3.4.3. Both the ASLO Working Party and the Expenses Panel were aware that there were theoretical errors in the basis for assessing hypothetical commission on new business. The method adopted when the Investigation started was unsound in that it allowed in the hypothetical expenses a complete year of initial commission for all new business but only took into account initial commission actually payable in the year of account when the actual expenses were analysed. For an established and stable class of business it would be likely that the error involved would balance out, but within offices which were new, or which experienced sudden changes in the level of new business, considerable distortions could be introduced. Except where indemnity terms are being offered, initial commission is usually spread over the first (and sometimes second) year's premiums; hence, only part is paid in the year of new business with the rest being paid in the following year(s). In a year of sudden increase of new business the effect would be to reduce the ratio of actual to expected expenses, and vice versa if there was a sudden decrease.

In the ASLO Investigation it was decided not to make any adjustment for this distortion, since the offices involved would be equally affected and variations in this area were thought to be minimal. The Expenses Panel also felt that no adjustment should be made, since a number of offices already had difficulty in analysing commission between initial and renewal. It was felt that the method used represented the best practical approach.

During the discussion meetings that preceded the 1977 review of the Investigation it was suggested by some that commission should be excluded altogether. However, this would not have been an acceptable solution because direct writing and non-commission-paying offices also contributed to the Investigation. At the time of the 1977 review it was felt that the distortion had reached such a level that offices should in future be requested to adjust their actual new business commission reported if they considered that differences between the incidence of payment of new business commission and the incidence of payment of the corresponding first year's premium were such as to engender significant distortions in their ratios of actual to expected expenses.

3.4.4. Differing treatment of overhead costs by offices was put forward, in the early years of the Investigation, as one possible reason for the variation in the

ratios between offices. At one stage, the Panel considered issuing a separate questionnaire to offices inviting them to provide a more detailed breakdown of their overhead expenses. This suggestion was not proceeded with, but it was clear that offices saw as a major reason for fluctuations in the ratios the differing practice as regards dividing overheads between different classes of business.

It would have been desirable to have been able to lay down standard procedures for dividing overheads but the Panel has never considered this to be practicable. Guidance has, however, been given on specific areas relating to overheads. For example, offices are requested to include the rental value of owner-occupied buildings in their actual expenses, basing the rental value on the current rack rental. Offices are also requested to make allowance in their actual expenses for the cost of staff mortgage schemes, having regard to the difference between the rate at which they could lend commercially and the subsidized rate.

3.4.5. If capital and development costs were to be allowed for in total in the actual expenses in the year of occurrence, the ratios of actual to expected expenses would be significantly inflated for that year. Since the majority of such costs, whether, for example, they be capital costs arising from the purchase of a new computer or development costs relating to a new contract, would be expected to have an effect on the future efficiency of the office and hence on future costs, they should be spread over a reasonable period of years. It was felt that this was an area where guidance should be given, and offices are therefore asked to spread such costs over between four and seven years.

4. THE INVESTIGATION—AN ASSESSMENT OF THE RESULTS

4.1. *Possible Benefits*

4.1.1. As mentioned earlier, in describing the setting-up of the LOA Expenses Panel, the aim in carrying out the Expenses Investigation was to facilitate inter-firm comparison of expense ratios. This was within the context of measuring and improving the efficiency of life offices. To what extent has this aim been achieved and have the results provided meaningful information concerning the efficiency of offices?

4.1.2. In its report on the 1970 pilot study the Panel, commenting on the range of variations of ratios reported, made the point that "the absolute level of the ratios cannot be taken as a guide to efficiency without considerable qualification, probably because the circumstances and the type of business vary so much between offices and because their methods of allocation vary. Where it is hoped the figures can be of value is in the trend of an office's experience as compared with the general trend of offices in the industry". The experience of fifteen years' Investigations bears out the soundness of this assessment.

4.1.3. It is, of course, impossible to say to what extent the efficiency of offices in general has improved as a result of contributing to the Investigation. Obviously, to contribute, an office has to conduct an expense analysis and so must derive significant information regarding its own costs in this process and become more

aware of the significance of the expenses for different categories of its business. The group discussions held under the auspices of the Panel, and in particular those concerned with functional expense analysis, have enabled offices to exchange information on techniques of expense analysis and may well have improved the general standard of offices' analyses. At the very least, the results of the Investigation have given offices a broad picture of the variation in costs prevailing within the industry for different categories of business. To the extent that all performance measured is relative, it seems reasonable to assert that any such process of inter-firm comparison is bound to raise standards generally. Those offices that consider themselves to be below an industry norm may strive to improve their relative position, while other offices will strive to maintain theirs. In interpreting relative position, however, it will have to be recognized that the comparisons are not with identical offices but with more or less similar offices; those offices having an unusual distribution of business or operating within a specialized market niche, will have to allow for this.

4.1.4. Whatever might have been the case when the Investigation began, most offices now perform more elaborate analyses of expenses than would be needed simply to contribute to the Investigation, and so do not rely on it to help them measure or control their costs. The main continuing benefits from the Investigation may be the provision of a standard for comparison of expense levels and trends, thus generating an indirect stimulus to reduce costs, and the opportunity to discuss common problems in expense analysis.

4.2. *Limitations of the Data*

4.2.1. In drawing conclusions from the results of the Investigation one must keep in mind that there are basic limitations as to the reliability of the data. At the start of both the ASLO and the LOA Investigations the initial results occasioned surprise by their wide variability, not merely between offices in any year but between different categories of business within a single office and from year to year for offices in general. It was thought that some of this variation derived from poor methods of expense analysis, and so considerable time was spent in discussing with the contributing offices their various methods of measuring and analysing costs. The instructions to offices for completing the annual returns have been extended and refined over the years in order to ensure, as far as possible, that costs were allocated on a comparable basis. Nevertheless, the variation in results has persisted and doubts remain as to the reliability of some of the figures.

4.2.2. It is to be expected that the smaller offices, which tend to be less departmentalized and to have a higher proportion of overhead costs, will have the greatest difficulty in allocating costs to various categories of business. However, within any size of office, errors in allocating costs are more likely to bear on the smaller categories of business: a wrong allocation of expenses as between ordinary individual new business and annuities in payment may hardly affect the ratio for the former category of business but could have a significant

effect on the ratio for the latter category of business. On the whole, the results for ordinary individual business, both new and renewal, being categories of business which tend to predominate amongst offices, will normally be more reliable than the results for other categories of business. Nevertheless, there are quite a number of offices for whom self-employed business or sponsored individual business is more significant, and undoubtedly this is part of the reason for the wide variation even in the ratios for ordinary individual business.

4.2.3. It could be argued that the overall ratio gives a more accurate indication of an office's expense position than do the individual ratios for categories of business, since errors in allocating expenses to the various categories of business would be eliminated. However, this assumes that the notional expense factors are appropriate for each category of business, and so it has been recognized that the results in general ought to be more reliable if the median ratio for each category of business is close to 100. Unfortunately, factors that might produce median ratios of 100 for all groups of offices combined may not produce the same results for different groups of offices; to adopt target median ratios of 100 for all groups of offices would therefore beg the question as to whether or not there are significant differences between different groups of offices—a question that will be considered later, as also will be the question of the suitability of the various factors in general.

4.2.4. The results will obviously be sensitive to fluctuations in the levels of new and in force business from year to year. A significant increase in business will usually give rise to temporarily lower expense ratios, since offices will not have had to increase overhead costs in line with the increase in business and may not do so unless the increased level of business persists. Since new business costs tend to outweigh renewal costs, this feature is particularly noticeable in the new business ratios and, for certain offices, in the ratios for the self-employed and individual sponsored categories of business, where new business costs may predominate also. If, therefore, new business fluctuates above or below a more or less constant level one may expect the new business ratios to fluctuate as well. It may be noted, however, that if the increase in new business is sufficiently large the effect may also be to reduce the renewal ratios significantly, since this ratio depends on the mean number of policies in force. Also, there may be a tendency for renewal costs per policy to be lower at the early durations, and if this is so then in circumstances of rapid growth in business the average renewal cost should tend to reduce.

Reference has been made in § 3.4.3. to the distortions arising from the treatment of new business commission. It will be appreciated that such distortions can arise not merely through fluctuations in the level of new business from year to year but also through variations in its timing throughout the years.

4.2.5. In order to protect anonymity, the results are expressed in terms of median ratios and, for the larger groups of offices, in terms of upper and lower quartiles also. It could be argued that the use of unweighted average ratios would be more meaningful, especially for the smaller groups of offices where the median

office in the group may be the same office over several years and fluctuations in the median may simply reflect fluctuations in one particular office's ratios. However, average ratios have their disadvantages, not the least of which is that the more extreme ratios are likely to be those of smaller and more specialized offices, so that the use of average ratios could well give a false picture of the general level of costs of the industry. Weighted averages do not carry this disadvantage but, as has been noted, their use might identify particular offices. The need to preserve confidentiality limits the degree to which one can reduce the size of groupings. Even so, the numbers in the various office groupings in the Investigation are small—some of the groupings contain only five or six offices—and this must affect the significance of the results, especially where the numbers are affected by offices joining or leaving the Investigation.

It may be observed that although the Panel may have access to more data than is circulated to offices in the published results only the Associations' staff have access to the identity of individual offices. This limits the extent to which the Panel can investigate and interpret the results.

4.3. *Suitability of the Factors*

4.3.1. Some of the problems in choosing suitable expense factors have been touched upon earlier. The factors are intended to provide measures of expected costs prevailing generally in the industry for the major types of policy and assuming no unusual fluctuations in the level of business. However, where the mix of policies within a category of business is unusual the factors may be unsuitable since they do not reflect the different functional costs that might prevail in such circumstances. Furthermore, different weightings given to per policy costs relative to percentage of premium costs might not affect the median ratios overall but could affect the relative positions of individual offices. Thus, on the alternative basis for measuring new business costs, the composite offices, and to a lesser extent the IB/OB offices, show somewhat lower ratios, reflecting a pattern of business which provides relatively more protection and relatively less investment.

4.3.2. A similar broad-brush approach applies in regard to the choice of factors for self-employed and sponsored individual business. For instance, the commission factor is based on an assumed average term to retirement at issue of the contract, and even for those offices that pay commission at the rate assumed for this purpose there is evidence to suggest that the factors are not quite suitable on average. Apart from this, there is an increasing difficulty with these classes of business in distinguishing between new business costs and renewal costs and in defining what is meant by a new policy, as distinct from an addition to an existing policy. To some extent the issue of an additional or incremental policy for such classes of business can be regarded as a renewal cost, and with this in mind the factors are chosen to produce average expected costs rather than functional cost estimates. In fact, as has been noted earlier, it is likely that the costs of transacting such classes of business have not yet 'matured' and at present the actual figures are influenced considerably by the preponderance of new business.

The position may be further complicated by inconsistency amongst offices in distinguishing between annual and single premium business when applying the expense factors.

4.3.3. The notional factors for sponsored group business are especially difficult to justify, having regard to the incidence and nature of the expense of conducting this business. The difficulties encountered here have been mentioned in § 3.3.6. Those offices that analyse group expenses by function argue that such costs should be split into those depending upon the number of schemes and those depending on the number of active or paid-up lives, ideally on a per benefit basis. There is also a clear need to distinguish between initial and renewal costs on a per scheme basis, so as to allow for the heavy costs of quoting and documentation. Unfortunately, offices in general cannot supply the data which would be necessary to allow for these distinctions in setting the notional expense factors. In general, therefore, those offices having larger average size schemes tend to have lower ratios of actual to expected expenses.

4.3.4. The above comments relate to features that would exist regardless of the level of the various factors, but the results suggest that the level, as well as the form, of the factors may have to be adjusted in some cases.

4.4. *Effect of Type of Office*

4.4.1. As noted in Section 2, the Investigation at the outset distinguished four types of offices—specialist life offices, IB/OB offices, composite offices and U.K. branches of overseas offices. In 1977 the first class of office was split into two groups, according to whether the business was mainly traditional or mainly linked, and two years later the foreign branches were amalgamated with the specialist life offices. This latter decision was taken because there were too few offices in this category to produce meaningful results and also because the results on the whole showed no reason to distinguish this type of operation.

4.4.2. The initial choice of grouping could be said to have been taken mainly on account of presumed differences in office organization which, it was thought, would lead to differences in the nature of the business and the way in which it was obtained. For example, the IB/OB offices wrote much of their business direct while the composite offices obtained a significant proportion of their business as a by-product of their non-life operations. The specialist life offices, on the whole, tended to operate on the agency system; this did not apply to the linked offices, which tended to obtain most of their business through direct sales forces rather than through specialist intermediaries.

4.4.3. The position regarding sales forces has become more complicated in recent years, as a number of the traditional life offices have entered the linked market and, in some cases, have established direct sales forces. It could be argued that linked business should again be identified as a separate category of business, so as to allow for this feature, but the trend amongst traditional offices writing both linked and non-linked business on a regular premium basis is to design policies having features of both types of contract; the separation of such forms of linked

business becomes less meaningful in consequence. Linked business has never been separated within the self-employed and individual sponsored business categories.

4.4.4. The IB/OB offices show consistently lower ratios for ordinary individual new business and for both self-employed business and sponsored individual business. The results suggest that such offices do not suffer as heavy an incidence of initial expense as other offices. It is notable, however, that the ratios for individual renewal business and sponsored group business (the latter a relatively small category) are in line with those of other offices. The overall ratios for IB/OB offices are relatively low, reflecting the low new business ratios.

4.4.5. Composite offices, on the other hand, compare closely with specialist life offices and have similar ratios for overall business and for individual new business—the predominant category of business for both types of office. Compared with the specialist life offices, the composites' ratios for individual renewal business are relatively lower while those for sponsored group business are relatively higher, and although the volumes of self-employed business and sponsored individual business for composites tend to be somewhat lower the expense ratios of these categories of business are similar for the two types of office. It is possible that the ratios for composites reflect to some extent the size of office, which tends to be in the medium to large range. It has already been noted that the alternative factors for new business, which have little or no effect on the specialist life offices, tend to produce somewhat lower ratios for the composite offices.

4.4.6. The linked offices form a numerically small group and it is therefore difficult to interpret their results relative to the other office groups. Such offices have a relatively small volume of renewal business and almost no sponsored group business but on the other hand have substantial volumes of the self-employed and sponsored individual categories of business. In the two or three years prior to 1984 the overall median ratio for linked offices fell somewhat below that of the traditional specialist life offices, having been previously above, but this trend was reversed in 1984. Bearing in mind the greater volatility of the median ratio for this class of office and the fact that even the non-linked business which is written tends to be of a specialist investment-type nature (i.e. combinations of annual premium and single premium business, back to back life and annuity policies, etc.), it is really impossible to come to any definite conclusions. However, the weight of the evidence suggests that, as with the branches of foreign companies, such offices have expense structures similar to those of traditional specialist life offices. It may be noted, nonetheless, that linked offices have shown a higher rate of growth in recent years and this may well have had a moderating effect on their new business expense ratios and, possibly, their renewal ratios.

4.4.7. The grouping by type of sales organization introduced in 1977, as amended in 1978, distinguished two groups of offices, i.e. offices paying commission on the Associations' scales and others. Offices in the former group are normally organized on the agency system and so operate through a field force of inspectors who deal with brokers and other intermediaries. Offices in the 'other' group are made up of a fairly heterogeneous mixture which includes linked offices having direct sales forces, IB/OB offices and, of course, non-

commission paying offices. Comparison between the two groups is therefore not very illuminating, because of distortions in the type of business written, but in general the ratios for the 'other' offices are somewhat lower than for the agency system offices. It has been possible to retain a distinction between the two groups of offices even though the Commissions Agreement is no longer in force.

Industry trends, noted above, are tending to make the distinction by type of sales structure somewhat blurred, although it is possible that the introduction of a new commissions agreement might help to stabilize the position. If it becomes no longer possible to make a clear distinction between the two groups of office the expenses-only Investigation may have to be wound up, since only offices that transact their business predominantly through specialist intermediaries on a more or less standard scale of commission can be compared on an expenses-only basis.

4.5. *Effect of Size of Office*

4.5.1. Paragraph 2.4.3. refers to the initial groupings of office into large, medium and small categories. About half of the offices fell into the medium category while the rest were split more or less evenly between the large and small categories. For this grouping, size is determined in terms of total premium income, including single premium income, in respect of business covered by the Investigation.

The small offices consistently showed higher ratios than the medium and large offices but the differences between large and medium offices were less significant and somewhat inconsistent. In fact it was noted that half of the medium offices had ratios which were below the median ratios for large offices, and this seemed to indicate that the differences between large and medium offices could be accounted for by a greater dispersion of the higher ratios amongst the medium-sized offices. The dispersion of the results tended to increase as the size of office reduced—an effect which does not seem unreasonable bearing in mind that the smaller offices would include some which had recently started up in business and were attempting to expand from a relatively low base and others which occupied specialized market niches.

4.5.2. In 1981 a study of the composition of the three size groups showed that the large offices included a disproportionately high number of composite offices while the small offices included a disproportionately small number of composite offices but half of the IB/OB offices. When the offices were regrouped into two size groups, approximately equal in number, significant and fairly consistent differences emerged for all categories of business except self-employed. These differences ranged from 10% to 20%. When the traditional specialist life offices were also split into two size groups of approximately equal numbers the results showed an even wider differential—between 15% and 25% in the overall ratios and in the ratios for the ordinary individual, sponsored group and annuities in payment categories of business. There was also a somewhat smaller difference for self-employed business while, curiously, there was hardly any difference for

sponsored individual business. The greatest difference in ratios was for individual renewal business—a difference of over 30%.

4.5.3. Since 1983, offices have been split into two size groups only and results have been published for all offices combined, for specialist life offices and for those offices contributing to the expenses-only Investigation. In the case of the latter offices the results are for expenses excluding commission and differentials of up to 30% in the ratios were observed, although the differences for self-employed business were lower and there was hardly any difference for sponsored individual business. Since the offices in this category are all presumed to pay commission on much the same basis one might have supposed that a higher differential would have been observed in the expenses-only figures, bearing in mind that almost half the expenses including commission are represented by commission. However, offices in the expenses-only group are larger on average than the specialist life offices and offices in general: the dividing line for the latter groups in 1984 was offices having premium income of £111m or more whereas the dividing line for the expenses-only offices was offices having premium income in 1984 of £170m or more. As previously noted, the larger offices, in general, tend to display a narrower range of dispersion than do the smaller offices.

4.5.4. The fact that a significant differential exists between large and small office groups for offices as a whole, for traditional specialist life offices and for the mixture of traditional specialist life offices and composite offices contributing to the expenses-only investigation, suggests strongly that this characteristic will be a feature for all types of offices. It therefore follows that some at least of the differences observed between the different types of office result from different proportions of large and small offices within each type group—a point already noted.

Without more information as to the type of offices involved it is difficult to form a view as to whether the results indicate economies in scale of operation as distinct from differences arising because of the more specialist nature of the business of most smaller offices. This question is explored further in Section 6.

4.6. *The Trend of the Results*

4.6.1. The following paragraphs deal briefly with trends since 1977 only, during which period the per policy notional expense factors have been raised in line with the earnings index. Some of the results for this period are set out in Appendix 6; the trends they indicate are not clear cut, nor are they similar for all categories of business or groupings of office. On the whole, however, the ratios fluctuated somewhat over the first part of this period but declined in the last two or three years; most ratios in fact are less in 1984 than they were in 1977.

The expenses-only results indicate that a considerable increase in expenses (excluding commission) took place but that this has subsided generally except for sponsored individual and sponsored group business. The recent improvement in the overall ratios, which springs largely from the improvement in the ordinary individual ratios, is very probably due to the large increases in new business occasioned by such factors as the introduction of mortgage interest relief at

source (MIRAS), and the surge of business prior to the abolition of premium relief. For several offices the surge in house purchase business brought about by the introduction of MIRAS outweighed the effect of the abolition of life assurance premium relief and the resulting new business is still at an appreciably higher level than was the case two or three years ago.

There is no evidence to suggest that the slightly increased levels of commission being paid by offices in recent years have affected the figures. Indeed, there is a suggestion, for sponsored individual business in particular, that reductions in commission may have offset to some extent the increases in other expenses. It is likely, however, that this feature could be due to a change in the mix of business.

4.6.2. It may take a year or so for new business to resume a more stable pattern and make it possible to draw firm conclusions as to the trend in expenses. Until recently, one could say that many of the notional expense factors were too low while some of the commission factors were too high. There is a tendency for commission rates to go up, however, so that this latter position may be rectified in time. On the other hand, it may be necessary in a year or so to adjust some of the expense factors upwards in order to reduce the ratios for sponsored business. It is not clear whether the recent increases in expenses-only ratios reflect a deterioration in efficiency of offices or a maturing of business for which the existing factors are inappropriately low.

Given appropriate factors it would be disturbing to see a trend towards increasing ratios, especially when the per policy factors are indexed relative to earnings rather than to prices. Indeed, even if the ratios were merely to remain more or less constant, the implication could be that the expenses of life assurance were not benefiting from general improvements in technology etc. and might therefore be increasing relative to other costs in the economy.

4.7. *Future Problems*

4.7.1. Apart from possible changes in the volume of business, referred to above, the Investigation will be affected by changes in the type of products being sold. There is an increasing tendency for the lines between annual premium and single premium business to become blurred, but there has been no satisfactory investigation of the functional costs associated with such a change and therefore no clear guidance has emerged as to the best way of dealing with the situation. It would seem that offices with substantial volumes of single premium business will increasingly not be catered for by the present structure of notional expense factors, which derives from a time when single premium business was relatively small. Similarly, trends in pension business will require more suitable factors but these can only emerge once a sufficient number of offices alter their analysis of expenses to deal with the situation.

4.7.2. It is not only products which will change but the organizations of offices themselves and their selling methods. Such changes will be influenced by changes in the general market for financial services, as life offices increasingly compete with non-insurance institutions having similar or identical products. The significance of future market changes is explored further in Section 6, but it is

pertinent to observe here that this increasing degree of competition brings with it a shorter life cycle for different products, thus increasing the difficulty in deriving reliable functional costs on which to base the notional expense factors. All that can be done is to attempt to reflect the broad changes affecting the bulk of the industry's business and to keep a balance between a reasonable suitability of the factors and the need to derive significant comparison figures for broad groups of offices.

5. EXPENSE ANALYSIS AND CONTROL—THE VIEWS OF OFFICES

5.1. *Introduction*

5.1.1. Inter-firm comparisons represent just one aspect of expense analysis. The design and operation of a system for comparing expenses in different offices cannot be viewed in isolation and must be related to a wider context. In order to broaden the area of discussion it would seem helpful to air some of these related points, although it will be appreciated that to do so requires a more subjective approach than has been used so far in the paper.

Because of their close contact with the Investigation the authors' views have inevitably been influenced by general opinions in the industry; nevertheless it was felt helpful to make a more specific effort to ascertain the attitudes held by the contributing life offices. A questionnaire was therefore issued to all the offices that contribute figures to the Investigation, seeking their views on certain major topical issues. Details of this questionnaire and a summary of the replies appear in Appendix 7. The written questionnaire was supplemented by a number of visits made to selected offices by the authors in order to pursue the enquiries in greater depth. An account is given below of the information gained from the questionnaires and the interviews.

In Section 6 the authors set out their own views and discuss the way along which expense analysis is likely to progress and the problems which will be met in the future. It is hoped that this partly subjective and partly factual approach will help to stimulate discussion on these important matters.

5.2. *The written questionnaire*

5.2.1. The written questionnaire, which was prepared and sent to all offices participating in the Investigation, had limited objectives. It was hoped that by preparing a simple document it would be possible to persuade a large number of offices to reply and that their answers would provide a consistent indication of their attitudes. It also seemed sensible to seek simplicity, as it was feared that an elaborate questionnaire could have held up the preparation of the paper. With this limitation it was not possible to ask questions which probed too deeply into any aspect. Lack of clear definition and inconsistency of interpretation are major difficulties encountered when attempting to discuss comparative treatment of expenses in the industry. The value of simplicity and the reality of the fears mentioned were borne out by the widely differing replies to the questions and the varied interpretations of some of the most basic terms.

5.2.2. The replies to the first question showed an overwhelming interest in the results of the Investigation. However, respondents did not find the figures directly useful and few thought that they led directly to any reduction in costs. Nonetheless, the results were considered by many to give a general indication of the relative efficiency of offices and to provide a useful broad measure of trends, thus providing indirect motivation to reduce costs. At the very least, offices appeared to think that the figures were worth having because they were 'the only comparative test available'.

5.2.3. The majority of offices stated that the Investigation did not require them to analyse their expenses in greater detail than was obtainable from their own internal statistics. Sometimes the analysis was different, but only in five of the offices that replied was it deemed to require more work than they would have done anyway. This result was particularly interesting to the authors, who had witnessed the problems some offices had had in providing figures for the Investigation when it was first introduced in 1971 and who remembered the difficulties expressed by offices at the group meetings held in the mid-70s. The replies give a clear indication that methods have changed substantially in the period.

Office practice varies enormously, however, when it comes to the choice of the functional classes and product groups into which the costs are analysed. These breakdowns rarely equate to the categories identified by contributing offices at their meetings in 1979 and 1980 and which are set out in Appendix 5. A majority of the offices distinguish three or more functional analysis classes in their own internal Management Statistics, but apart from the obvious need to distinguish between new and renewal costs there is very little that is common amongst practices adopted. Not surprisingly, 28 of the offices said that they used their expense analysis to determine premium rates for different classes of policy. This raises the question of how the other offices determine the expense loadings in their premiums, but the answers to the questionnaire do not reveal this information.

5.2.4. The third question went into rather more detail, and a varied set of answers was received. Some of the responders had obviously misunderstood the aim of the question, but in general the answers were along the lines expected, covering the basis on which certain categories of expense were allocated to classes of business or to functions. However, the details tended to reflect the nature of the analysis undertaken in the particular offices.

On the whole, there was reasonable consistency in the approach to allocating the more important of the running costs. Most offices allocated accommodation on a footage basis, although a minority allocated in proportion to salary. Telephone costs in most cases were allocated to departments in the first instance and sometimes directly to individuals, depending on the sophistication of the telephone system. Stationery, also, in most cases was allocated to departments, but in a minority of cases was simply allocated per head or in proportion to salary. Almost invariably, pension fund contributions were allocated by salary,

sometimes directly to individuals, and house purchase tended also to be allocated by salary, although less consistently.

Other personnel costs were in most cases pro-rated by salary or by head count to individual departments, while typing pools, etc., were allocated in a number of ways which obviously depended upon the organization of the office. All offices attempted to allocate computer costs either to departments or directly to the functions on the basis of usage. Here, again, the methods would reflect the organization of the office and, presumably, the sophistication of both the computer system and the procedures for allocating main-frame time.

Most offices write off major items of capital cost on a systematic basis, the most commonly mentioned being the cost of computer equipment. Development costs were less consistently written off over time. There was a wide variation in the allocation of such costs, several offices allocating them to some form of corporate overhead.

The offices were asked to define what they meant by overheads, and a remarkably wide range of definitions was supplied. It would seem that almost any cost could conceivably be regarded as some sort of overhead, and several offices identified two or more levels of overhead, for example accommodation costs, training costs, and general management costs.

5.2.5. Nearly all the offices said that they used a budgetary control system. It was interesting that, of the four who did not, two indicated that this was because they had considered the matter but had rejected it. (From the individual interviews, which are discussed below, it is also clear that offices' interpretations of what is meant by a system of budgetary control are also very varied.)

A majority of offices integrated their functional analysis with the budgetary system, although in many cases only partially. Once again, the replies showed how different were the meanings attributed to functional analysis.

5.2.6. The offices were almost united in believing that either expense control would be of increasing importance or that it was of significant importance already and would remain so.

5.3. *The Interviews*

5.3.1. Eleven offices were interviewed, of whom six were proprietary and five mutual. The numbers included one industrial life office, two composite offices and one specialist investment-linked office. The intention behind the interviews was to sample office attitudes in rather more depth than was possible with the written questionnaire, but no attempt was made to make a fully representative survey across the industry. The following observations aim, therefore, at giving the flavour of the ideas which were expressed rather than an indication of currently held practice.

The practices described varied substantially from office to office but all had been carefully thought out. Those interviewed were knowledgeable about what they were doing, and their offices had reached thoughtful, deliberate conclusions about the methods adopted. The interviews had a significant influence on the

thoughts expressed in this paper, but because of the lack of consensus no attempt is made at a general summary. Two broad issues are, however, commented on below.

5.3.2. Cost control methods differ substantially, but a number of similarities could be observed in the attitudes of offices rather than in the detail of the methods. Although most offices have a budgetary control system it was common to hear that they did not rely 100% on the system as a method of controlling costs. Some offices observed that this was because a high proportion of the costs was outside the control of the Managers of the various cost centres, who therefore did not perceive the system as being very relevant, whilst other offices found such means of control too rigid and inflexible to deal with the dynamic variations that occur in life assurance. There was, in consequence, a tendency to rely more on staff number authorization than on budgets as a method of controlling expenses, with some offices relying almost entirely on staff number control.

Offices showed a keen desire to reduce costs and many had experimented with various management techniques. There was little evidence to suggest that this experimenting had been particularly successful, and although a number of offices used clerical work measurement or standard hours to judge the appropriate number of staff for specified tasks the methods were usually ones that had been developed in-house. Other offices had tried such techniques but had abandoned them.

5.3.3. Because of the complexity of the processes of expense analysis and budgeting there appears to be a growing tendency to approach the process of expense control from the opposite direction. It is possible to calculate a 'budget income' equal to the expense loadings inherent in the premiums for new business and existing business, to compare that amount with the expenses incurred and thereby to get an insight into the extent to which costs are recouped. There are numerous difficulties involved, but the method can work and has been found useful. Indeed, one office expressed the hope that the Expense Investigation could be elaborated along the same lines, and suggested that to avoid the problems of definition inherent in comparing cost levels it might be more fruitful to have an inter-office comparison of premium loadings. The authors had mixed views on this proposal.

6. EXPENSE ANALYSIS AND CONTROL—SOME GENERAL COMMENTS

6.1. *The importance of Cost Control*

6.1.1. There is no doubt that the life assurance industry analyses its expenses in less detail and spends less in proportionate terms on cost control than does manufacturing industry. This may be principally because costs in life assurance have traditionally been viewed as less important than investment performance, since it can easily be demonstrated that a proportionate change in investment gain will far outweigh a similar proportionate change in the expense level.

Furthermore, attempts to analyse expenses have been hampered by the problem of definition. Conventional costing methods developed for manufacturing organizations are not well suited to life offices, most of whose work corresponds to what is normally called overhead activity. It is difficult to establish an alternative basis, suitable for all offices, in an industry where the detailed methods of processing policies depend so much on the particular organization. The activities involved can change continuously over time and are seldom documented in such detail as will assist the analysis process. In fact, many offices doubt whether a detailed analysis of expenses will lead to direct savings sufficient to pay for its cost. Although traditional life offices have had to measure surplus and allocate it to policyholders and shareholders, the process has not involved an accounting division identifying the components of this surplus and relating the expenses to a defined part of the premium, and there has been no profit emerging in the sense understood in manufacturing companies. Consequently, few offices have felt the need for anything more than a rudimentary analysis of their costs until comparatively recently.

In industry generally there have been in recent years considerable developments in systems of accounting control. Competitive pressures on manufacturing and service industries in both the U.K. and the United States of America have been considerable, and attention has been directed not only to the direct costs of business but also to the impact of overheads. Although life offices have not been affected by these pressures to the same extent, the methods which have been developed to deal with them are available to be used if required.

6.1.2. However, the life assurance market is changing rapidly and is now far more competitive than it ever was. It is no longer sufficient to concentrate on improving investment yield while ignoring shortcomings on expenses. Instead, it is desirable to maximize both investment performance and expense efficiency. Even for those offices that attempt to compete on service rather than on cost it is important that the service provided be at the minimum cost level. In addition, there is now a wider range of products, with different cost profiles, and the assumption that most policies involve more or less equal costs is now less tenable.

Investment-linked products now feature prominently in the life assurance market. Their structure makes it possible to identify both an income and a residual profit, even if the process is extended over an uncomfortably long period of years; thus the industry trend towards unbundling the expense charge is particularly marked within investment-linked operations. Those offices that specialize in such operations are forced to calculate a bottom line profit and appear to find it a powerful monitor of the business. But most traditional offices now offer linked products, and are beginning to learn from the financial disciplines inherent in doing linked business. Indeed, unbundling is not confined to linked products: managed fund contracts and many individual pension policies are now designed in a way which effectively isolates the expense charge from the investment gain, and there appears to be a considerable appetite amongst the public for contracts of this type.

6.2. *The use of computers*

6.2.1. The use of computers has had an enormous effect on the methods and the cost of policy administration. On the one hand it has allowed the business to be processed very much more effectively than in the past, at a cheaper cost, and on the other hand it has offered the possibility of a considerably higher level of service than was possible under previous manual methods. These features have opposite effects on costs and it is not clear whether, on balance, unit costs are now lower in real terms than in the past. One can conclude that this is so for some renewal aspects of the business, but for acquisition and new business activities, which are subject to so many other causes of variation, it is impossible to draw a final conclusion.

The introduction of computers has been considerably helped by the inflationary climate. A system change, involving the use of the computer to perform a process previously carried out manually, invariably incorporates a substantial front-end charge and, normally, a reduced operating cost thereafter. (If the operating cost is not reduced and if there is not some other service gain one can ask why the system was introduced in the first place.) Whether the system pays for itself or not depends on the degree to which the front-end charge is recouped from the eventual cost savings. If inflation had remained at the levels of the '50s and early '60s offices might have faced difficulty in justifying some of the computer projects carried out in this period. Inflation at the levels experienced in the '70s, however, had the effect of altering the balance of the equation in favour of front-end loading and probably rescued a number of marginal mechanization plans. While near hyper-inflation gave computers a flying start, the subsequent rapid growth in computer usage was encouraged by the steady increase in computer power and cost effectiveness. Computers are now, of course, quite essential to the life assurance industry and it would be impossible to conduct the levels of business required without them or, even more importantly, to achieve the degree of accuracy which is now demanded for many products.

6.2.2. Computer costs now represent a considerable proportion of management expenses; unless they are closely monitored there is a danger that the computer resources may be wasted. There is a need to treat the computer like an internal bureau and analyse, or charge, the costs involved to the various cost centres and classes of business which benefit from the tasks which it performs. Unless this is done it is not possible for managers to judge whether using the computer is economically viable or whether they should use manual methods instead. With inflation now under better control it may no longer be possible for its unforeseen growth to rescue badly designed computer projects, and financial discipline is therefore essential.

The use of the computer requires careful planning, based on good financial analysis of costs and results. Computer systems can be less flexible in some ways than manual methods; an indiscriminate and ill-judged use of the computer can increase costs and, in extreme cases, actually reduce the service capability of the office. New products can make severe demands on the computer and the pace of

innovation must therefore be carefully controlled. Similarly, technological advances in both hardware and software have to be recognized in updating existing systems, but there is the danger of trying to advance too quickly, making expensive mistakes in the process, and the alternative danger of moving too slowly and thus creating eventual catching-up problems.

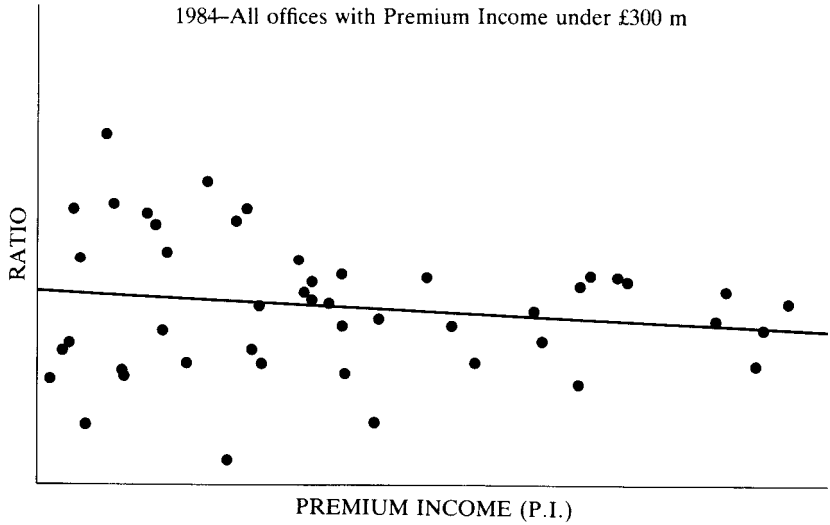
6.3. *Economies of Scale*

6.3.1. There is a widely held belief that by increasing the size of an office one can bring in reduced expense ratios. If this were true then one would expect that the larger offices would show lower ratios than the smaller offices. Because of the wide variation in the way life offices carry out their business this relationship could not be expected to be consistent but, nevertheless, it should be sufficiently marked to show up on statistical analysis. Although evidence has been published of such economies of scale in other countries, the only analysis for the United Kingdom known to the authors appears in papers by Praetz[6, 7]. Praetz based his study on 106 of the firms with returns in the 1981/82 Insurance Directory and Year Book, excluding reinsurers, overseas companies, and those with balance sheets for 1978 or earlier. He applied a multiple linear regression method and showed strong statistical evidence for economies of scale, including the relationship of a 10% increase in premiums being associated with an 8·9% increase in total costs.

6.3.2. The authors have examined the results of the Expense Investigation to see whether the figures support a similar conclusion. At first sight the results appear to show that the larger offices do have lower expense ratios, but on closer examination the evidence does not seem very robust. Since the figures do not lend themselves to statistical analysis in their published form, the authors arranged for a regression analysis to be carried out on the results for 1977, 1980 and 1984, relating what was considered to be the most reliable of the observed office ratios—the ratio of total actual expenses to total hypothetical expenses—to the size of office as measured by its recorded premium income. Negative regression coefficients, of the same order of magnitude as those described by Praetz[6, 7], were obtained but the office ratios analysed were so dispersed, and the correlation coefficients were so low in absolute magnitude (the highest being only ·55), that considerable caution is required in drawing any conclusion from the results.

A scatter diagram illustrating the 1984 grand total ratios for all the offices is reproduced below, together with the corresponding fitted regression line. For reasons of confidentiality, the diagram is truncated and excludes the ratios for the six largest offices; nevertheless, it illustrates clearly the wide dispersion of the ratios and the extent to which the dispersion is greater amongst the smaller offices.

6.3.3. So far, it is uncertain whether the higher ratios which, on average, are observed for the smaller offices are a consequence of the operational economies of scale or simply result from a tendency for smaller offices to be more specialized than larger offices. The form of regression analysis described above is open to a



Correlation Coefficient = −·3001
Regression line = 107·43 − ·043 × (P.I. in £m)

number of criticisms. For instance, there could be doubts concerning the suitability of expense ratios as a measure of 'economy' and premium income as a measure of size. Even assuming these were the most appropriate measures, one could query whether a straight line was the most suitable curve for relating expense ratios to size of office.

The authors would have liked to have experimented further, employing multiple regression analyses to relate, say, the total actual expenses for each office to the corresponding hypothetical expenses for each category of business, but did not have sufficient access to the data. Perhaps the Expenses Panel might address themselves to this problem, in the hope of producing more conclusive evidence.

6.3.4. It is worth speculating on the sources of any achieved economies of scale: most obviously these would appear to lie in computer operations, investment and marketing. The system requirements for any office which sells a given range of products is basically the same, and therefore the cost of developing appropriate computer systems—a major factor in the overall computer cost—must, to a certain extent, be of the same order for all offices. Thus, although the cost of the equipment and of handling the data may be marginally proportional to the volume of data to be processed, there is a substantial fixed cost to be borne which the larger offices can spread over their greater number of policies. A similar argument applies for both investment and marketing. It is certainly true in other industries that the pulling power of a marketing budget is proportionately much greater for the larger budgets than for the smaller ones.

For life offices, a reduction of 30% to 40% in the expense ratio (including

commission) corresponds to an improvement of something of the order of ·25% to ·5% in the investment yield and is clearly a benefit of considerable commercial value. Offsetting such cost advantages, which may accrue from size, a smaller life office can be more flexible and may be able to benefit from a smaller, more efficient, investment portfolio which earns a higher yield than larger portfolios. Thus, there may well be offices who manage to compete by limiting their size and achieving investment efficiency. Nevertheless, the general influences on expense ratios appear to be moving positively towards favouring the larger offices, although there are plenty of exceptions to this trend.

6.4. *Actuarial Considerations*

6.4.1. The Actuary needs to know the structure of costs in his office for a number of purposes. These include the determination of premium loadings, profit testing, statutory valuations, domestic valuations and asset share calculations. The precise requirements vary with the task, but in general he needs to distinguish between the costs of different products and has to estimate the incidence of cost at each stage of a policy's life. While it is impossible to avoid a degree of approximation, he will need as much information as possible covering historical trends and, ideally, ought to have available sophisticated functional cost analyses for every product.

The requirements for determining premium loadings are typical, and repay looking at in more detail. The Actuary has to decide whether to allow for total costs, including a full proportionate share of overheads, or to charge just the marginal costs on some particular products and recoup the overheads on other products where the market allows higher premiums. This means that for each product he has to know not just the total costs but also their breakdown by function. Since marginal costs tend, for the most part, to be related to the number of policies, the Actuary, in fixing premium rates, has to project the business forward on some business plan and test whether the aggregate of the loadings inherent in the proposed premiums will match the projected level of costs to be borne. It is thus necessary for the costs to be analysed in such a way that the effects of volume variations can be predicted and compared with forecast loadings.

In carrying out a valuation, the Actuary has to be aware of the incidence of policy costs. Within a young portfolio the costs are largely related to the functions of acquisition and renewal. However, an analysis which does not distinguish between different renewal functions can produce unit renewal costs which significantly understate the effect of the claim and other costs that will appear when the portfolio matures. To enable him to allow for the effect of maturing portfolios, inflation and a change in the mix of business, the Actuary needs a functional analysis which derives claim and surrender costs separately from the costs for such renewal functions as premium collections etc.

6.4.2. The pace of introduction of new products has accelerated greatly in recent years. The cost of introducing new products has also increased,

partly because of the need to adjust the computer systems of the office and partly because of the greater marketing effort required in order to ensure sufficient sales. With a substantial part of total company expenses attributable to the development of new products, the Actuary has to consider how these development costs can be recouped. He has basically three choices in the matter. First, he can treat development costs as part of the overheads and recoup them out of premium loadings spread over all other products; this is probably what offices have traditionally done. Second, he can load the new product so as to recoup the development costs over the early years of its life. Unfortunately, this second method involves charging higher premiums than would otherwise be required and can lead to the product being vulnerable to competition from imitators, who may find it comparatively easy to charge lower premiums. The third method is to consider the development costs to be a charge on the estate and look for sufficient profits in the future, from successful products, to restore the level of the estate eventually.

Which method is considered appropriate is a matter of judgement for the Actuary; to make a choice the Actuary needs therefore to have considerable knowledge of the expense structure of his own office. Different approaches will be suitable at different times and in different offices.

This requires the establishment of a reasonably detailed system of cost measurement, involving the analysis of staff time and other expenses relating to each product. It is doubtful whether such a system can be fully effective unless it is constructed on the back of a sufficiently rigorous functional cost analysis system, since otherwise there is no inherent discipline and no way of checking on the accuracy of the allocations. Although some of the development costs will reflect the work of specialist staff who are devoted full time to new products, much of it will arise from the work of departmental managers who will later be operating the systems that are being introduced. The appropriate analysis of the latters' time can only be carried out successfully if they are proportioning their time between this and other measured work, since otherwise it is too easy to over-estimate or under-estimate the time. In most offices the introduction of new products is a real burden on the time of departmental managers and requires to be carefully controlled.

6.4.3. The treatment of investment costs is of increasing importance. Such costs comprise not only the direct costs, such as stamp duty and commission, but also the supporting staff costs of the investment department, including the cost of analysts and surveyors.

For many modern products it is essential to identify investment costs as a separate category. With unbundled contracts, for example, the investment operation has to stand on its own to a large extent, and so the cost of investment has to be contained within the charges allowed. Even for traditional products it can be argued that investment costs are better treated as deductions from income rather than being dealt with on a par with other costs and hence recouped out of premium loadings. The position is, however, complicated by the fact that the

policyholder benefits from the net gain from the investments and it can be in his best interests to increase the cost of investment by employing better staff, say, if that brings with it a higher yield. There is thus a growing need to identify all investment costs, and to calculate the net returns on each asset, so that net yields can be attributed to the various products according to their deemed or actual asset mix. Although it has not been customary to make a specific charge on the funds for the investment costs of traditional business, many offices must be considering this possibility in current conditions in order that all investment costs can be subject to a similar discipline.

6.5. *Future Trends*

6.5.1. The trends that will shape the next few years are likely to be visible today and those that the authors can identify have already been commented on in earlier sections of this paper. Although forecasting the future is always difficult, a number of these trends appear sufficiently well established to suggest how matters may develop, and are described in the following paragraphs. The observations therein have been influenced by the views expressed by those who were interviewed but essentially they represent the opinions of the authors only.

6.5.2. As previously noted, the growth of investment-linked products has brought with it the concept of unbundling. The public appear to like unbundled products, perceiving them as being easier to understand, and it is therefore likely that more such products will be available in the future. In certain sectors of the market, with profit contracts are already being replaced by universal life products featuring defined charges, not necessarily limited, to cover expenses. The market is seeking greater flexibility, and the policies of the future will increasingly be of the pick and mix variety. The shape of such policies is not the subject of this paper, but there is a clear trend to incorporating a defined expense element in the product.

6.5.3. In spite of the doubts expressed earlier concerning economies of scale, the authors believe that it will become increasingly important in the future for life offices to be large and to seek to be larger. The advantages of size, outlined in § 6.3.4, will become increasingly significant in view of likely future technological and market changes. There are still surprisingly many life offices in the U.K., not even the largest of which enjoys anything like a dominant share in the overall market. In contrast, other financial service industries have experienced significant market polarization, involving the emergence of a small number of large companies, the disappearance of most medium-sized companies and the survival of a number of smaller, specialist companies. There seems no reason why similar market forces should not, in the end, affect the life assurance industry, leading, initially, to takeovers of proprietary offices but, later, forcing the merger of a number of mutual offices. Developments within the wider financial services market seem likely to accelerate this process.

6.5.4. The life assurance industry offers products with elements of both investment and protection, but in terms of premium income the protection element represents a small proportion of the total market. As for the investment

element, the industry is in direct competition with a wide range of other financial bodies, including building societies, banks, merchant banks and stockbrokers. The area of activity of each of these is expanding and the area of overlapping interest and competition is growing. Many of these institutions structure and market their investment products differently, and as a result the products may be subject to smaller expense charges than the competing life assurance products.

Increasingly, as a result, life offices will have to be able to demonstrate in the market not only that they are offering good investment value, but that they are offering an investment service at a reasonable and acceptable cost. Both the level of charges and the design of the product will increasingly come under scrutiny: in particular there may be a tendency to reduce front-end loading and to spread initial costs.

6.5.5. The authors believe that these market forces will put increasing pressure on life offices to understand their cost structure better. The traditional difficulties of product and task identification will remain as much an obstacle as before, but it is likely that the market structure of future products will pose some clearer questions for the cost accountants to answer. The authors do not know of any particular new method of cost control that is available or seems likely to be so in the future; they consider that current best practices, performed by a small number of offices, will become necessary and commonly-held practices throughout the industry. They believe that most offices will evolve a strong internal cost discipline which identifies the costs relating to each product and to each major function within that product. Both the Actuary and the Accountant have a role to play in this process, with the Actuary posing the questions and the Accountant supplying the answers, and better understanding between these two professions will be needed.

As financial analysis grows more and more sophisticated, the comparatively simple basis for inter-office comparisons will become increasingly inadequate and call for significant changes. Equally, improved cost measurement techniques, and more widespread practice of such techniques within the industry, will permit more detailed analysis of data from contributing offices. This suggests that the structure of the Expense Investigation will prove to be capable of the modifications that will become essential if it is to survive.

REFERENCES

(1) PEDOE, A. (1952). The trend of life insurance company expenses. *Trans. Soc. of Actuaries* **4,** 485.

(2) DYSON, E. J W. & ELPHINSTONE, M. D. W. (1959). The expenses of British life offices. *J.I.A.* **85,** 211.

(3) PEDOE, A. (1961). Further notes on the trend of life insurance company expenses. *Trans. Soc. of Actuaries* **13,** 1.

(4) ALLANACH, M. C. (1964). The treatment of expenses in the calculation of ordinary branch premiums. *Trans. 17th ICA* **2,** 5.

(5) SHEDDEN, A. D. (1965). Expense Analysis and allied topics. *Actuarial Students' Magazine* **14**(4), 59.

(6) PRAETZ, P. D. (1983). The effect of size and other economic factors on the expense rate behaviour of U.K. life insurance companies. *J.I.A.* **110,** 383.
(7) PRAETZ, P. D. (1984). The effect of size and other factors on the cost behaviour of insurance companies: some international evidence. *Trans. 22nd ICA* **3,** 279.

APPENDIX 1

ASLO Expense Investigation

Table of Items and Notional Expense Factors

Item no.	*Item*	*Notional Expense factor*
	Ordinary Full Premium Assurance Business	
1.	New business expenses	£1% of sums assured + £20 per policy
2.	New business commission	£2% of sums assured
3.	Renewal expenses	£2 per policy
4.	Renewal commission	$2\frac{1}{2}$% of premiums
	Ordinary Low Premium Assurance Business	
5.	New business expenses	£·25% of sums assured + £10 per policy
6.	New business commission	10% of premiums
7.	Renewal expenses	£1 per policy or rider
8.	Renewal commission	5% of premiums
	Immediate Annuity Business	
9.	New business expenses	£1% of purchase price + £10 per policy
10.	New business commission	£1% of purchase price
11.	Payment expenses	£·75 per annuity
	Deferred & Contingent Annuity Business	
12.	New business expenses	£·50 per £10 p.a. of annuity + £10 per policy
13.	Renewal expenses	£2 per policy
14.	Commission	$2\frac{1}{2}$% of premiums
	Collective Life	
15.	Expenses	5% of premiums + £5 per policy
16.	Commission	6% of premiums
	Self-Employed Pension Business	
17.	New business expenses	£·50 per £10 p.a. of annuity + £10 per policy
18.	Renewal expenses	£2 per policy
19.	Commission	3% of premiums
	Group Pension Scheme Business	
20.	Expenses	3% of premiums (net of rebates) + £20 per policy
21.	Commission	2% of premiums (net of rebates)
22.	Payment of pensions	£·75 per pension
	Group Life Scheme Business	
23.	Expenses	5% of premiums + £5 per policy
24.	Commission	6% of premiums
	Other Sponsored Pension Scheme Business	
25.	New business expenses	£1 per £100 of sums assured (& per £10 p.a. of deferred annuity) + £20 per policy

Item no.	*Item*	*Notional Expense factor*
26.	New business commission	£1% of sums assured (& 4% of premiums for deferred annuities)
27.	Renewal expenses	£2 per policy
28.	Renewal commission	2% of premiums
	Sponsored Immediate Annuity Business	
29.	New business expenses	£1% of purchase price + £10 per policy
30.	New business commission	£·625 of purchase price
31.	Payment expenses	£·75 per annuity
32.	*Investment Expenses*	1/20th% of mean funds
33.	*Number of New Business Producing Staff (other than Group) per £1m (sums assured) of Business (other than Group Pension & Life Assurance Scheme Business) credited to such Staff*	3
34.	*Cost for Clerical Staff of Accommodation, Pensions & Staff Administration as % of Remuneration*	50
	SUMMARY	
	All Classes of Business	
35.	Expenses	
36.	Commission	

APPENDIX 2

ASLO Expense Investigation

Revised Median Ratios for Years 1968–72

Description	1968	1969	1970	1971	1972
New Business Expenses (ex Group)	115	110	112	122	113
Renewal Expenses (ex Group)	134	139	163	180	185
Group Expenses	137	138	151	185	158
All Expenses Combined	125	129	124	130	135
Initial Commission Life (ex Group)	82	80	78	78	81
Renewal Commission Life (ex Group)	91	92	83	88	89
Group Commission	101	101	101	101	100
All Commission Combined	86	84	82	83	85
Investment Expenses	82	84	106	110	117
New Business Production	128	114	72	88	73
Clerical Staff Overheads	102	98	94	104	111

APPENDIX 3

Inter-Office Expense Investigation (1971)

Calculation of Hypothetical Expenses (including commission)

	Item	Basis for hypothetical amount	Calculated hypothetical amount
1.	ORDINARY INDIVIDUAL BUSINESS		
1.1	*New Business Expenses & Commission*		
	Full premium assurances expenses	1% of sums assured +£10 per policy	
	Full premium assurances commission	2% of sums assured	
	Low premium assurances expenses	·2% of sums assured +£10 per policy	
	Low premium assurances commission	10% of premiums	
	Deferred annuity expenses	10% of amount of annuity +£10 per policy	
	Deferred annuity commission	$2\frac{1}{2}$% of yearly premiums +1% of single premiums	
	Total 1.1		
1.2.	*Renewal Expenses & Commission*		
	Full premium assurances expenses	£2 per policy	
	Full premium assurances commission	$2\frac{1}{2}$% of premiums	
	Low premium assurances expenses	£2 per policy	
	Low premium assurances commission	5% of premiums	
	Deferred annuity expenses	£2 per policy	
	Deferred annuity commission	$2\frac{1}{2}$% of premiums	
	Total 1.2		
2.	INDEX LINKED BUSINESS		
	New business expenses	1% of sums assured +£10 per policy	
	New business commission	2% of sums assured	
	Renewal expenses	£2 per policy	
	Renewal commission	$2\frac{1}{2}$% of premiums	
	Total 2		
3.	ANNUITIES IN PAYMENT		
	New business expenses	1% of considerations +£10 per annuity	
	Commission	1% of considerations +$1\frac{1}{4}$% of amounts of new pensions set up under existing policies	
	Payment expenses	£3 per annuity	
	Total 3		

	Item	Basis for hypothetical amount	Calculated hypothetical amount
4.	SPONSORED GROUP BUSINESS		
4.1.	*Expenses*		
	Group deferred annuity and Group life schemes	6% of premiums (net of rebates)	
	Group endowment and endowment-type schemes		
	New business	1% of sums assured	
	Renewal	3% of premiums	
4.2.	*Commission*		
	All group schemes	$2\frac{3}{4}$% of premiums	
	Total 4		
5.	SPONSORED PENSION BUSINESS BY INDIVIDUAL POLICIES AND SELF-EMPLOYED DEFERRED ANNUITIES		
	New business expenses	1% of sums assured or 10% of amount of annuity +£10 per policy	
	Renewal expenses	£2 per policy	
	Commission—self-employed policies	3% of premiums	
	Commission—other policies	$2\frac{3}{4}$% of premiums	
	Total 5		

APPENDIX 4(a)

Inter-Office Expense Investigation (1984)

Calculation of Hypothetical Expenses (including commission)

	Item	Basis for hypothetical amount		Calculated hypothetical amount	See note
1.	ORDINARY INDIVIDUAL BUSINESS				3(i)
1.1	New business				
1.11	Expenses for life assurances and deferred annuities	£56·05 per policy	1		7(i)
		40% of yearly premium	2		7(i)
		1·5% of single premium	3		7(i)
	Sub-Total 1.1	(1+2+3)	4		
1.12	Commission for whole life and endowment assurances etc.	1% of sums assured of yearly premium business	5		7(i)
		25% of yearly premiums	6		7(i)
		3·5% of single premiums	7		7(i)
1.13	Commission for temporary assurances	50% of yearly premiums	8		7(i)
		10% of single premiums	9		7(i)
1.14	Commission for deferred annuities	25% of yearly premiums	10		7(i)
		2% of single premiums	11		7(i)
	Total 1.1	(4+5+6+7+8+9+10+11)	12		
1.2.	Renewal				
1.21	Expenses for life assurances and deferred annuities	£11·21 per premium-paying policy	13		7(i) 7(vi)
		£4·48 per paid-up policy	14		7(i), 7(vi)
	Sub-Total 1.2	(13+14)	15		
1.22	Commission for life assurances and deferred annuities	2·5% of yearly premiums	16		7(i)
	Total 1.2	(15+16)	17		
2.	SELF-EMPLOYED BUSINESS				3(ii)
2.1	New business expenses	£56·05 per policy	1		7(ii)
		40% of yearly premiums	2		
		1·5% of single premiums	3		
2.2	Renewal expenses	£11·21 per premium-paying policy	4		7(ii) 7(vi)
		£4·48 per paid-up policy	5		7(vi)
	Sub-Total 2	(1+2+3+4+5)	6		
2.3	New business commission	40% of yearly premiums	7		7(ii)
		3% of single premiums	8		7(ii)
2.4	Renewal commission	1·5% of yearly premiums	9		7(ii)
	Total 2	(6+7+8+9)	10		

	Item	Basis for hypothetical amount	Calculated hypothetical amount	See note
3.	SPONSORED INDIVIDUAL BUSINESS			3(iii)
3.1	New business expenses	£56·05 per policy or increment	1	7(iii)(a) 7(iii)(b)
		40% of yearly premiums	2	
		1·5% of single premiums	3	
3.2	Renewal expenses	£11·21 per premium-paying policy	4	7(vi)
		£4·48 per paid-up policy	5	7(vi)
	Sub-Total 3	(1+2+3+4+5)	6	
3.3	New business commission	40% of yearly premiums	7	
		2·75% of single premiums	8	
3.4	Renewal commission	1·5% of yearly premiums	9	
	Total 3	(6+7+8+9)	10	
4.	SPONSORED GROUP BUSINESS			3(iv)
4.1	Expenses	£1,121 per new scheme	1	7(iv)
		8% of premiums (net of rebates)	2	7(iv)
	Sub-Total 4	(1+2)	3	
4.2.	Commission	2·75% of premiums	4	7(iv)
	Total 4	(3+4)	5	
5.	ANNUITIES IN PAYMENT			3(v)
5.1.	New business expenses	£56·05 per annuity	1	7(v)(a)
		1% of considerations	2	7(v)(a)
5.2.	Payment expenses	£6·73 per annuity	3	7(v)(b)
		44·84p per payment	4	7(v)(b) 7(vi)(b)
	Sub-Total 5	(1+2+3+4)	5	
5.3.	New business commission	2% of considerations	6	7(v)(a)
		1·5% of amounts of new pensions set up under existing policies	7	7(v)(c)
	Total 5	(5+6+7)	8	

Note: Those figures in the 'basis for hypothetical amount' above which appear as amounts rather than percentages have been calculated on the basis of the corresponding 1977 figures multiplied by 2·242 to allow for inflation between 1977 and 1984.

APPENDIX 4(b)

Inter-Office Expense Investigation (1984)

Notes for completion of the forms

1. The Investigation is in respect of United Kingdom ordinary branch life assurance and annuity business only. Capital redemption and P.H.I. business should preferably be excluded, provided the relevant expenses are also excluded; otherwise this business can be included where most appropriate. Subsidiaries may be included, excluded or reported on separately at the discretion of the office.

2. All figures are to be net of reassurances ceded.

3. There are five main divisions of business defined as follows:

(i) *Ordinary individual business*—This relates to ordinary life assurances and annuities, including linked policies, not included in one of the other four categories.

(ii) *Self-employed business*—This relates to individual policies, including linked policies, effected by the self-employed, or other persons with non-pensionable earnings, under which premiums rank for full tax relief.

(iii) *Sponsored individual business*—This relates to individual policies, including linked policies, issued under sponsored pension and life assurance schemes or arrangements established by employers and approved by the Inland Revenue for the purpose of tax allowance or relief to the employer or the employee.

(iv) *Sponsored group business*—This relates to group policies issued under pension and life assurance schemes as defined in (iii) above. Managed Fund business, whether 'investment only' or fully administered, should *not* be included.

(v) *Annuities in payment*—This relates to all immediate annuities and vested deferred annuities whether ordinary individual annuities, or pensions being paid under sponsored pension schemes, or arising from self-employed contracts or from linked business including annuities bought from Managed Funds, subject to note 7(v)(a).

4. The various rules set out above as to the sub-division need not be adhered to rigidly if it would be inconvenient to do so, *provided* the office is satisfied that the departure from the rules will not significantly affect the resulting relationship between hypothetical and actual expenses. For example, where an office administers in conjunction with its U.K. business a small amount of overseas business which it would be difficult to exclude, such overseas business may be treated as U.K. business in determining both hypothetical and actual expenses. Similarly, if the volume of sponsored individual business or self-employed business is particularly small, and this business is being administered as part of an

office's ordinary individual business, then it may be included in the ordinary individual section of the form.

Collective life business (i.e. group life business not relating to schemes established by an employer for the benefit of his employees) may be included under either category 1 or 4 of the return. Offices may adopt whichever is the more convenient in relation to their own administrative and accounting systems, indicating where the business, if any, has been included.

Where there is any departure from the rules this should be mentioned.

5. Offices should record their calculations of hypothetical expenses on Forms 2 to 4 and transfer the totals as indicated to the summary sheet, Form 5. Corresponding actual totals should be entered and percentage ratios calculated to the nearer integer. It will be observed that in the case of ordinary individual business separate totals are requested for new business and renewal expenses. The total revenue premium income relating to all the business to which the return relates should be stated on Form 1.

6. In completing the forms, offices may need to use approximate methods in some respects. If a significant change is made in the method of approximation this should be mentioned and the approximate effect of the change indicated.

Hypothetical expenses

7. In calculating hypothetical expenses, the following points should be noted:

(i) *Ordinary individual business*

(a) Whole life assurances, endowment assurances and temporary assurances respectively relate to policies treated as such under the Registry of Life Assurance Commission (ROLAC) proposals.

(b) Where more than one benefit is provided under one policy (e.g. a whole life assurance plus a temporary benefit) the per policy amounts provided for in 1.11 and 1.21 should be applied once only. (These per policy amounts apply to all types of policy, including temporary assurances written under separate policies.) For commission purposes the additional premium should be disregarded in 1.12 but should be brought into account in 1.13.

(c) A policy cluster, where for practical purposes the 'policies' form part of a single office record, should be counted as a single policy.

(d) Contingent assurances should be treated as temporary assurances.

(e) Contingent or reversionary annuities should be treated as deferred annuities.

(f) Single premium bonds under which a regular series of payments are being made by the office may be counted as premium-paying policies in 1.21.

(g) Where deferred annuity commission has been paid on single premium bonds issued in the Assurance Fund, the hypothetical commission should be calculated as in 1.14.

(h) Increments should be treated as new business if initial commission is payable, but automatic RPI increments should be counted for premium only. Alterations which give rise to commission upon an increase in premiums may be treated as new business to the extent of this increase.

(ii) *Self-employed business*
A self-employed contract which is secured by recurring single premiums endorsed on the original contract should normally be regarded as an annual premium-paying policy. However, where single premium commission is paid on each premium it may be regarded as a succession of single premium contracts.

(iii) *Sponsored individual business*
(a) For sponsored individual business the per policy amount in 3.1 should apply to increments as well as the original policy with which the increment is consolidated as an additional policy.
(b) Some or all of an office's sponsored individual business may be reported as sponsored group business, where circumstances suggest that this would be more appropriate.

(iv) *Sponsored group business*
(a) In 4.1 the new business allowance is on a per scheme basis so as not to count more than one policy per scheme in cases where specific benefits, e.g. widows, group life etc. are insured under separate policies.
(b) In 4.1 premiums under group life policies should be taken net of profit-sharing refunds, but in 4.2 premiums before deduction of such refunds should be used if this is the basis upon which the office actually allocates commission.

(v) *Annuities in payment*
(a) The new business to be taken into account under 5.1 and 5.3 should be that which the office itself considers to be new business.
(b) The per payment charge is to allow for frequency of payment. Where, under a group annuity policy, the office makes bulk payments to trustees in respect of members' pensions, each bulk payment should be counted as one payment and each member's pension as one annuity in 5.2.
(c) In 5.3 new pensions includes self-employed annuities set up under an 'open-market' option and compulsory purchase annuities.

(vi) *General Points*
(a) In 1, 2 and 3, paid-up policy includes policies secured by a single premium or by premiums payable for a limited period which has expired.
(b) The renewal expense allowance for premium-paying and paid-up policies respectively in 1, 2 and 3, and the annuity payment expense allowance in 5, should be calculated in relation to the mean business in force, including new business.

Actual expenses

8. Offices are asked wherever possible to adjust the *actual expenses* reported to conform with the following standards:

(i) Exceptional items of a significant size, such as capital expenditure on a computer, the cost of relocating head office, or non-recurrent special contributions to the staff pension scheme, should be taken into account on a depreciation basis which writes the cost down to zero over a period of four to seven years.
(ii) All investment expenses (including departmental expenses and an appropriate share of overheads) should be excluded.
(iii) For all occupied properties, whether owned or rented on a long lease, the cost should be taken at a level as close as possible to the current rack rent.
(iv) The cost of providing subsidized loans to staff for house purchase or other purposes should be included, having regard to the difference between the rate the office could lend at commercially and the subsidized rate.

9. Because the factors for hypothetical new business commissions are based on new business issued during the year, offices are asked to adjust the actual new business commission reported if they consider that the incidence of payment (or debiting in the revenue account) of new business commission and/or procuration fees differs from the incidence of payment of the first year's premium in such a way as to make likely significant distortions in their ratios of actual expenses to hypothetical expenses. The adjusted figure should be the estimated cost of new business commission and procuration fees in respect of business issued during the year and the method of adjustment should be such as to leave unaltered total commission reported taking one year with another.

Miscellaneous

10. The indication as to type of sales organization is required to enable a grouping of offices by type of sales organization to be used when presenting the results. It is expected that offices categorized as selling predominantly through 'specialist intermediaries' will have inspector forces and sell mainly through brokers and other agents who may place business with more than one office. 'Other' offices will include those obtaining most of their business directly from employees or agents who write for no other office.

11. For both the normal investigation and the 'Expenses Only' investigation offices are asked to indicate whether they wish to be included on a separate list identified only by office number. Two separate lists of such offices will disclose ratios in respect of expenses including commission and expenses excluding commission. Offices will not be identified as to size or type and those appearing on the 'Expenses Only' list will be given a special number for this purpose.

APPENDIX 5

Functional Expense Categories for Ordinary Business

It was agreed at group discussions held in 1979 and 1980 that the undernoted ordinary business functions could be usefully identified:

Initial:

Selling—Sales (Field staff, preparation of quotations and other activities directly related to selling);
Selling—Overheads (including advertising, training of field staff, design of new products);
Underwriting and acceptance;
Policy issue (including the setting up of office records).

Renewal:

Premium collection and payment of associated commission;
Payment of death and maturity claims;
Other maintenance functions (e.g. payment of surrenders, policy alterations, quotations, valuation etc.).

APPENDIX 6(a)
Inter-Office Expense Investigation

Median ratios of offices, other than IB/OB or composites, transacting mainly traditional life business

	Ordinary Individual new	Ordinary Individual renewal	Self-Employed	Sponsored individual	Sponsored group	Annuities in payment	Grand total
All Offices							
1977	110·5	114·5	92·0	94·0	106·0	118·0	104·5
1978	102·5	111·0	93·0	92·0	106·0	108·0	102·0
1979	103·0	107·0	102·5	91·5	102·0	104·0	104·0
1980	108·0	109·0	105·0	98·0	109·0	101·0	111·0
1981	111·0	108·5	98·5	103·0	99·0	104·0	110·5
1982	111·5	112·0	100·0	105·0	102·5	100·5	106·0
1983	99·0	103·5	93·0	110·0	107·0	98·5	97·5
1984	104·0	108·0	96·0	105·0	103·0	107·0	101·0
1984 upper quartile	125·0	121·0	116·0	122·0	142·5	137·5	113·0
1984 lower quartile	86·0	85·0	76·0	82·0	86·0	87·0	84·0
1984 actual expenses	£382·7m	£111·0m	£112·5m	£101·4m	£82·4m	£16·7m	£806·7m
Offices with U.K. premium income of £111m or more in 1984							
1980	106·0	96·0	101·5	96·0	103·5	98·0	98·0
1981	99·5	101·5	91·0	101·5	98·5	92·0	97·0
1982	100·5	97·5	97·5	107·0	100·0	92·5	98·5
1983	85·0	92·0	90·0	108·0	102·0	93·5	92·0
1984	92·5	97·0	88·5	105·0	101·5	96·5	97·0
1984 actual expenses	£274·8m	£74·1m	£94·6m	£88·4m	£70·1m	£13·3m	£615·4m
Offices with U.K. premium income of less than £111m in 1984							
1980	125·0	129·0	113·0	106·0	135·0	121·0	123·0
1981	124·5	139·5	127·0	109·0	103·5	112·5	127·5
1982	122·5	134·0	108·0	104·0	123·5	115·0	124·0
1983	111·5	124·5	114·0	112·0	126·0	122·5	110·0
1984	124·0	123·0	107·5	105·5	119·0	122·0	113·0
1984 actual expenses	£107·9m	£36·9m	£17·9m	£12·9m	£12·3m	£3·3m	£191·3m

APPENDIX 6(b)
Inter-Office Expense Investigation

Median ratios of IB/OB, Composite and Linked Offices

	Ordinary Individual new	Ordinary Individual renewal	Self-Employed	Sponsored individual	Sponsored group	Annuities in payment	Grand total
IB/OB Offices							
1977	68·0	104·0	65·5	110·0	132·0	75·0	82·0
1978	77·0	121·0	62·0	60·5	132·0	105·0	82·0
1979	76·0	108·0	68·5	85·5	99·0	104·5	76·5
1980	86·0	111·0	69·0	90·0	104·5	103·0	82·0
1981	78·5	84·5	58·0	40·0	99·0	103·5	81·0
1982	68·0	115·0	62·0	55·0	95·0	102·0	75·0
1983	54·0	116·0	72·0	78·5	102·0	108·0	74·0
1984	69·0	127·0	65·0	104·0	140·0	84·0	79·0
1984 actual expenses	£87·5m	£63·9m	£36·1m	£5·2m	£13·9m	£4·1m	£210·7m
Composite Offices							
1977	110·0	97·0	102·0	102·5	135·0	96·5	104·5
1978	105·0	106·0	93·0	99·5	116·0	109·0	97·5
1979	109·0	94·0	98·0	89·5	110·0	89·0	99·5
1980	118·0	93·0	122·0	123·0	116·0	87·5	104·5
1981	117·0	91·0	122·0	113·0	127·0	91·0	109·0
1982	113·0	87·0	113·5	128·0	131·0	98·0	108·0
1983	89·0	85·0	102·5	105·0	130·0	92·0	93·0
1984	113·0	77·0	97·0	105·0	123·0	92·0	103·0
1984 actual expenses	£276·4m	£75·9m	£36·9m	£41·1m	£65·4 m	£15·1m	£510·8m
Offices transacting mainly linked life business							
1977	117·0	132·0	96·0	103·0	106·0	106·5	116·0
1978	102·0	123·0	90·0	101·0	108·0	132·0	116·0
1979	105·0	118·0	85·0	93·0	106·0	143·0	101·5
1980	108·5	102·0	130·0	191·0	104·5	199·0	109·5
1981	98·0	109·0	103·5	162·0	189·0	189·0	96·0
1982	98·0	115·0	89·5	94·0	100·0	119·0	97·0
1983	87·0	97·0	97·0	125·0	82·5	125·5	92·0
1984	107·0	107·5	102·0	113·0	100·0	122·0	105·0
1984 actual expenses	£131·7m	£29·8m	£45·3m	£34·6m	£·5m	£2·6m	£244·6m

APPENDIX 6(c)
Inter-Office Expense Investigation

Median ratios (expenses only) of offices participating in Expenses Only Investigation

	Ordinary Individual new	Ordinary Individual renewal	Self-Employed	Sponsored individual	Sponsored group	Annuities in payment	Grand total
All Offices							
1977	121·0	131·0	99·0	106·0	118·0	110·5	106·0
1978	113·0	122·5	99·0	102·0	109·0	115·5	107·0
1979	117·0	118·0	112·5	103·0	103·0	106·0	105·0
1980	135·0	111·5	121·0	119·0	116·0	97·5	119·0
1981	133·5	114·0	131·5	140·0	135·0	101·5	120·0
1982	119·5	116·5	113·5	150·0	131·0	111·5	117·0
1983	90·5	108·5	101·0	135·0	123·0	97·5	97·5
1984	99·5	103·5	106·0	123·0	124·0	107·0	103·0
1984 upper quartile	120·0	130·0	145·0	154·5	151·0	147·0	116·0
1984 lower quartile	74·0	79·0	72·0	108·5	95·0	89·0	87·0
1984 actual expenses	£293·9m	£114·8m	£72·3m	£77·7m	£108·7m	£19·9m	£687·3m
Offices with U.K. premium income of £170m or more in 1984							
1980	116·0	105·0	114·0	126·0	106·0	86·0	106·0
1981	126·5	97·0	134·5	135·0	110·0	91·5	108·0
1982	109·0	92·5	113·5	155·0	108·5	89·0	105·0
1983	75·0	92·5	98·5	131·5	105·5	91·0	82·5
1984	92·0	97·0	106·0	123·0	108·0	94·0	102·0
1984 actual expenses	£214·8m	£81·9m	£52·0m	£62·6m	£74·3m	£15·8m	£501·1m
Offices with U.K. premium income of less than £170m in 1984							
1980	136·0	116·0	132·0	118·0	118·5	125·0	125·0
1981	135·5	120·0	113·5	147·5	137·0	121·0	131·0
1982	138·0	141·0	121·0	150·0	151·0	128·5	136·0
1983	97·5	121·0	103·0	136·0	140·0	126·5	108·5
1984	104·0	118·0	105·5	141·5	136·0	132·0	112·0
1984 actual expenses	£79·4m	£32·9m	£20·3m	£15·1m	£34·4m	£4·1m	£186·2m

APPENDIX 7

Authors' Questionnaire to Contributing Offices

Summary of Questionnaire and the responses to it

Question 1: (*a*) What value do you derive from the Investigation?
(*b*) To what use do you put the results of the Investigation?
Response: The value of the Investigation was stated to be limited but it was the only available objective indicator of industry trends and the company's relative position. The results were used as pointers to office efficiency and to particular areas where savings might be made.

Question 1: (*c*) Has it helped you to control expenses to any degree?
Response: 23 said 'No'; 9 said 'Yes'; 7 did not give a clear opinion.

Question 2: (*a*) Does the Investigation require you to analyse expenses in greater, less or different detail than you would otherwise do?
Response: 21 offices analysed their expenses in more detail than the Investigation, 12 in about the same detail and 5 in less detail, with one not clear.

Question 2: (*b*) For what other purposes do you analyse expenses?
Response: A number of applications were named including Premium Rates (26 times), Cost Control (22), Fund Analysis (12), Profit Testing (11), Valuations (9), Department of Trade (7), Tax (2) and Sales Incentives (1).

Question 2: (*c*) What classes of business and what functions do you identify in your analysis?
Response: Offices interpreted the meaning of functions differently, making exact comparison difficult. Most distinguished by product and 17 offices further analysed expenses into three or more functional categories. The other 22 recognized 2 or less functional categories of expense.

Question 2: (*d*) To what extent do you use data derived from analyses of expenses in assessing premium rates for different classes of policy?
Response: 28 offices used expense analyses for this purpose and while 8 did not; 3 were not clear.

Question 3: In analysing expenses, whether for the Expense Investigation or for other purposes, how do you deal with:
(a) Accommodation costs (including notional rents)?
(b) Telephone, stationery and postage costs?
(c) House purchase subsidy, pension costs?

(d) Other personnel costs, including training?
(e) Service departments, such as computers, O & M, typists etc.?
(f) Capital and development costs?
(g) General overhead costs, including corporate and staff-related costs? How do you define an overhead cost?

Response: The replies were too varied for useful or exact summary. A broad impression of the replies is given in § 5.2.4.

Question 4: (*a*) Do you employ a system of budgetary control for Head Office or for the Branches?

Response: 34 offices used a budgetary system for Head Office or the Branches and 5 did not.

Question 4: (*b*) To what extent is the budgetary control process integrated with the functional cost analysis?

Response: The replies showed up a wide variety of interpretations of 'functional cost'. Of those offices using budgetary control 23 considered their functional analysis to be wholly or partially integrated.

Question 5: Do you see control and analysis of expenses as becoming more or less important to life offices in the future?

Response: All offices saw control and analysis of expenses as becoming more important or remaining important.

ABSTRACT OF THE DISCUSSION

Mr T. W. Hewitson F. F. A. (opening the discussion): The authors have set out to make available data on life office costs over recent years. They have examined the significance of this data, together with some of the problems encountered during the investigation. Various levels of notional expenses had to be assumed. In § 2.2.2 the absolute level of notional expenses for individual policies was not considered to be critical, although they should be realistic, but sufficiently generalized to allow reasonable comparison between different offices, and from year to year.

It is difficult to find notional parameters suitable for all offices and the method of allocation of expenses by some offices may leave something to be desired.

A more basic aim of the investigation may be to measure and improve the efficiency of life offices. This raises the question as to how you measure or indeed define efficiency: by the absolute level of expenses, or related to the level of services provided by the office? How do you rate an office which has a larger team of investment analysts and incurs higher investment charges but hopefully earns a higher investment return?

Is a high level of expenses worrying in itself, or only if actual expenses exceed the margin allowed for in the premium or valuation bases? For offices writing mainly linked business any excess of renewal costs or higher than expected acquisition costs could not be met from the free reserves forming the estate of the office otherwise available for with-profit policyholders in established offices. Similarly, the explicit or implicit deductions for expenses on early surrenders should match the actual expenses incurred by the office. What is the implicit level of expenses borne by a with-profit policyholder, and how do offices assess an equitable share of bonuses, both reversionary and terminal bonuses, avoiding any major cross-subsidies between with-profit policyholders?

The method suggested by the authors in §§ 5.3.3 and 6.4.1 of comparing actual expenses incurred with the margins allowed in the premium basis seems an essential tool for measuring the proportion of expenses attributable to each group of policies covered by appropriate margins in the premiums received, and ensuring that the office's free reserves are not being unduly diluted by higher than expected acquisition or renewal costs. By incorporating these assumptions into a suitable profit testing model the susceptibility of the office to changes in various parameters such as levels of new business and lapses can be investigated.

The future viability of the office is somewhat different from the theoretical solvency position. For a closed fund, services provided may be drastically curtailed and with no further marketing expenses the overall level of expenses may be substantially lower. However, the premium margins and valuation reserves must cover the expected level of expenses each year, for each group of policies, and a functional analysis of expenses distinguishing various renewal and claim costs for each class of policies may be needed.

Comparing premium loadings in § 5.3.3 between offices seems attractive at first sight, particularly given the uncertainties involved in projecting future bonus rates or rates of unit growth. However, as the authors explain in § 6.4.2, problems can arise with the allocation of general overheads in excess of marginal costs, especially with the third method suggested of charging these costs to the estate. These are varying levels of service including investment expertise provided by different companies and different methods of allocating investment profits between different groups of policyholders and shareholders. Variations in rates of investment return may in many cases be more important to policyholders than differences in expense margins. Take the notional expense levels shown in Appendix 4(a) for pension policies, for which no direct tax relief on expenses would be available. Applying these to a policy with a regular premium of £50 per month, and also a policy with a single premium of £1,200, the resulting calculations on compound interest only and on assumed growth rates of 8% to 12% p.a., and various initial terms, indicate that the notional expenses are equivalent in each case to some 12% to 18% of premiums. The equivalent reduction in yield on investments vary from about $\frac{1}{2}$% to $1\frac{1}{4}$% p.a. for most terms of policy, increasing to as much as $3\frac{1}{2}$% p.a. for a ten year policy on a monthly premium basis. These notional figures are very dependent on the actual amount of premium payable under the policy and could be significantly higher for lower premiums, depending on how each office allocates fixed expenses between policies of different sizes and initial

The results of the expense comparison as shown in the Appendices appear quite difficult to interpret. While the steady increase in renewal expenses between 1968 and 1972, as shown in Appendix 2, could be related to the rates of inflation at that time, the reason for a similar increase in investment expenses was less clear, the notional expenses for the latter being related to the annual mean fund which was also increasing steadily each year. The detailed figures in Appendix 6 shows wide fluctuations from year to year, possibly reflecting one-off costs in developing new systems or products, as well as the problems experienced in allocating costs accurately.

Costs for sponsored individual pension business, both with and without commission, indicate some increase over the 8 years considered. The authors suggest in § 4.6.1 reductions in commission may have offset increases in other expenses. I find this difficult to read into the figures shown.

Similarly, the apparently higher expense only ratios for sponsored individual business relative to self-employed business did not seem to bear out the remark § 3.3.5 that the higher average size of policy associated with individual pensions business offsets the higher costs experienced.

One explanation for the differences in the ratios may be the treatment of recurring single premium self-employed business as, according to paragraph 7(ii) of the instructions in Appendix 4(b), this may be treated as either annual or single premium business when determining notional expenses and commission.

Paragraph 3.2.2 indicates no significant observed differences in expenses for linked business, which seems quite surprising given the additional work involved in operating one or more unit funds with monthly unit allocations. In § 4.4.6, it does appear that linked offices in general have very similar expense ratios to other offices and so I wonder if one possible complication might be the effect of reinsurance. All figures are intended to be net of reinsurances ceded, and most linked business is reinsured on a risk premium basis, with the payment under some financing treaties of substantial amounts of reinsurance commission. Could this have artificially distorted the results for some offices? The relative levels of single and annual premium business could be a further factor if the relative notional expense levels are at all unrealistic for some offices.

The authors suggest that there may be some differences between composite offices and others in the observed expense ratios. While this may be partly attributable to the method of allocating expenses between per policy costs and percentage of premium costs, other suggestions could be differences in marketing costs with many composites making direct sales to policyholders and economies of scale for the larger composites.

One of the main features of the investigation is the apparent difference in the expense ratios between smaller and larger offices. The authors suggest this difference amounted to some 30% which is equivalent to a difference in the investment yield of between $\frac{1}{4}\%$ to $\frac{1}{2}\%$ p.a. or, alternatively, a loading on each premium paid of between 2% and 4%.

With the recent proposals by MIBOC, the comments in § 6.5 on the increasing level of competition, and greater openness by offices concerning the underlying expense charges within the policies are very pertinent.

Mr C. D. O'Brien: In recent years there have been a number of surveys examining the expenses of United Kingdom life offices. As it is based on returns to the Department of Trade and Industry, such research does not have the benefit of internal expense allocations as made available to the Life Associations but is still capable of yielding interesting results. In a study in 1981 (J. Finsinger, E. Hammond & J. Tapp: 'Insurance: Competition or Regulation', the Institute for Fiscal Studies, London, 1985), the regression analysis used a dummy variable to represent membership or non-membership of the Life Associations. It was found that membership was associated with a reduction of $7\frac{1}{2}$ percentage points in the ratio of expenses and commission to premium income. Other studies have looked at the influence of ownership, though differences between mutual and proprietary offices may not be apparent in the results.

These surveys lend support to the existence of economies of scale. There is little doubt regarding the relatively higher costs of small offices. However, there is evidence of a U-shaped cost curve in so far as the largest offices may have somewhat relatively higher costs. There may be some dis-economies of scale.

Expenses may be considered as the cost of providing services, in terms of the administration of

business, its acquisition and the investment of funds. If a company sees its expenses rising over time, it may ask to what extent this represents an increase in the quantity of services it supplies or the price of such services.

In § 3.4.1 the authors adopt an Earnings Index to inflate the per policy factors in the hypothetical expenses. If these factors are an expression of the price of the administration services per policy, then we would expect productivity improvements to take place, and for the price to rise on a basis comparable with other prices in the economy, rather than earnings.

An office may be able to use its expense analysis to determine to what extent the price of its services is increasing and how much the higher expenses reflect an increased quantity of output.

Mr E. J. W. Dyson: There is a philosophical difference between the approach of the authors and that of Elphinstone and myself to the analysis of expenses. Both approaches have their merits. There are two reasons why expenses need to be analysed. First expenses can only be met out of the income of the office, from premiums and investments, so that knowledge of the incidence of expenses is necessary in order to fix premium scales, withdrawal benefits and so on. The total expenses can be related to total income in many ways, and a certain amount of discretion can properly be exercised by the management of the office in this respect. But if one office allocates its expenses in a way markedly different from others, relative distortions can arise and premium rates for some types of policy can become very competitive and for others less so.

If a very large proportion of expenses are attributed to investment income, premium rates for temporary assurances would become very attractive, while those for policies with a large investment element would become less so. For this purpose I prefer the authors' approach.

Secondly, an analysis can be used to assist in controlling expenses, and here on the whole I prefer the alternative approach. When an expense allocation formula has been established, the amount of money available can be readily calculated and compared with the actual expenses. In any particular year these two figures will not agree, this is not too significant—much more importance attaches to the trend over time. The explanatory variables are not independent, but highly correlated, and it is not easy in practice to see how the correlations occur. In Appendix 4(a) the authors use no fewer than 41 explanatory variables all related to numbers or amounts of contracts, this apart from any further items dealing with investments. Elphinstone and I, working entirely from published figures, could not go into so much detail, nevertheless we allowed for a maximum of 17 explanatory variables. Because of this profusion of non independent explanatory variables, it would seem to be worthwhile to start with very few such variables, adding further ones and seeing whether the addition improved the fit of the formula. While this large number of explanatory variables are considered, some important ones, notably the overall business philosophy of the office and the effect of personalities, to which it is not possible to ascribe numerical values, are perforce ignored. Nor is the question of leads and lags dealt with, when changes in the explanatory variables are only reflected in the expenses after an interval—this fact may explain the apparent high level of expenses related to in-force as opposed to new business as shown in Appendix 2.

The use by Elphinstone and myself of year factors to represent the difficulty or otherwise of particular years met with some criticism. Although no such specific factors have been included in the present investigation, the authors have endeavoured to make allowance for general inflation by a factor based on an index consistent with the increase in average earnings. For renewal expenses the amount available to meet the per policy expenses is fixed at the inception of the policy—not necessarily of course the same amount in each year—and the authors' approach has rather odd implications. Forecasting future price changes is like steering a ship in a thick fog without a compass; nevertheless would it not have been preferable to relate the per policy expenses for the in-force to the dates of inception of the policies rather than to the year of investigation?

The authors results reinforce the results of earlier investigations to show the great degree of variation between individual offices. It is easy, but wrong, to say that the lower the expenses of an office are, the better. The fact is that, as Norman Benz stated in the discussion on Elphinstone's and my paper, it is the general overall results of the office which are important, and an office which consistently earns a higher rate of interest on its fund, or which consistently gives better service to its policyholders and agents in dealing promptly and effectively with communications, will prosper even if its expenses appear to be on the high side.

Mr C. J. Hairs: Within my office, preparation of our returns for the investigation involves the marginal cost of some two to three man weeks. This seems reasonable for the moderately useful indicators that the investigation provides, and I support its continuation and, to a degree, its development. However, as the opener has pointed out, offices do not sell identical products in identical ways. As a result, there are distinct limitations on the information an inter-office expense comparison can give. Greater effort may well not produce materially better results.

An office's expenses are a measure of the functions and activities that an office chooses to pursue in running its business. Some of these functions are direct production functions such as selling, underwriting, and so forth. These functions probably account for the major part of expenditure. But even if these production functions are common between offices, variations in sales method, product design and so forth, means that different offices will have different expected levels of unit functional costs. Other functions will include internal services which each office tends to provide in the way that suits it best. And then there are overheads.

It is difficult to find a fully satisfactory definition of over-heads. They include a whole range of activities such as systems work, planning and so on. In aggregate they are the result of the company's corporate style and will not be directly comparable, one company with another, although there will be some similarities.

It is tempting to move to a detailed comparison of functional costs, but it would be impractical to get a common and precise definition of functions. Functional costs are subject to an overall constraint in that they must be covered by the expense charges which are explicitly or implicitly contained within the aggregate of our premium rates, discontinuance terms and bonus structures.

There are many fewer different types of expense charge than there are types of functional expense. Historically, the hypothetical factors in the inter-office comparison represent most, though not all, of the important types. It is therefore common practice to allocate the full range of functional expenses into relatively few factors such as so much per policy, percentage of premiums, and so on.

There are a number of references in the paper to allocation methods and mention of errors in allocation. I take issue with the authors if they are suggesting that there is some unique or even very narrow range of allocation methods which is solely correct. A company has significant latitude in its choice of how to allocate expenses and its selection of method is a not unimportant element in its ongoing financial control. What is not acceptable of course is to chop and change from year to year.

This allocation process, even if every office used the same type of factor, would not produce the same level of required charge for purposes of premium rates and so forth. The Life Assurance market in the U.K. is not a perfect market. Differences in product design, service levels and delivery systems are reflected in differences in expenses charges.

Effectively, the inter-office expense investigation tells us, both overall and for broad product classes, about our expense performance assuming we had the same level and type of expense charges. In practice we do not and the results must be regarded in this light. If an office is competing heavily on price, it will hope and, over the long haul, will need to compare very well on the inter-office basis. Another office whose marketing thrust was different may feel quite content with a relatively poor ranking. It would be very difficult to strip out these real differences in expected price performance so as to leave only some sort of relative efficiency measure. Any attempt to do so would considerably increase the burden of work in preparing returns which would not be welcomed.

The life industry seems on the brink of an era in which, as regards investment acivities, it will compete directly with other institutions such as banks, building societies and so on. This could have a profound effect on our charging practices and we could well see a substantial shift away from front end, to renewal charges against ongoing premiums or by deduction from investment returns. Sound business practice will dictate that corresponding changes take place in the way we actually do business—our functional description. A challenge to the inter-office expense investigation will be to reflect these changes.

The results of the investigation suggest that economies of scale are less marked in our industry than might be expected. Economies of scale are achievable and indeed have been achieved in respect of direct production functions measured on a constant basis in relation to complication. But the advantages have appeared not so much in reduced final average costs, but in increased levels of product complexity, research, planning, computer development and so forth.

Mr D. E. Fellows: In a traditional life office transacting conventional life assurance and pensions business, there has rarely been a need to exercise an overriding stringent control over costs. The with-profit system has many virtues but it can dull our sensitivity to some of the underlying factors. The position is now changing. Although differences in expense levels between offices are usually of much less significance than differences in investment performance, cost control is becoming of much more importance particularly in some new developments.

With the prospect of developments outside the traditional spheres, such as unit trust business, not to mention competition from other forms of institution, the need for expense control will loom larger particularly where we need to make a division between traditional with-profit policyholders and, in a proprietary company, the shareholders—or perhaps in a mutual office, a downstream subsidiary.

Where we have this separation and a new class of business is being developed for the benefit of the owners—who may be shareholders as distinct from with-profit policyholders—the question of marginal costing may well arise to get the operation successfully off the ground in the early stages. I have an instinctive dislike for such costing but when the new area of activity is clearly a fringe operation, additional to—and extremely small by comparison with—the main areas of business which are bearing the overheads, there does seem to be a case for marginal costing. But then—depending on the pace of development of the new activity relative to the existing operations and the possible detrimental effect on the latter—the propriety of such costing would weaken perhaps quite quickly. Marginal costing can properly be considered only in conjunction with certain disciplines and controls, embracing arrangements for moving over a period to a full proportionate basis of allocating overheads, depending on relative business volumes and subject of course to the agreement of the auditors.

Even in some of our areas of traditional business, expense aspects are becoming of more significance. In Canada, for example, a high proportion of new business is emerging in fully guaranteed non-participating form. This has led in my own company to the realization that this is not particularly helpful either for the existing with-profit policyholders who are not likely to understand fully the true nature of the investment that they have in the non-participating business, nor for the shareholders in so far as the profits on the with and the non-participating business are pooled and the proprietors get very little benefit from the latter. So it seemed to us to be helpful to isolate through a new subsidiary the non-participating elements so as first to reduce the gearing effect on the participating policyholders and, secondly, to identify the capital support needed from the shareholders' funds. We must be careful not to cross-subsidize—if the shareholders are properly to participate in the profitability, or otherwise, of the business. Demutualization and indeed economy of operation are becoming more topical issues at least in North America, and I suspect here too.

There are several other areas where expense aspects are of growing importance: for example, in relation to illustrations for new business in conjunction with the Government's proposals to control administrative charges for the new personal pensions environment; and not least under Regulation 61 (of the Insurance Companies Regulations 1981) where provision for expenses is required to have regard, amongst other things, to the contingency that the company may cease to transact new business.

Mr P. J. Turvey: I refer to the section of this paper on the issue of economies of scale. The scale is unfortunately not given in the 'graduation' of the observations in § 6.3.3 of the paper, but the authors have assured me that the bottom line is reasonably close to zero. Perhaps by looking at some figures there we can see some interesting features. Observe the section above the word 'Premium' in the bottom line, particularly above the letters R, E and M, where there are five observations and without the benefit of a scale I cannot say exactly what the range is. It seems to be of the order of 3:1 or 4:1 between the most expensive office and the most economic office. This suggests that the variation cannot be due to differences in efficiency but must be due to heterogeneity between the two companies. Likewise, if we look at the group which is above the line and to the left of the word 'Premium' there are some companies whose expense ratios are as much as six or seven times those below. If we exclude these we get another group through which we could draw a totally different straight line. I am not suggesting that this is the right answer, but I do think we might better understand what is going on if somehow we were able to get at the characteristics of those offices.

Maybe the reason is that the excluded group do something different. Perhaps they re-insured three-quarters of their business. We have to get these factors separated before we can start talking about economies of scale.

This subject has produced a number of studies by well-meaning statisticians, economists, and so on. My experience of looking at these is that the further the researcher is from our industry, and therefore from knowing what actually goes on and understanding the differences between offices, the greater is the risk of drawing false correlations.

In §6.5.5 there is an intriguing reference to 'current best practices' performed by a number of offices. Unfortunately the authors give no further details. As a matter of major importance to a profession concerned with the management of life offices it would be very useful to have more details and the authors might at least be able to give us a reference to where these current best practices can be studied.

Paragraph 6.5.2 refers to future developments, competitive pressures, and so on. The authors suggest that we will be moving towards more open charges. I found this interesting when our major competitors, the banks and the building societies, have gone very strongly for totally hidden charges.

Professor S. Benjamin: The Futures Committee is looking at several subjects, and one of them is computers. The replies we had from the research network were very interesting indeed. There were several common themes. The general opinion seemed to be that life offices had dealt with most of the problems of getting administration on to computers over the last fifteen years. Most of the changes had now taken place. People were starting to look forward, but the next stage was not here yet.

Looking further into the future, there was a general feeling that changes in telecoms were going to affect changes in selling methods very considerably, and changes in software were going to change the administration. The type of expense analysis is going to have to change as the selling methods and administration change. The new software is certaintly going to give greater flexibility in the market-place and is going to be absolutely vital. But it may be that what the new software will give as an advantage is not necessarily an improvement in the expense ratio directly, but in the ability to get new complications out ahead of the competition in such a way that the cost does not matter very much—not in the early stages at any rate.

I am suspicious of outside investigations. In the one that was mentioned before, the economists found that members of the LOA showed an average $7\frac{1}{2}\%$ lower expense ratio. I question whether this is due to the expense ratio being applied to classes of business that are more likely to be written by companies which are members of the LOA.

Mr Fellows raised the point about valuation and allowing for the possibility of closing to new business. The way in which we tackle this in my office is that after considerable discussion with management, preferably over the years if it is a continuing relationship, we bring in the auditors: first to look at whether the closed fund expenses seem reasonable from their point of view and secondly to consider over-run of expenses in trying to run-down from the present position to a closed fund.

The other way in which in practice an outside actuary gets involved in the expense analysis of an office is that nowadays a great deal of reporting is done on intrinsic values or appraisal values, and there you have to look hard at the comparison of actual expenses with loadings in the premiums and other sources. It becomes an absolutely vital measure on a year to year basis for presenting one of the main features of the progress of the company to its Board.

We find that management who pay great attention to the build-up of an intrinsic value and to their own profit tests pay great attention to the analysis of expenses. The split is between main classes of business and then between new and renewal so far as possible; but they pay even more attention if they actually have stock options which depend on the intrinsic value.

Mr R. J. Squires: I am mainly involved with unit linked business and the major deficiency that I have found in the expense analysis is that expenses are only sub-divided as between new and renewal. My major interest, apart from the development of new products, is in making expense assumptions in order to calculate the sterling reserves required in the valuation.

For that purpose I have found it desirable to divide renewal expenses between the expenses of continuing policies and the expenses of closed policies. Once a system is set up for a particular block

of policies, the collection of premiums and the issuing of an annual statement is a fairly routine operation that requires little human intervention, but the payment of surrender values inevitably, at least for a proportion of the cases, involves some kind of intervention. We have found that it is appropriate to assume that the cost of dealing with a surrender is two or three times as great as the cost of dealing with a continuing policy.

If the proportions of policies surrendering in any one year are stable, then this does not matter. But for testing sterling reserves, particularly if you have a contract which at some stage in its life will have no surrender penalty, so that you should be reserving to cover the administrative cost when it is closed, it is important to make this analysis. It is not difficult because most offices are organized so that there are a different group of people dealing with closure from those dealing with premium collection.

I have discussed the treatment of overhead expenses and marginal costing with the accountants in my office over many years and we have tried various methods of apportioning these expenses, either as an add-on charge to the direct expenses or, conversely, spreading them proportionately to the net margins remaining after deducting the variable expenses.

Neither of these systems were very satisfactory and we have come to the conclusion that the best way to deal with the problem is to recognize variable expenses that are incurred in the sale and administration of business. What remains by way of margin first of all has to go to cover overheads, and what is left after that is profit. We have found the most satisfactory means is to specify a criterion which includes a standard contribution to overheads, and then judge the design of the product by the amount of the present value of the gross margins against this criterion. You may have a less than standard contribution for the younger ages and the shorter terms, or the younger ages and the longer terms. But you can then consider the adequacy of the set of premium rates being developed as a whole for the expected distribution of new business by age and term.

Professor S. P. L. Kennedy (closing the discussion): I propose to deal with the various aspects discussed under three heads. First, the technical aspects of the investigation, in particular relating to the hypothetical expense loadings; then the analysis; and finally the future, which covers a very wide spectrum.

Starting with the hypothetical expense loadings, we may have been inclined to talk to the authors as though they had produced these. But of course these were in fact agreed by a panel of the Associations. Overall they did a very good job in getting a workable, practical basis for the hypothetical expense loadings, a good bench-mark to work from. However, there are inevitably some criticisms; one that was made was that the policy loadings are related to the earnings index rather than the prices index, and that certainly smacks rather of the insurance industry getting the best of both worlds. It is able to pay its staff on an earnings basis without achieving the improvement in productivity that would justify those wages in excess of a straight increase related to the price index. Whether some form of consumer index would be better is arguable. It is very difficult to get an ideal one. I have some sympathy with the feeling that using the earnings index is too generous.

Mr Dyson referred to his paper. We must remember that the aims of his investigation with Elphinstone were in many ways very different from those of the Associations' inter-office expense investigation which is aiming to facilitate inter-firm comparisons which are helpful to the offices.

There is a problem with allocation of expenses. Several speakers mentioned investment expenses, and it is certainly ironic that for the purposes of the DTI returns you need to include investment expenses; you also need to include them in the Associations' investigation. However, one office with which I was connected always set investment expenses against investment income, which is suggested by the authors, and I daresay that quite a number of offices set their investment expenses against investment income in their revenue accounts.

A number of speakers referred to the fact that offices were different. They had different expenses, different ways of dealing with things, different products, different services. This does not vitiate against making comparisons. If offices are selling very complex products and that means that their expenses are higher, they need to think hard whether they should be selling such complex products.

Similarly, if there is a different way of handling the business, the different expense ratios may be revealing. If the IB offices manage to show lower selling costs, there is a message there.

One area of hypothetical expense loadings that received remarkably little comment was that of commission, and perhaps it is because everyone is so fed up with the commission that they really did not want to introduce the subject to Staple Inn. There are a number of very important points about initial commission. There is a problem because initial commission is paid out with all sorts of leads and lags. It has got worse because indemnity commission had more or less gone out and now it has come back again. The amount paid in the year of completion is dependent not only on the frequency of the premium payment, the date of completion of the policy through the year, but also the indemnity commission and the term of the policy.

Although offices say they cannot do it, they ought to be able to split their commission between initial and renewal, and split initial commission between the total amount that is payable for the completion of a policy and the amount that still remains to be paid, probably the amount that has been paid out under indemnity terms and is recoverable, and of course the amount that is paid out in the current year that relates to earlier years. Then one might be able to make a more meaningful analysis of the expenses. We have had a number of distortions recently. MIRAS produced a great surge of business. This business came in large amounts and the price for getting it was to give free underwriting. A lot of business came on at a very considerable mortality expense. That was probably quite justified because the savings were very considerable and overall offices probably satisfied themselves that they were on to a good thing.

But there is always a danger that one takes on a commitment without fully understanding what it is. I wonder whether all offices appreciated the effect of joint life policies. It is easy to say no-one will have a mortgage unless they are in reasonable health. Maybe, but it could be that the spouse is in a state of terminal illness.

The hypothetical commission factor has always puzzled me when the industry moved to a so-called premium related commission. Premium related commission was to a large extent a failure because it was effectively based on N times the premium. For a with-profit endowment, N times the premium is normally within the order of say 105% to 110% of the sum assured. So what had really been achieved? Apart from chopping off the very highest rates of commission, we still had a sum assured related commission. The formula of £1% of the sum assured plus 25% of the premium seems to me to fit the commission much less well than, say $2\frac{1}{2}$% of the sum assured. Allowing for non-profit business, you might feel that the formula has some advantage, but the fact is that for full premium ordinary individual business, the great bulk of it for most offices is with-profit endowment; most of its savings business tends to be fairly short term while mortgage business tends to be 25 years or less. So the effects of long term and, in particular, whole life business is relatively small.

The opener referred to linked life offices and the position of the shareholders. The authors give three methods for meeting development costs. For linked life business this cost is often met by the shareholders because capital has to be found. They are going to get the profits from the business so it seems only right that they should be putting up the capital initially.

We have many lessons to learn from linked life business. The difficulty, however, is to apply it to conventional business. We are helped a lot by this compulsion to work through the linked life business. You can see what is happening there very much more clearly. The idea of a cohort following through shows particularly well.

The analysis of the results is inevitably going to be fraught with difficulties. It is important to be on one's toes and aware of the sort of thing that has got to be thought about. Some I have already mentioned, such as MIRAS and taking on a great volume of business, but paying a price for it in one way and another. One has got to consider the effect of lapses. You may take on a marvellous tranche of new business one year, and see a large part of it go off the next year.

In Germany they place great reliance on what is effectively a new business expense ratio. This is wide open to criticism—one year the supervisory authority pats an office on the back for getting a good result, the next year it is going to get a bad result on its administration cost ratio. But the reason for it may not be apparent.

Looking at economies of scale, this is a bit like the evidence against smoking: it is very difficult to pin it down, but commonsense and the evidence of the figures all point to economies of scale. The authors have said that the difference between the largest and medium sized offices is not so great. This was something that was also looked at by Aronovitch and Sampson in a study for the European

Commission, and they showed in Germany where you do have a remarkably homogeneous type of business (it is nearly all with-profit endowment except for one well-known British office) that there was relatively little difference in expense ratios between the ten largest companies and the next ten in size.

When it comes to looking at the small companies you have got to be very careful. There are all sorts of good reasons why they should have very different expense ratios. The company may be small because it operates in a limited specialist market: medical field, local government officers, or whatever, and by so doing, it restricts its total business but it probably gets it very cheaply because it has got a captive audience which tends to come to it. So long as they keep coming without a lot of marketing it is probably in a very strong position to keep its costs down.

However, there is another reason at the higher expenses end. If we look at some of those outlying figures, on that very interesting scatter diagram that was provided by the authors, some of these very high ones, I suspect, are small companies which are set on a plan of expansion. They may have a lot of money behind them, so it may not be in any way unsound. They have a lot of development costs, and that could well push their expense ratios up. You probably have to exclude the outliers before they mean anything. Praetz ('The Effect of Size and Other Factors on the Cost Behaviour of Insurance Companies: Some International Evidence'—Transactions of the 22nd International Congress of Actuaries 1984), who carried out a series of studies which covered the U.K., Australia, New Zealand and North America, found pretty convincing evidence for economies of scale everywhere—more so for life assurance than general insurance, which he also looked at.

We were taken into the future. It was rightly stressed that there is very good reason to take a lot of note of cost control. Consumerism is going to grow and the life assurance industry will be under pressure. One of the dangers will be unfair comparisons which can well be made. It may be that even if comparisons are fair there will be difficulty in justifying expense margins. The sort of difficulty with comparisons with other financial institutions is that they are taking their margins basically on the interest rate. This is not so apparent to the average member of the public. He may not be aware of the effect of, say, taking a 2% margin over 20 years. If we had regular annual savings for that period, we are talking about 25% being taken out. That is the sort of expense ratio we get a bit worried about in the life assurance industry. We may have to do a lot of convincing arguing in this field and some hard thinking to get fair comparisons.

Expenses do not tend to get the pulse racing. However, they are enormously important and life assurance management spends a great deal of time concerning itself with expenses, and rightly so. We may not get any spectacular successes through expenses. But in my experience getting good performance, particularly with small companies, is enormously dependent on worrying about expenses. It helps not to work from the traditional actuarial approach of the ratio of actual to expected expenses. It is very valuable to compare the actual cost with those expected from the premium loadings, but in fact when you are dealing, say, with a branch manager, this is the wrong way round for him. When he gets 120% of his budget, he is tending to think of his new business budget which is his new business target. If you want to get him involved in expenses, you want to do what you often do with a statistic when you want to measure the efficiency of it: look at the reciprocal.

If you look at it the other way up, then if his expense efficiency is good, it is going to be over 100%.

The President (Professor P. G. Moore): Expense analysis investigations are not a high profile topic in actuarial or indeed in many other circles. Nevertheless, it is one of great practical and increasing importance, and the authors have done us an interesting service particularly on the issue of whether the size, for example, of the office affects the expense ratio. Their analysis leads us to a tentative conclusion that there is some effect, but that it is not too large measured by the correlation co-efficient. I wonder whether the result is conditioned by the hypothetical commission policy under which an office of whatever size but of standard profile, would have an identical commission-expense ratio. If that were set aside and the non-commission expense analysed, would correlation be of more or less significance to the offices concerned? Can we be sure that an office with any mixture of business could realistically operate on the hypothetical expense levels postulated? If these figures are in any way relatively unrealistic, this could produce the variations purely because of the variations in mix of offices, and it would have of course greater significance for smaller offices.

An alternative approach is to attempt to relate the expenses incurred to the manner in which the work is organized. For example, the split between branch offices, head offices, between departments etc. A split between staff costs and non-staff costs of various kinds might again be illuminating.

I suspect that the data is not there for such sensitive forms of analysis. It does imply that there is a limit to which such macro analyses as we now have before us can actually go.

I have great pleasure in proposing a vote of thanks to our authors for bringing their work to us for dissection and discussion.

Mr A. G. O'Leary (replying): Although the panel may have access to more data than is circulated to offices in the published results, only the Association staff have access to the identity of individual offices.

This limits the extent to which the panel can investigate and interpret the results. This is a commercial investigation with which we have been involved, and the data with which we are dealing is perceived as being very sensitive.

In the course of the discussion questions were raised about the detail of the investigation. The authors cannot give the information in detail on grounds of confidentiality.

If companies in the future desire to have a more critical and useful analysis, and if the investigation is to evolve, then some way will have to be found to solve this problem of confidentiality to give access to a limited number of people who can study the data with a knowledge of who has supplied it.

WRITTEN CONTRIBUTIONS

The authors subsequently wrote as follows: There were some interesting reactions to the authors' speculations about the future trend of expense charges in the light of competition from other institutions. Mr Hairs agreed that this could well lead to a move away from front-end loading, towards charging for expenses by deduction from ongoing premiums and from investment income. As Professor Kennedy observed the average member of the public may not be aware of the cumulative effect of what appears to be a small deduction from the interest rate. However, as Mr Turvey pointed out, although the insurance industry appears to be moving towards more open charges the banks and the building societies have gone strongly towards hidden charges. These arguments all seem to support the authors' general contention that there are strong market forces at work and that the shape of the charging structure could well be different. There must be some uncertainty in predicting what the outcome will be and in order to be able to cope with all eventualities offices will need a clear understanding of their own cost structure.

Mr Hewitson mentioned a difficulty he had had in reconciling a comment made by the authors in § 3.3.5 with the figures shown in Appendix 6. The contention in § 3.3.5 that the higher average size of policy associated with sponsored individual pension business may offset the higher costs experienced as compared with self-employed business is only borne out by the figures up to 1981. Thus, the authors would agree with Mr Hewitson that it is not necessarily true for the whole period.

A number of speakers referred to the difficult problem of economies of scale. This is an area where the authors would like to see more work done beyond the rather simple analysis contained in the paper and discussions are taking place with the ABI to this end.

The general discussion confirmed the authors' belief that the Expense Investigation was useful although, as suggested by Mr Hairs, it would probably not be cost effective to attempt to extend it too far. A number of suggestions were made for its improvement and the main ones are listed below for the consideration of the Associations' panel in the course of their normal review work.

(a) The figures for the investigation are declared net of reassurance. It was suggested by Mr Hewitson that this requirement should be examined to ensure that it does not introduce distortions for those companies where reassurance represents a high proportion.

(b) A number of speakers thought that the RPI index should be used in place of the earnings index to update the factors. The original choice was largely based on the belief that commission would tend to increase more nearly in line with the earnings index and the assumption that a

company that did not have any improvement in productivity would be likely to see a similar increase in its unit costs. It would be worthwhile reconsidering the arguments in the light of current conditions and subsequent experience.

(c) Mr Squires thought that there could be some value in dividing renewal expenses between those related to continuing policies and those special to closed policies. When the original choice of categories was determined the Panel were trying to keep the exercise as simple as possible and although they recognized the importance of this distinction they felt there were too many difficulties involved at the time. Conditions are now very different and it would be worthwhile reconsidering the matter.

(d) At present distortions arise because the assumptions underlying the timing of hypothetical commission payments do not correspond with the experience. Under the existing rules offices are asked to adjust the actual new business commission reported if they consider that the incidence of payment of new business commission "differs from the incidence of payment in the first year's premium in such a way as to make likely significant distortions in their ratios of actual expenses to hypothetical expenses". The results observed suggest that this adjustment is not made in a manner which is sufficiently consistent from one office to the next and it would be desirable, if possible to have stronger guidelines.

Dr Peter Praetz: I feel costs in life assurance are very important for actuaries and management alike. So this excellent paper was partly stimulated by the discussion of my paper at the International Congress of Actuaries in Sydney in 1984.

Testing for scale with a linear model total cost = a + b (Output), with b < 1 for economies. Output of a life insurance firm should not be in $ or £, but a pure index number. Number of policies for example, would be a poor but correct measure of Output. Premiums is biased unless deflated by an index of prices, which would be very difficult to obtain. Deflating by expected costs is second best, even though it would also be in index number form. Scale economies can also be studied via a minus sign on expense rate = average cost = total cost/premiums.

All original studies discussed in Praetz' 1984 conference paper used a logarithmic transformation of all variables. This was done because the data was clearly non-linear, b in this model is an elasticity, e.g. a 10% increase in premiums is associated with an 8·9% increase in costs. This also gives a Cobb-Douglas production function between output and costs. This is economically sensible and better empirically than a linear cost function.

The ratio of total cost to expected cost is a useful summary measure for comparing firms. It allows for differences in costs through differences in business types. As a ratio which has no $ or £ as it is an index number could pose problems for the testing carried out and graphed for 1984—all offices with premium income under $300 m. As it is a ratio of two cost numbers it is not in £ units which may be needed to test for economies of scale. The figure referred to above models the ratio as a straight line, TC = total cost, EC = expected cost, P = premiums, TC/EC = c + dP, c, d, constants, and so TC = cEC + dPEC. This seems a poor approximation to an index number for output of a life insurance firm which needs P divided by an index of prices.

Co-ordinates for all points on the figure were sought. Ratios are no problem. I stopped just past 300 for premiums, which means correlation coefficients should be unaffected by arbitrary translation of scale. Mine was −·14 for 46 points which should be very close to −·3 when six points of low variation are added, ignoring errors of measurement.

Canadian actuarial cost data was used by Geehan (1977) to deflate multiple outputs by an index of expected cost. He studied 43 Canadian life insurers in 1970 using expected costs to deflate his multiple outputs to obtain an index number of output which was not in $ terms. His model also had a comparison with a commonly used model in the premiums as an output measure and four other variables to measure interfirm differences.

A total of 23 different activities were weighted together by unit costs as prices are not available. Constant weights over firm follows from assuming uniform quality for firms for all outputs which is at best an approximation. His output measure was augmented by variables for firms age, type (mutual or stock) and rate of change of output.

His coefficients of log premiums were −·062 and −·069 for a weighted sum of activities which

should be a less biased measure than premiums. The methodology used here for deflation for a cross-section of companies is an extention of Geehan's (1975) measuring the real output of the life insurance industry over time.

For 1984 or any later year, all commission-paying companies would be needed with as much detail as possible. Total premiums and actual expenses and subdivided by business classes would be better. All of the data used to calculate expected expenses would be best of all; it would enable the best possible study to be done. The ratios by themselves are useless for testing economies of scale.

The existence of a consistent data base for the U.K. insurance industry is of great importance. All the more so since a detailed source of information including costs last appeared in 1970 and has been replaced by insurance business statistics which only has net premiums and total assets. That is why Praetz (1984), in studying U.K. life insurance companies, used the only available data source, the insurance directory and year book. It had costs, new business, annuity (%), average new policy size, surrenders (%), total net premiums, including annuities. All these were used and shift variables for friendly socieities and investment activity were also added. The data quality is not good, so many firms were omitted and the six independent variables mentioned above were used to model the strong inter-firm differences and to help premiums to have less bias.

Australia, Canada, New Zealand, and the United States of America (New York State) all have government life insurance publications with costs and many other different variables for each country which would make comparisons much harder.

The very impressive contribution from this paper is flawed in testing for economies of scale by non-linearity of the data; total cost/expected cost is not a cost measure and premiums is a biased measure of output.

REFERENCES

GEEHAN, R. (1977) Returns to Scale in the Life Insurance Industry. *Bell Journal of Economics*, **8**, 497–514.

GEEHAN, R. (1975) Measuring the Real Output of the Life Insurance Industry. *Review of Economics and Statistics*, **49**, 211–19, with R. Hirshorn.

PRAETZ, P. D. (1984) The Effect of Size and Other Factors on the Cost Behaviour of Insurance Companies: Some International Evidence. *Twelfth Congress of the International Actuarial Association*, Sydney, Vol. 3, 279–88.

Mr J. Goford: The paper is very welcome as a description of the LOA investigation and does venture into other systems and methods. The system predominantly used by linked offices does not seek a standard set of costs but rather interacts, at an early stage, with the product design team so that sufficient expense allowances are built into product design to cover the office's expenses in aggregate.

Offices do have varied expense characteristics which are very much a reflection of management style. There is one characteristic which emerges quite clearly from continuous monitoring of company values: "once an expense overrun, always an expense overrun". By expense overrun here I mean that the office is spending more in aggregate than has been allowed in the product design. Those offices which avoid an expense overrun in aggregate may nevertheless incur an overrun on maintenance expenses and an underrun on acquisition expenses or vice versa.

The basis described in the paper presumes some permanence in the expense structure. Modern product design does not presume such permanence and, indeed, specifically allows within the product for, as yet, unforeseen changes. This flexibility is also reflected in the expense monitoring systems.

Typically expenses are analysed by branch and, for Head Office, between Sales and Marketing, issue costs (New Business and Underwriting) and renewal costs. These are compared with the allowances in the products for each category. The allowances are typically a percentage of initial commission for branch, sales and marketing and issue costs and a multiple of the number of policies in force for renewal costs. This simple comparison is the most valuable tool in the day to day monitoring of the health of the company. It gives early warning of unviable branches and aggregate Head Office problems.

At the beginning of the year budgeted expenses, budgeted allowances (derived from budgeted production and in force) and hence budgeted overrun or underrun may be calculated. A new or fast expanding office may be content if the actual overrun (actual expenses less actual allowances) is no more than the budgeted overrun. The system also gives pointers to eliminating the budgeted overrun.

The determinant of expense levels over the next few years will be the pain threshold of shareholders during a period of intense competition in the investment market. For those without shareholders who require regular monitoring of expenses the pressure to contain expenses must come from within.

Mr P.L. Duffett: Life office management is concerned with:

— actual expenses
— affordable expenses
— acceptable expenses

and the inter-relationship of these. The concern may be sharply focused, for example, on the relationship between affordable expenses and actual expenses, in the case of a unit linked office, or more generally distributed. The role of the inter-office comparison is to bring value to the concept of acceptable expenses. This value will only be given if:

— the profile of business transactions can be identified for each office on a common basis and
— if the 'true' expenses associated with each transaction can also be identified.

Inevitably in a composite office, or, one offering a wide range of products, expense are apportioned according to some algorithm or method. It is essential that over the range of products compared the chosen methods of allocation approximate to the 'true' expenses otherwise the value for comparison purposes is lost.

In *T.S.A* **24,** Mr Garry E. Corbett classifies 3 main groups of allocating marketing expenses:

— allocation based on negotiation
— allocation based on effort
— allocation based on results.

Each of these methods is acceptable when sales staff objectives and remuneration philosophy are brought into line with the method of allocation.

The value of inter-office comparisons would be enhanced if for each participating office the expense apportionment method was in line with the business philosophy.