

RECORD OF SOCIETY OF ACTUARIES 1977 VOL. 3 NO. 3

EXPENSE ANALYSIS AND ALLOCATION

*Moderator: FREDERICK S. TOWNSEND, JR. Panelists: RAYMOND A. BIERSCHBACH,
JOSEPH R. BRZEZINSKI, MICHAEL L. SMITH*

1. Inconsistencies in Expense Allocations
 - a) Financial Reporting vs. Product Development
 - b) Statutory vs. GAAP vs. FIT
 - c) Planned vs. Actual
 - d) By Line of Business
2. Allocation of Marketing Expense
 - a) First Year vs. Renewal
 - b) By Line and Product
 - c) By Marketing Function (Agency Expansion, Advertising, etc.)
3. Analysis of Expense Levels
Standard of Measure (LOMA, CIA, LIMRA, Historical expected)

MR. RAYMOND A. BIERSCHBACH: I am supposed to discuss inconsistencies in expense allocations. The use of the word inconsistencies might imply that expenses are being treated properly in one place and improperly in another place. I would hate to play the part of the judge in an argument of that nature, so I am going to interpret the subject to mean that expenses are treated differently in different areas and that it is perfectly appropriate to do so. Upon checking with our staff, I find that we have quite a few differences within our home office and, hence, there is enough material to at least kick off the subject.

With your indulgence, I will start with inconsistencies which exist between lines of business. Any misallocation of expenses between lines of business can flow through to the other items mentioned in the program and, thus, any error or philosophical inaccuracies in allocation of expenses by line must be kept in mind when, for example, discussing differences between planned and actual expenses.

In our company many expenses are allocated by line of business based on an annual survey of time allocation in each department. Once a year usually in the fall each department head is asked to allocate the time of employees in his or her department by line of business for the current year and to provide an estimate for the following year. The aggregate factors thus developed are used in allocating actual expenses. This sort of exercise is less than perfect for at least a couple of reasons. First of all, there is no direct control over the validity of any individual's allocation. There probably is, for example, the tendency to round to the nearest 5% and, secondly, there are usually varying degrees of understanding as to the purpose of this allocation with resulting varying degrees of accuracy in the reported data. We try to keep the errors that might arise from this exercise to a minimum by using this procedure for as few expenses as possible. For example, electronic data systems and programming, as well as processing, are charged on an actual basis. Major supply and printing purchases, travel, equipment and other major identifiable home office

expenses are also charged to lines on an actual basis. In addition, many field office expenses are identifiable by line and charged as incurred.

Unless I am completely wrong, I suspect that many of you use a similar system in your own companies and you probably feel that your allocations of expenses to lines of business are less than perfect. We realize that we have considerably more work to do in developing a better system for allocating expenses by line of business. On the other hand, a superbly refined method is probably not a good idea either since it might involve more cost than it is worth. Really, the principal objective of an expense allocation is to create a consistent set of measures that bear a reasonable relationship to the actual events. Therefore, we feel that, while it would be theoretically pure to assign every dollar of expense to the proper slot, some approximations should be made in the interest of practicality and consistency.

The exercise I have just described results in a determination of actual expense for, let us say, our Ordinary Life insurance line of business. It is important to realize that I am talking about the expense line in the annual statement and am making no reference to commission expense or such items as federal income taxes.

In our company, at this point, another inconsistency arises. That is, the inconsistency in defining what is meant by line of business. The annual statement is pretty clear. You have Industrial Life, Ordinary Life, Group Life, Group A&H, etc. Fortunately, or unfortunately, our organization chart uses different definitions of line of business. We have eight lines of business, four of which could be called product lines, but even for these four there is not a one-to-one correspondence with the annual statement.

The four are Group, Reinsurance, Ordinary and Pension. We have one line which was established for geographical reasons--that is our Canadian line of business. Expenses which would occur in the Canadian line of business, as seen in our organization chart, would appear in every line of business when shown in the annual statement. Finally, we have three lines which service the other lines. They are the Agencies, the Investment and the Corporate Services lines. We have to allocate expenses to those lines, but for annual statement purposes we have to bring them back to the lines as defined therein. As an aside, I might mention that right now there is considerable discussion going on in our home office over the question of whether these last three lines should be treated as profit centers or cost centers.

As a stock company, writing participating as well as nonparticipating insurance, we are required to supply a statutory annual statement for our participating line. This means that we must allocate our total Ordinary line expense between participating and nonparticipating business. This is done by the use of a set of unit cost factors which has been approved by the State Insurance Department. The method involves a separation of the total expense into basic expense and overhead expense. Basic expense, such as commissions and a few others, are easily allocated between the two sub-lines. Overhead expenses are partially allocated in proportion to the premium income of the two lines and partially in proportion to the volume of insurance in force. I shall come back to this a little later when discussing some of the problems of expense allocation in product development work.

Now, let me move on to inconsistencies between statutory and GAAP. In our GAAP financial reporting we make several recalculations from the statutory basis although not nearly as many as we did several years ago. For example, most of our Branch Managers' compensation is directly related to production. Since these people are employees, all of their compensation is technically salaries. But in GAAP reality it is commissions. We now classify it that way for statutory purposes, as well as for GAAP purposes. So, the major inconsistency now lies in the acquisition cost category where the capitalization and amortization of acquisition costs produce different figures for the commissions. We also show different figures for underwriting expenses because the only underwriting expenses we capitalize in GAAP are medical exams and inspection fees. Finally, statutory and GAAP branch office expense figures differ because we capitalize and amortize for GAAP an amount equivalent to a General Agent's overwriting commission.

The treatment of expenses in the annual statements and the tax returns also sometimes differ. For example, political contributions are an expense in the annual statement, but not deductible as such in the tax return. The same is true of an owner-occupant's rent expense but, of course, in the annual statement there is also the income item. Then, too, there are timing differences where we may expense something in the annual statement but be required to capitalize and amortize it in the tax return.

Now let me move on to product development. At this point in the discussion we have allocated our total expense for any given calendar year to each of the lines of business. You will recall that a survey of department managers was used for allocating some of the expense. That same survey asks for an allocation of expense by function within lines. If we are suspicious of the allocations between lines, and we are, we are then doubly suspicious of validity of results of the allocations to function within lines. However, so far, it is the best thing we have been able to come up with. The data obtained from this part of the survey is used to allocate the expense of the line of business by function. Some of the functions studied are agency overhead, executive overhead, policy issue, policy loan expense and policy maintenance expense. The basic expense for each function is prepared by our accounting department.

The results are then transmitted to actuarial where the various functions are split between first-year and renewal expense and between per policy, per thousand, and percentage of premium expenses. The resulting unit costs are adjusted for inflation and then entered into the pricing process.

In 1973 my company detached me from the home office to Europe. Before going, I can remember we used to have considerable discussions over the allocation of what I will call "overhead expense". Should it be treated as first-year or renewal? Should it be treated as a per policy expense, a per thousand expense, or a percentage of premium expense? Should it perhaps be spread over the six combinations that are possible and, if so, how? I can remember one time when we made a change in our method of allocating overhead expense and there was a substantial shift in the apparent profitability of term and permanent business. During, and perhaps because of my absence, the procedures were changed and, in my opinion, a real step forward was taken. With one exception, which I shall discuss in a moment, we no longer allocate overhead expense. The 1976 Ratebook was priced using an entirely different method. A projection of future profits coming from inforce business was made. Those profits considered only the direct expense

allocable to the inforce policies. They ignored overhead expense. Next, overhead expenses were projected taking into consideration inflation. When overhead was subtracted from profits resulting from inforce policies and the remainder compared to our corporate profit objectives, it was possible to determine the amount of profit that must come from new business if we were to meet those profit objectives. Given projections of production for future years, the actuaries were able to determine the price of the products and the pricing was done without overhead in because it had already been considered. There are still some bugs which remain to be worked out of this system, but I believe it has real promise. One of its greatest shortcomings is that, previously, various individuals on our executive floor had learned to be comfortable with profit figures of "X" dollars per thousand and that information is no longer available to them.

I just said that, with one exception, overhead was not allocated to individual products. That one exception is the participating line. A stock company selling participating business will usually limit the percentage of profit that may be taken for the benefit of shareholders. If a product is priced to give the shareholders their predetermined percentage and refund all the other profits to policyholders with no contribution to the participating surplus, it works out that the present value of dividends should be equal to the present value of before-dividend profit reduced by the percentage of that profit that is to be given to the shareholders. Since the accounting device that is used to move the profits to the shareholders is the statutory annual statement and since overhead is properly allocated to the participating business, then it must be considered in the pricing on a policy level.

The one item in the program that I have not covered is planned versus actual expenses. Following the rule that if anything can go wrong, it will, it naturally follows that actual expenses always deviate from planned. Our budgeting process seems to be improved upon continually, but we have not yet reached the stage where the budget reacts fully and properly to the variations in expense generated by increases or decreases in production over what was planned.

Currently, we make a best guess as to what our production is likely to be and base budget items, such as underwriting expense for medical exams, on that estimate. If we fail to meet our production goals, our actual expense should be correspondingly lower than the amount budgeted. However, we are not yet in a position where the budget in the underwriting area would be reduced to reflect the production shortfall. As we get more settled into our line of business organization, I suspect that we will also become more sophisticated in our budgeting process. For example, as head of the Ordinary line, I will want to make sure that the freeloaders in the other lines of business quit charging us with their expenses. As that refining continues, I hope we will get to a flexible budgeting program which will recognize deviations of actual production from planned.

MR. FREDERICK S. TOWNSEND, JR.: How do you determine what proportion of the branch managers' salaries are properly deferrable under GAAP accounting?

MR. BIERSCHBACH: We have done studies where we split acquisition expenses between general agencies and branch offices and related the expenses to the first year premiums coming from those sources. The percentage of premiums developed in the general agency system is then used for the branch system.

MR. A. ANTHONY AUTIN, JR.: To what extent is the concept you described for not allocating overhead expenses within a product line also used between product lines?

MR. BIERSCHBACH: Between lines overhead is rather arbitrarily allocated. It is only within line where we ignored overhead and carried it down to the product level. Currently we are studying the allocation of surplus and capital across product lines and as part of that process we shall probably also discuss the allocation of overhead between lines.

MR. PAUL J. SULEK: Assuming that you have a profit objective given to you by the corporation, do you not encounter a major problem if your profit net of overhead is not acceptable? Do you then have to reanalyze all your products again and redo your projections?

MR. BIERSCHBACH: Yes, you would have to. In preparation for our 1976 ratebook we had a projection of premiums from existing business and new business. We discovered we needed a rate increase and had to decide whether to do it in one step or spread it over several ratebooks. If this projection work were to show that we would not meet the corporate profit objectives, we would have to argue about them or raise rates to such a level that there would be no production or somewhere between.

MR. TOWNSEND: The necessity of allocating expenses between participating and nonparticipating departments when there is a limitation on participating department profit which can accrue to stockholders has been mentioned. In 1968 the Aetna Life was forced to go a step further. Prior to 1968 the company charter provided that none of the profits on the participating business would accrue to the benefit of shareholders. In 1968 the charter was changed to provide that 10% of the profits on par business written after 1968 would go to shareholders. This resulted in allocating expenses between stock departments, pre-1968 par business and 1968 and after par business. This allocation became rather cumbersome and at year end 1976 Aetna wanted to merge the two participating departments back. They paid back to the participating department from the nonpar department all of the cumulative profits which had been taken out from 1968 to 1975.

MR. MICHAEL L. SMITH: In June 1976, the Society of Actuaries Committee on Continuing Education and Research published a reading list which indicated significant writings in actuarial literature on the subject of life insurance company expense analysis. I would like to recommend the reading of the cited references on that reading list as not only valuable for studying the subject of expense analysis but also as beneficial for formulating what are appropriate expense allocation methods.

In particular, I would like to note what has to be described as a classic paper the reference entitled "Methods of Calculating Unit Expenses for Asset Shares" by Edward Wells and Charles Laing in Volume XXIX of the Record. That paper, of course, discusses three methods of obtaining unit costs for asset share calculations. The first of the three methods discussed, the pro-rating method, has had a profound influence at my company until recently in formulating expense allocation methods, particularly for deriving unit expense factors for asset share calculation purposes. As a result, our particular approach to expense allocation methods could have been likened to "getting firstest with the mostest" using the least work to get usable results.

For anyone not acquainted with the pro-rating method described by Wells and Laing, it may become familiar by describing the method as an "armchair method". To me, it expresses the observation that there always will be diversification of individual opinion and judgment as to what expenses should be allocated on, say, a policy, premium or amount basis or between first and renewal years, or by line and product.

A more modern discussion, which I believe will invigorate with the passage of time, is found in Volume XXV of the Transactions partially entitled "Marketing Expense - Those Items Not Directly Allocable". That particular discussion is oriented in the form of responses to rather poignant questions concerning marketing expense allocation and control methods. I concur with many of the comments made in that discussion and many of my following comments are basically along the same lines as more clearly expressed in that discussion.

First, let me say that these comments are made from the experience of having worked with the individual life line of a moderately large life insurance company having somewhat in excess of \$5½ billion of non-participating individual life insurance in force. Our agency force is almost exclusively that of the personal producing general agency system. Major profit centers in our Company are Group Life and Health, Individual Health and Individual Life. It is with the Individual Life center in mind that my further comments will address and in particular, marketing expense allocation techniques for rate-making purposes.

I mentioned previously that until recently, we applied the armchair method for most expense allocations -- not only between first and renewal years for product pricing purposes but line and product as well. More because of the growing expertise, widespread use and understanding of unit functional costs rather than any general dissatisfaction with pro-rating methods, we now employ methods similar to those of the LOMA Inter-Company Functional Cost Studies. You can imagine the consternation generated by attempting to compare the premium rates from asset share calculations utilizing the two different expense allocation methods on the same body of expenses. Believe me, there is a difference in how the pie is sliced. At some point, however, you must draw the line and get on with the work at hand.

Under our functional unit method, we consider selling expenses as all allocable to the first year of any product. Selling expenses here exclude the portion of marketing research expenses and portions of other company-wide category expenses such as legal and general management which may, in fact, have originated solely from research and development of new products and/or markets. Such expenses are lumped in as hard-core overhead and, under the guise as being applicable to an ongoing business, are allocable to both first and renewal years.

We do not subscribe to any thought that producer compensation in the form of commissions should be allocated in any manner other than how it originates. Producer compensation other than commissions, even though such may not originate entirely as the result of producing new business, is considered a first year selling expense. A school of thought has it that these additional compensation forms are nothing more than amounts in lieu of additional first year commissions and, while not promoted as such, may be priced accordingly.

The amount and relative level of producer subsidies and excess financing costs are controlled somewhat by the appointment criteria and selection processes. Since these expenses are generated as the result of recruiting efforts to maintain a rather stable sales force, an allocation according to total commissions may be appropriate. As a practical matter, however, and in view of the relative amounts in question here, we allocate such costs totally to the first year.

More so for internal management reports and for use in preparing regulatory reports than rate-making purposes, allocations are made within the individual life profit center as to line and product. Varying methods of the armchair and marginal method varieties are used. For example, disability and additional accidental death benefit marketing expenses have been allocated primarily on the basis of arbitrary percentages of first year premium income while maintenance expenses under the supplementary contract line were allocated on the basis of time and work measurement factors determined several years ago.

A recent change in procedures now attempts to allocate costs within cost centers based on salary pro-rates. Each supervisory head within the cost center attempts to estimate percentages of time expended by each member within the supervised group by function for each of the various major individual life products. Such percentages are applied to salaries and then the aggregate salary distribution percentages are applied to all direct costs within the cost center to obtain the functional expense associated with a product from that cost center. The sum of such functional expenses from all cost centers is then the aggregate dollar expense from direct costs for that function. I am not convinced there has been any substantive change in allocation procedures more than transferring the burden of justifying the percentages used from a service department to the expense incurrence source.

These considerable efforts are used, specifically, to separate costs for pension and non-pension products. Pension business in force is approximately 22% of the total amount of in force under the Individual Life line. Although the pension product series is the newer, it bears its full share of general service and overhead costs. Other than appropriate plan administration expense adjustments, there are no specific differences in our expense allocation methods between first and renewal years for either pension or non-pension products.

Are federal income tax implications and competitive pressures factors in our allocation methods? Certainly not explicitly for the former, though a detailed study is made of allocating fully all investment expenses, including applicable policy loan efforts, to the investment function. Competitive pressures, especially on term policies, have necessitated a second look at the allocation of certain expenses -- not between first and renewal years but more so as to the base to which the allocated expenses are related. We found that certain of our non-commissionable producer compensation amounts originated in items of, and were better related to, commission income rather than premium income. As a result, our term rates are somewhat favored.

The last point which I would like to briefly address is that of agency expansion on expense allocation. The particular aspect of agency expansion here is that of developing a new marketing force not that of more vigorous

recruiting to add to the existing marketing force. Special deal arrangements with new agencies have always been viewed as operating under the allowances assumed in the premium rates. This is, more or less, a theory of "compensations", for everything you get, you give up something of about equal value.

We are developing at a controlled pace, however, a radically different marketing arm with branch office type salaried managers operating under expense allowance formulas. The results have been reviewed so far as somewhat successful when measured by those meaningful criteria of production volume and increase in premium income. The theory of compensation, again, was basically the game plan drawn up for the expense allowance formulas with recognition that development expenses are going to be incurred and should be considered as an investment in the venture. The problems we wrestle with are how do we recognize appropriate development expenses and what limits, if any, should be recognized as being appropriate?

As should be obvious, our approaches are somewhat practical and ignore, for the most part, the complicating features. We feel the results are usable although the methods certainly are far from being impeccable. One item we feel very strongly about is the cost of making allocations. Given that much of the nature of expense allocation is arbitrary, we feel that fancy frameworks and undue extensive analysis need to be avoided. Obviously, we do not advocate that other companies in similar situations necessarily adopt such methods, as what we feel is appropriate may indeed prove to be specious under other informed judgment.

MR. TOWNSEND: Can you elaborate on what armchair methods are?

MR. SMITH: Currently under our functional unit approach, the armchair methods come into play basically with our noncommissioned producer compensation. Where such compensation is based on credits varying between permanent and term policies, it is a matter of judgment as to what might be a suitable base for allocating these amounts. The particular case here is one of using the volume and relating back to a per thousand basis. For years we used the pro-rating method described in the article in the Record. I think the percentages and distribution between first year and renewal and also the basis of premium income, number of policies and face amount is totally arbitrary. I am not sure that the percentages that Wells and Laing developed back in the 1930's would apply to our products in the 1970's.

MR. TOWNSEND: Did the change in allocation methods enable you to come up with a more competitive portfolio?

MR. SMITH: This is something we decided not to spend much time on. Certainly you have the entire pie and how it is sliced will result in different prices. We found in certain isolated situations that the change in allocation methods resulted in a more competitive premium rate. Obviously, it would have to result in a not so favorable situation somewhere else, but we did not pursue that.

MR. HARRY PLOSS: Mr. Smith mentioned that his company determines "arm chair" (conventional asset share) expenses and functional (LOMA style) expenses. While the aggregate totals of both types of expenses are the same, the allocation to individual policies is quite different for each of these expense methods. This distinction has existed for some time in many

companies and, in my opinion, the resolution of this disparity is a task worthy of the actuarial profession.

Expense allocation affects the pricing of our products and hence is the concern of consumers and the general public. Actuaries often discuss "equity to policyholders" and many states have laws which forbid discrimination in favor of one class of policyholders at the expense of other classes. However, there are no guidelines for determining when a company is inequitable or discriminates. Competition together with cost disclosure is not always sufficient to consumer advocates - witness Maine's Legislative Document No. 304. To deter future legislation of this type the insurance industry must set reasonable guidelines for itself. Actuaries should express a united opinion on this public policy matter for which it has a "natural" responsibility, otherwise some other body will once again take responsibility.

Although expense allocation is proprietary information for which disclosure should never be required, an analyst can derive an "implicit expense allocation" from examining the company's rate book. From this implicit expense allocation one can tell the relative treatment of larger vs. small amounts, young vs. old issue ages, term vs. permanent insurance, etc. In short, "implicit expense analysis" can be used to approximately derive a company's expense assumptions by percent of premium, expense per \$1,000, and expense per policy. The allocation of direct expenses to individual policies can be done fairly accurately but even reasonable actuaries will disagree on how to allocate overhead expenses. Mr. Bierschbach described Occidental's method of pricing before overhead expense, which is a step in the right direction.

MR. SMITH: Our market basically is the large amount policy. The volume in number of small amount policies that we sell is quite low which is all the more reason for us to be concerned about the proposed legislation in Maine. We take a rather simplistic approach to expense allocation methods. We find that we are under such pressures to get things done that some of these questions regarding equity are more or less after the fact. We really do not become much concerned about equity between the small and large amount purchasers.

MR. BIERSCHBACH: One of the beauties of not allocating overhead is that the problem of what to do with non-direct expenses is eliminated. You cannot price products in a vacuum and may find that you are non-competitive in the small size policy range and overly competitive in the high size range. In this case you must play with the rates, hoping that you balance and the whole product will come out satisfactorily.

MR. JOSEPH R. BRZEZINSKI: The analysis of expense levels being incurred within an insurance company can be accomplished in a number of ways. In fact, it is not uncommon for several methods to be used concurrently. Today's program is interested primarily in the various standards of measure that can be applied in such analyses.

I will begin by discussing a way of classifying expense analyses among three basic classifications and indicate some examples of each kind of analysis. After that, I will spend some additional time discussing two recently developed cost studies that are now in progress at LIMRA.

Methods of analysing expenses can be classified in several ways:

1. Forward Methods
2. Reverse Methods
3. Forward and Reverse Methods

FORWARD METHODS

In Forward Methods, expenses are analysed and allocated among categories and then divided by appropriate units of activity to produce unit expenses. Sometimes, the objective of such studies is a distribution of total expenses. The unit expenses or distributions are compared from year to year or among companies to get a measure of operating efficiency or to follow trends. Included in this category of analyses are:

1. Methods of developing unit expenses for pricing or dividend scales.
2. The LOMA Intercompany Cost Comparison Analysis.
3. Previously conducted studies in which distributions of Exhibit 5 expenses among companies were compared.

The most commonly known industry study of expenses, the LOMA study, continues to have a growing number of participating companies. It looks at expenses by function and produces a varying number of alternate unit expenses at each stage of analysis. In addition, participants have the option of participating in a number of in-depth studies relating to sales costs and other functional areas of interest in even greater detail.

REVERSE METHODS

An opposite approach is taken in the Reverse Methods. Instead of allocating expenses and creating unit expenses, one starts with unit expenses or "standard expenses" and multiplies them by appropriate units of activity to get an estimate of what expenses ought to be. The comparison of actual with estimated expenses gives a measure of operating efficiency. Examples of this method of analysis are:

1. Some use unit expenses for pricing assumptions as an internal check on operating efficiency. The historical pricing unit costs are utilized with model office techniques to derive expense gains or losses on blocks of business.
2. The Canadian Institute of Actuaries' Annual Expense Report is a continuing study of Canadian expense experience subdivided by size of company. Periodically, the Institute revises the formula used to derive total expenses. Their expense study looks at total company expense including investment expense, all lines, and taxes.
3. LIMRA has recently developed a somewhat parallel study for U.S. member companies called the Aggregate Expense Analysis. The study is still being developed and expanded and has several important differences from the CIA study. It does not yet include all lines nor does it include investment expenses or taxes. The proposed future development of the study is being geared more toward the needs of marketing officers than the CIA study.

FORWARD AND REVERSE METHODS

Forward and Reverse Studies combine the Forward Method with the Reverse Method in the same study. As far as I know, the only study using this method is the LIMRA Field Office Sales and Service Costs Study which was introduced in Canadian companies several years ago. This year it is also being conducted with United States member companies on a trial basis. A little greater discussion of this study will give a better idea of the advantages of this method of expense analysis.

LIMRA FIELD OFFICE SALES AND SERVICE COSTS STUDY

This study was designed to determine several critical marketing analyses: whether a company is using money effectively in the field, whether a branch office is using money effectively and whether money is appropriately allocated among branches.

In the "forward process", a number of expense items are collected from each branch office in the study. Simple time allocations are used as one of the bases of allocating these expenses among seven major cost areas: recruiting, agent development, sales assistance, new business processing, maintenance, management development and administration.

Sales costs are developed as the sum of the first four costs plus a piece of the last two, while service costs are made up of the fifth cost and the rest of the last two costs.

The "reverse process" in this study helps to point out areas in which costs might be high or low. The programs that process the study internally develop unit expenses for all branches of a company and for all branches in the study of a particular size. The unit costs that were developed for all branches in last year's study are shown below:

COST PER ACTIVITY UNIT

Recruiting Cost Per Prospect	\$ 155.00
Agent Development Cost Per Agent	1,571.00
Sales Assistance Cost Per \$100 FY Comms.	51.62
New Business Processing Cost Per Application	16.44
Maintenance Cost Per Policy In Force	3.37
Management Development Cost Per Supv./Manager	3,007.00
Administrative Cost Per \$100 Total Cost	8.22

These unit expenses are used to develop "comparative costs" by function which are illustrated for each branch and the entire company. Finally, ratios of actual to comparative expense are developed to give a size-independent analysis. The sales and service costs by size of branch for Canada are summarized below and indicate why the size of agency has to be used in developing industry comparatives.

FIELD OFFICE COSTS (EXCLUDING COMMISSIONS & FINANCING)

<u>Branches With First Year Commission</u>	<u>Sales Cost/ \$100 Commission</u>	<u>Service Cost/ \$100 Premium</u>
Between \$9,000 and \$63,000	\$133.95	\$2.26
Between \$63,000 and \$126,000	111.36	1.65
Between \$126,000 and \$520,000	91.19	1.27
All Branches	102.28	1.51

This study can provide a wealth of information for marketing officers on the expense performance of branches. So far, the study has redeveloped new unit costs each year, but conceivably a set of unit expenses could be developed on several years' experience and also be used as a means of comparing expense trends over time. Doing so will make the study a little more like the CIA study but for branch offices or like the LIMRA Aggregate Expense Analysis.

LIMRA AGGREGATE EXPENSE ANALYSIS

The Aggregate Expense Analysis is even newer than the Sales and Service Cost Study. In fact, parts of it are still in development. The concept of a study similar to the CIA Study appears quite appealing. When trying to apply it to all of LIMRA's U.S. membership, we were faced with some serious complications in the process. Besides differences associated with a different country, we had to deal with a different breakdown by line of business. Except for individual ordinary insurance, detail on expected expenses for Industrial, Group and Credit simply did not exist in any published form -- at least, not that we could find. After experimenting with predicting expenses alone, we found results considerably better if we also included commissions. Our first real project, then, went toward developing a set of unit expenses or an expense formula to predict total life expenses plus total life commissions, using annual statement items for six lines of business.

We started using standard statistical techniques to develop our formula, but ended up developing our own set of special statistical techniques rather than accept the totally ridiculous results provided by standard methodology. Although we have still a number of inconsistencies in the formula produced with our new techniques, the unit expenses are much more acceptable than what we originally saw. Although we will be using the resulting formula in our first report to our membership, we already are collecting considerably more information for the years 1973 through 1976 with which we will be constructing improved formulas.

The description of our methodology in developing the current formulas was presented at the Ann Arbor Actuarial Research Conference last year. Since then, we have made considerable progress in the project involving:

1. Complete tabulations of all data and formula results for all companies for both 1974 and 1975 data. Looking at individual results helps in interpreting the results.
2. Testing of statistical relationships of formula ratios to the following variables exogenous to NAIC statement:
 - a) Distribution system of the company
 - b) Whether the company is mutual, stock selling only non-par, or stock selling both par and non-par insurance
 - c) Whether the company operates in New York State
 - d) How old the company is
 - e) Whether the company is a holding company
 - f) Whether the company is owned by another company
 - g) How much group insurance the company sells as a percentage of total premium
 - h) How much credit insurance the company sells as a percentage of total premium

Items b, c, d, e, and f above indicated no significant relationship of expense ratio (by our basic formulas) to the variable being tested. In each case, the effect or relationship of the expense ratio to the variable being tested was negligible. That is, either there was no relationship of expenses with the variable in question or the basic formula had already accounted for any such relationship in some other way.

Items g and h did not produce any significant difference either. However, with these variables, there was about a 20 percent chance that the observed differences did not occur by chance (significance is usually determined by there being less than a 5 percent chance that differences occurred by chance). Although not significant, these differences lead one to consider if a better functional relationship in a revised formula would lead to more reliable and indicative results.

Specifically, in the case of credit insurance, higher ratios appeared to be associated with an increasing percentage of premium in the particular product line. Conceptually, we can hypothesize the following situations that can be reflected within a revised expense formula:

1. A relatively small line of business relative to all of a company's lines can be incorporated into the operations of the company without being noticed.
2. Customers may not expect nor demand much service in such situations.
3. Increasing significance of a particular line of business creates disproportionate expense by making expense visible by necessitating reorganization, by causing management to spend more to maintain and expand market share, and by customers demanding and receiving greater service from the specialty operation.

These hypotheses will be incorporated into further investigation into improving the formula by seeking a formula with a modification factor for line of business importance. This is one example of the trial and error process that was referred to earlier on.

The results for group insurance were mixed and research is continuing to determine what, if any, common thread links the diverse results.

The distribution system definitions have proven to be very significant for 1974 and 1975 data before and after adjusting for size of company. In most cases, we are finding that there is less than a 2.5 percent chance that observed differences occurred by chance. There does appear to be a slight decrease in the difference between branch office and general agent companies as company size increases.

On pages 631 to 643 are charts comparing actual to expected expenses for sample companies categorized by distribution system. For each pair of bars data for 1974 is on the left and data for 1975 is on the right. Each bar represents the experience for one company for one year. The graphs have the bars arranged in ascending order based upon the sum of the two years' ratios. Also included are two cumulative distribution histograms, one each for 1974 and 1975. These histograms indicate the spread of results for our entire sample of 292 United States companies for each year.

The difference in the distribution system groups is exhibited in several ways. Average ratios to the formula expected are different in the various groups of companies. Almost as importantly, the variation of results among companies of the same group varies among the groups (i.e., the results have different spread and distribution).

There is a natural progression of results from General Agent, to Personal Producing General Agent, to Managerial companies. General Agent Companies have slightly lower average cost ratios and are more homogeneous than either PPGA or Managerial companies. Home Service companies, other than their characteristic line of business orientation, are similar to Managerial companies. As might be expected, Multiple Line Exclusive Agent companies have the lowest cost ratios.

One has to be extremely careful in drawing conclusions from the results by distribution system as it is easy to be misled. There is no evidence yet that can support any conclusion that any particular method of distribution is inherently better than any other (Multiple Line Results notwithstanding).

The expense formulas being used do not recognize distribution system or the inherently different methods of field compensation that they represent. Using differences between Managerial and General Agent companies as an example, we know that, in general, Managerial companies pay expenses directly and compensate managers on a salary plus incentive basis. In contrast, General Agent companies pay their General Agents overwriting commissions and expense allowances on both first and renewal premiums from which expenses are paid in part or in whole. As a result, we would expect that Managerial expenses would react more quickly to agency activity, would react quicker to increasing sales and would be more volatile.

Multiple Line Exclusive Agent results may be somewhat obscured by the lack of the expense picture of lines of business not expressed in the life company Annual Statement. Some of these results may be an allocation problem.

As before, we can hypothesize a restructuring of our formula base to recognize distribution system. To a large extent, reformulization will

involve incorporating first year and renewal factor adjustments by distribution system. Initially, this reformulization will be based upon the current distribution system parameters, but plans for the project include asking member companies if they would be willing to submit additional information by distribution system (probably issues and inforce, number of policies, amount of insurance, and premium).

Putting the distribution system into the formula that we use will amount to producing a quantification of differences among distribution systems that can lead to some research into the conditions that favor a particular distribution system at a particular point in time. However, this result will be some time in development.

1. The formula has some problem with reinsurers - associated with the fact that it uses direct business or total business annual statement items.
2. Companies specializing in expensive specialties are likely to have higher than average expense ratios. For instance, companies that specialize in Pension Trust business tend to have higher expense ratios. Conversely, some companies that have significant direct mail operations tend to have slightly lower expense ratios.
3. The formula and method of analysis do react to actual expense performance.
4. The method reacts to aggressive expansion with higher expense ratios (as it should). It does not appear that aggressive expansion can be measured by monitoring items in Annual Statements. As a result, a valuable extension of the formula and the subsequent analysis would be to collect additional information about the effects of recruiting, turnover, productivity, and lapsation. Further research in this area can lead to developing measures that can better distinguish between sound and unsound expansion.

USE OF THIS RESEARCH

Conceivably this research can be used in two primary ways: as an aggregate measure of industry expense performance in the United States or as a monitoring device for individual companies to use in getting a picture of their overall expense performance from year to year.

In the former role, the result might be an annual report to the U.S. industry on the trend of expenses in the United States - much as is done by the Canadian Institute of Actuaries in Canada. The following table indicates the results of use of the formula with 1974 and 1975 statement data (expenses shown in millions):

SUMMARY OF 1974 & 1975 RESULTS

	<u>1974</u>	<u>1975</u>	<u>Percentage</u> <u>Change</u>
<u>All Companies</u>			
Actual Expenses	6,551	7,048	7.6%
Predicted Expenses	6,470	6,925	7.0%
Ratio	101.2%	101.8%	.6%

<u>Large Companies</u>			
Actual Expenses	4,813	5,142	6.8%
Predicted Expenses	4,758	5,074	6.6%
Ratio	101.1%	101.3%	.2%
<u>Other Companies</u>			
Actual Expenses	1,738	1,906	9.7%
Predicted Expenses	1,712	1,851	8.2%
Ratio	101.5%	103.0%	1.5%

These results are given for all companies, LIMRA's AORT companies, and other companies. Note that the 1974 results are about the same for all size companies (the formula was designed to create such a result). Large companies were extremely stable from 1974 to 1975, while smaller companies exhibited a 1.5 percent increase.

It is difficult to say if the much larger increase for smaller companies is real or a result of the more aggressive marketing of smaller companies. These companies may be spending more to develop greater productivity and efficiency in future years.

In the latter role, the use of the formula can be used by individual companies to monitor their own expense trends - with an associated industry report, trends can be compared with industry trends. This use may be of only minor importance to larger companies that already have extensive expense monitoring systems and may participate in detailed intercompany expense studies such as LOMA's Intercompany Cost Comparison Study or LIMRA's Field Office Sales and Service Cost Study. Smaller companies without such facilities would find it more useful to receive an industry report as well as a company report. In fact, small companies might be encouraged to install use of such a formula in-house and monitor results on a quarterly basis.

In analysing individual results, in comparing from the individual company to a larger group or to all of LIMRA's membership or to the insurance industry, the analyst should always keep in mind that results do vary considerably from company to company.

Notwithstanding the limitations and warnings, the use of the formula can become a valuable analysis tool for life insurance companies.

FUTURE DIRECTIONS

Where is this research project taking LIMRA?

To begin with, this year we will recalculate the expected formula to recognize the research results of the past year. Specifically, we will be using more companies for more years of experience, including the change in agent balances in the expense being predicted, adding in some reinsurance indicators, picking up some indicators of deposit administration volumes, and working in the results by distribution system and group and credit hypotheses.

After that improvement, we will explore other data sources within LIMRA to determine appropriate relationships of expenses with recruiting, retention,

productivity, and lapsation. From that we hope to see what potential this project has for the marketing officer and to try to extend the project with additional data from member companies. In the meantime, we hope that the results so far are significant enough to make it easier for companies to see what is going on and how supplying more data can make the results more valuable for marketing personnel, their companies, and the industry.

Along with making the formula more useful for marketing personnel, we should consider expanding the project into accident and health, separate accounts, investment expense and associated performance, and taxes.

All of these directions mentioned so far are mostly related to the development of a more predictive and useful formula rather than looking at and developing means to use the formula in the LIMRA membership and the insurance industry. In addressing the issue of how to use the formula, we will be exploring the types of annual and less frequent reports that LIMRA might produce to bring the results to its membership and the industry. In many ways, we are heading toward producing a report similar to the CIA Expense Report but expanded to cover better the issues and problems of the marketing officer.

The possibility exists that we may develop a more frequent survey or service for subscribing companies that would be willing to provide us with quarterly data on the items that our research finds "most predictive".

Can something be done about being able to analyse the results better?

The plans for this project do include a goal of developing a means of isolating most probable "causes" of changes in expense ratios. To begin with, we will be trying to develop a means of isolating changes attributable to recruiting, agent turnover, agent productivity, lapsation, and marketing expansion. We expect this job to be difficult indeed, but we hope that the result will be some general guidelines about expected expense increases that can be associated with marketing decisions. We also recognize the limitations that this project has and hope that data available from the LIMRA Field Offices Sales and Service Costs Study and other cost studies being developed will help to fill the gaps and give the marketing officer a more or less complete picture of his expenses.

The data base that is being developed for this project will have potential use in many other projects that may or may not be related to getting a better picture of what's happening in expenses.

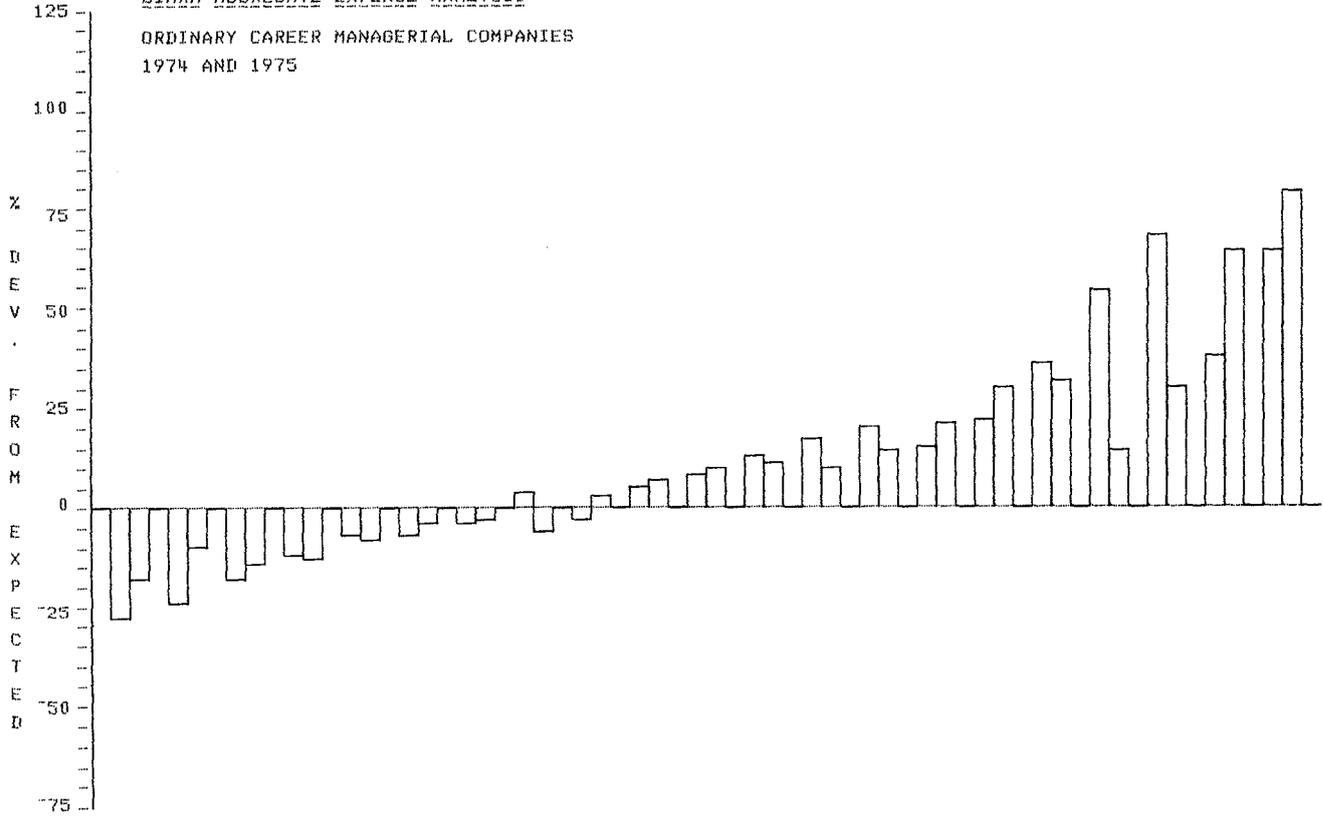
Now that we have explained what LIMRA is doing in this area of research and where we are going, LIMRA hopes that you will support this project with your continuing interest and more importantly with cooperation in providing additional data to keep the project moving.

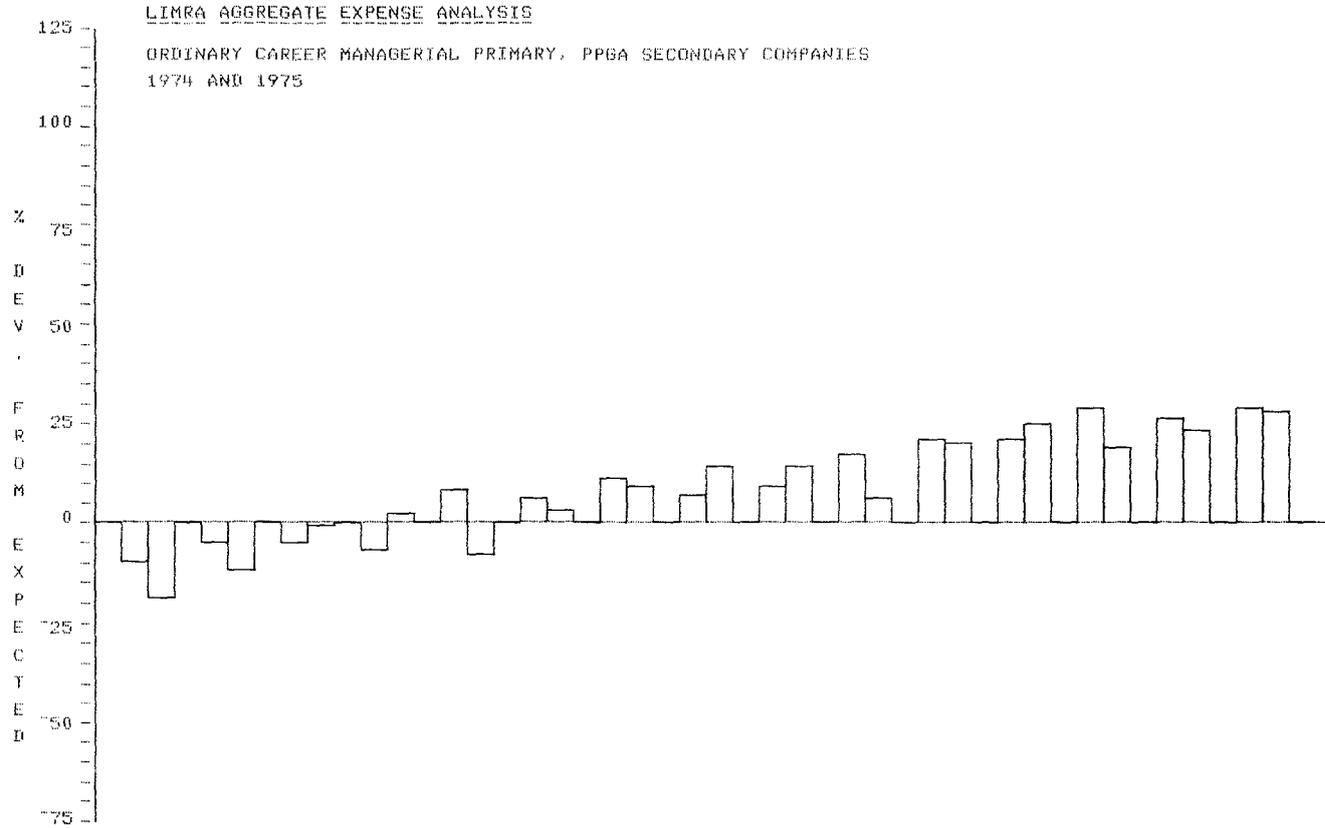
MR. GARY CORBETT: What are you doing with health insurance?

MR. BRZEZINSKI: Right now our study deals only with life insurance. We looked very briefly at the accident and health expense items and exhibits in the annual statement and decided we might derive peculiar results because there is no real volume data other than premium. There is no accident and health policy exhibit information. As a result, companies in the blue collar market would have an extremely unfavorable comparison with companies

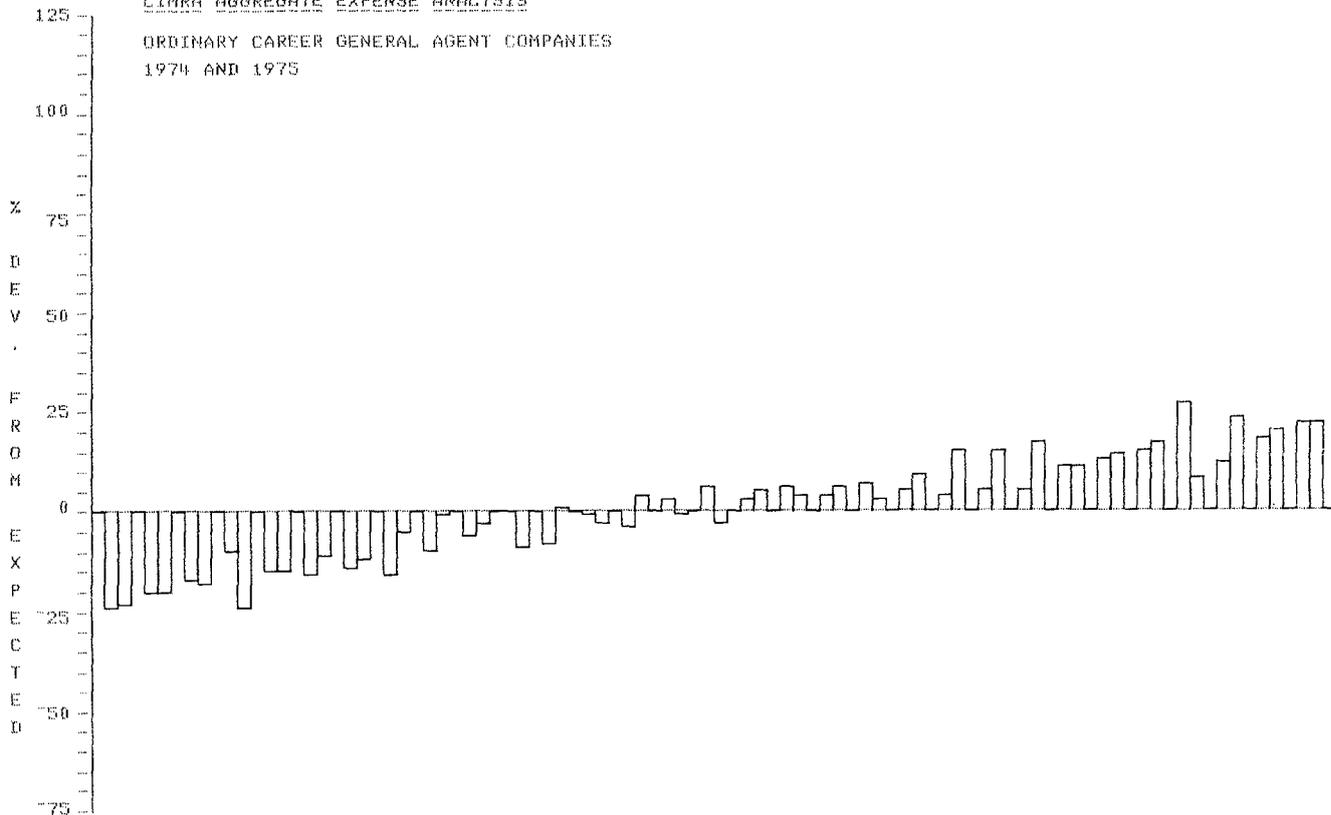
in the white collar market at least as far as expenses are concerned. We are designing several questionnaires for our member companies with accident and health business. These probably will be sent later this year.

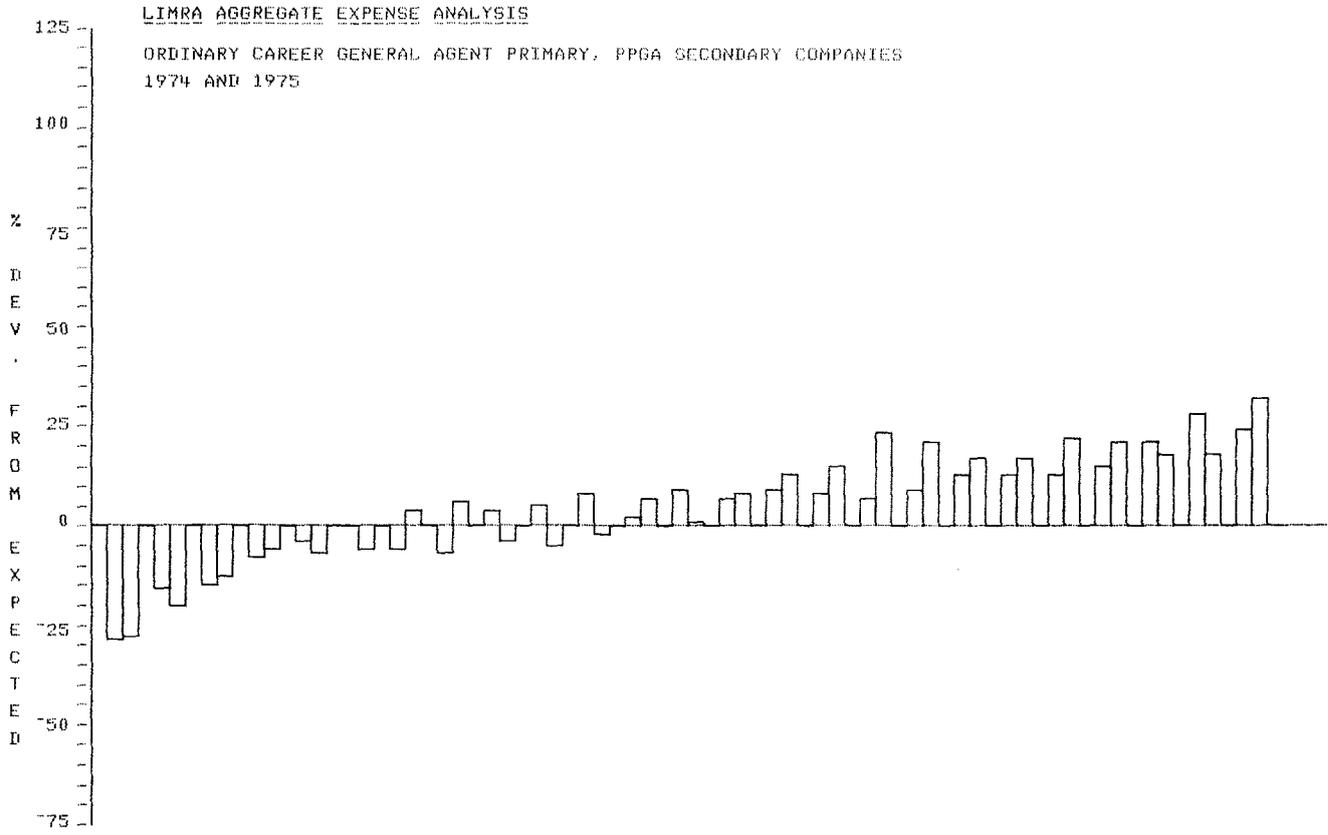
LIMRA AGGREGATE EXPENSE ANALYSIS
ORDINARY CAREER MANAGERIAL COMPANIES
1974 AND 1975



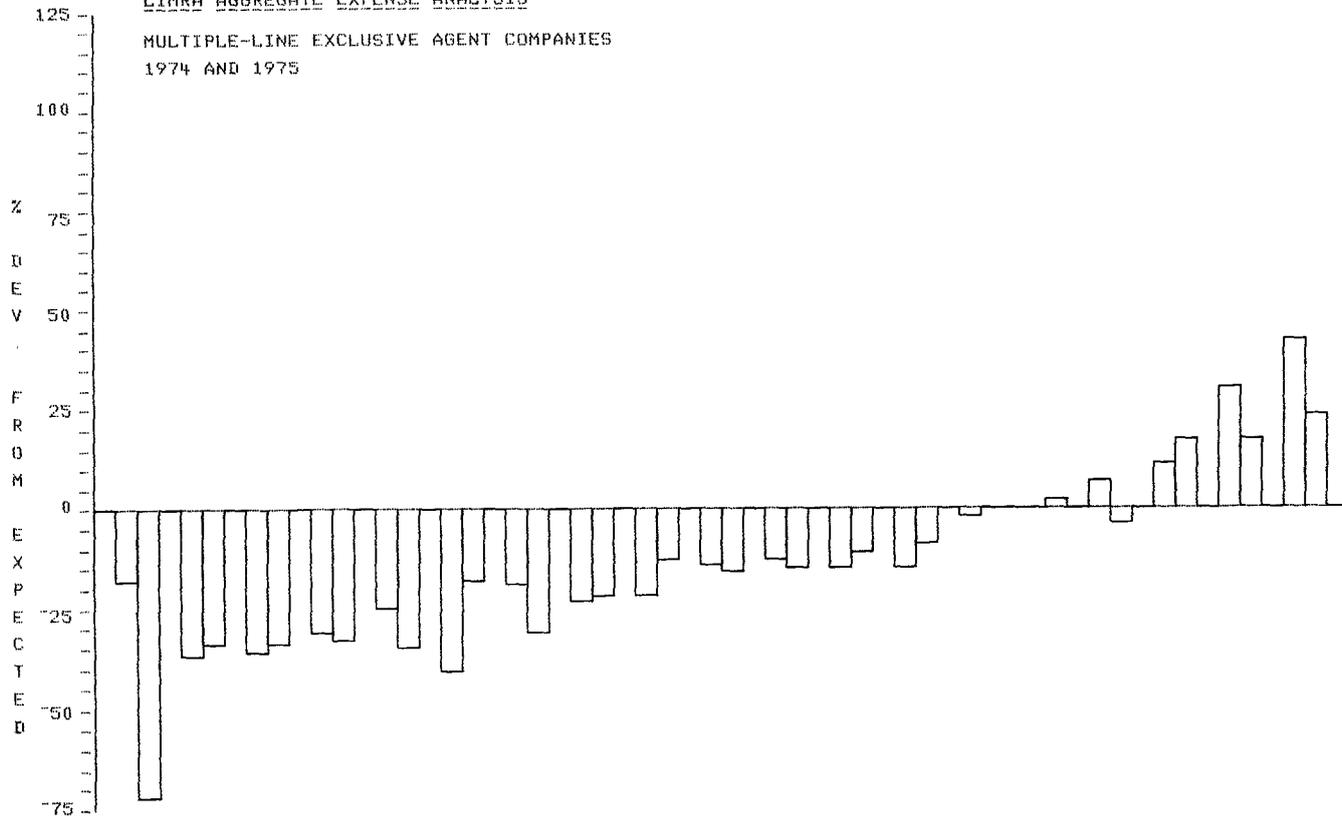


LIMRA AGGREGATE EXPENSE ANALYSIS
ORDINARY CAREER GENERAL AGENT COMPANIES
1974 AND 1975

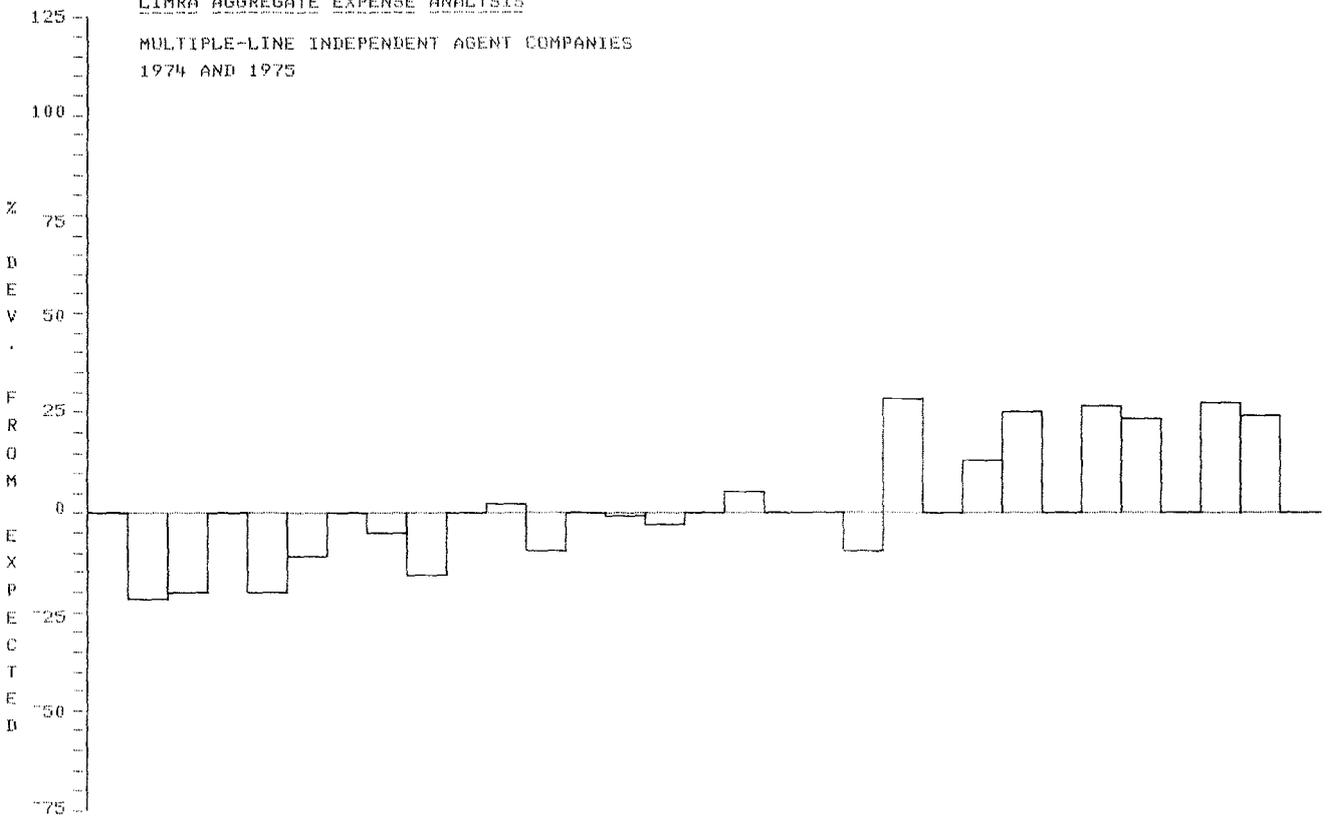




LIMRA AGGREGATE EXPENSE ANALYSIS
MULTIPLE-LINE EXCLUSIVE AGENT COMPANIES
1974 AND 1975

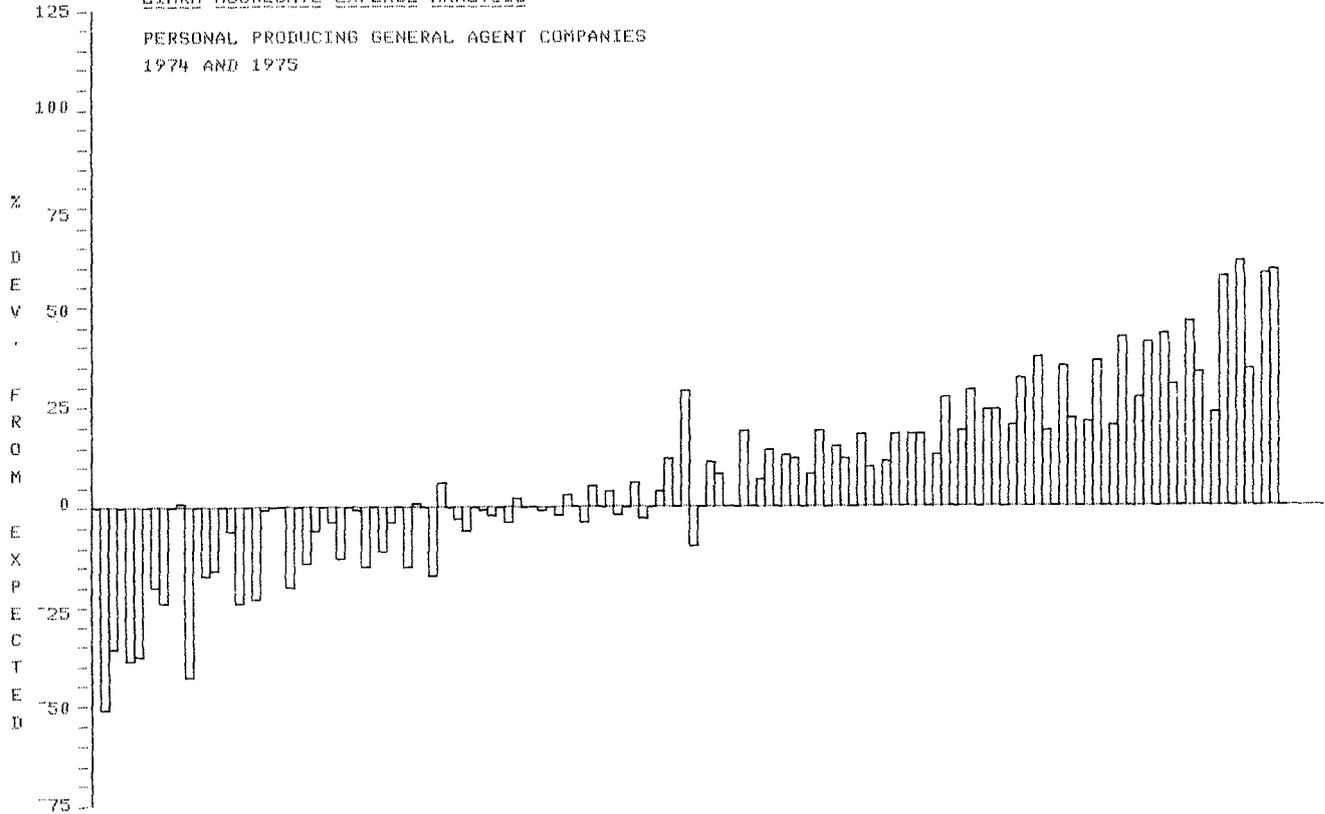


LIMRA AGGREGATE EXPENSE ANALYSIS
MULTIPLE-LINE INDEPENDENT AGENT COMPANIES
1974 AND 1975



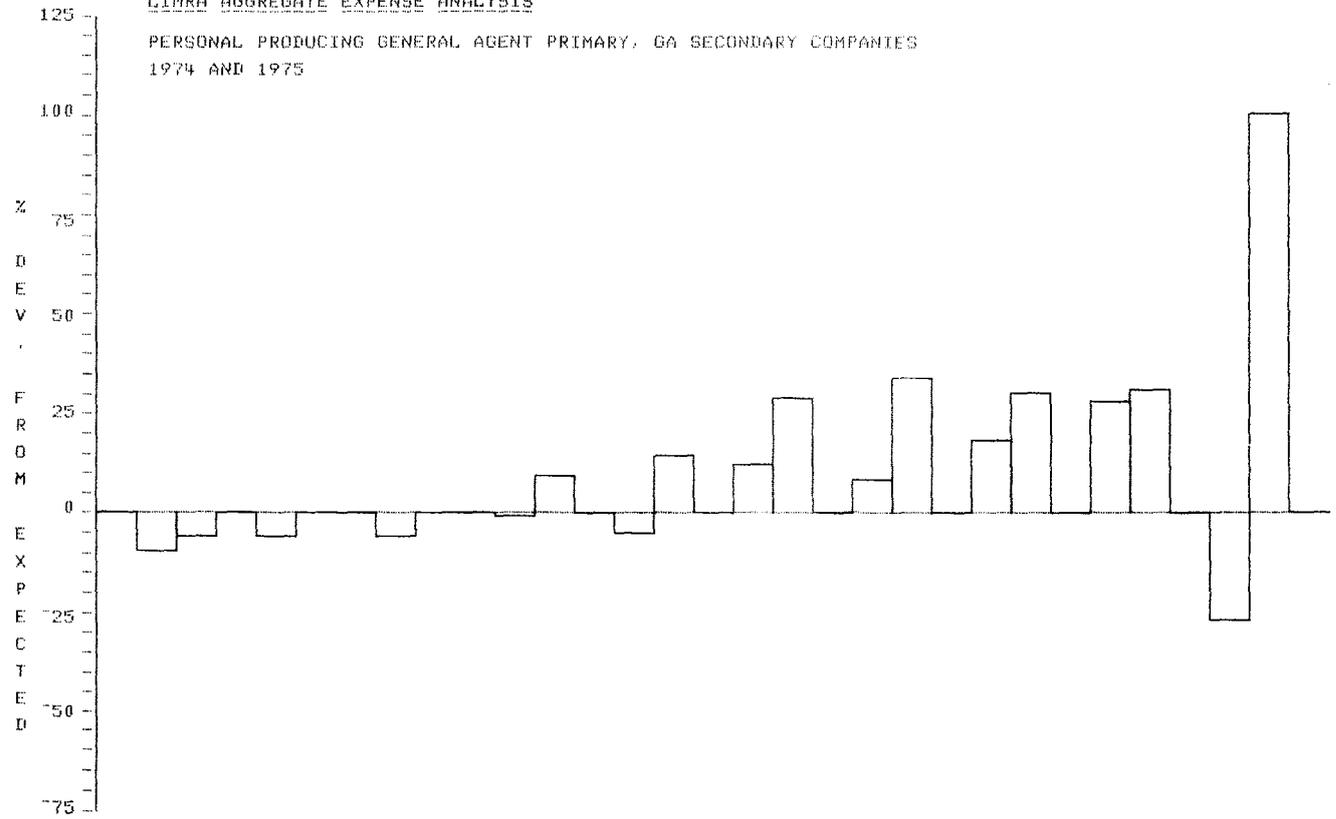
LIMRA AGGREGATE EXPENSE ANALYSIS

PERSONAL PRODUCING GENERAL AGENT COMPANIES
1974 AND 1975



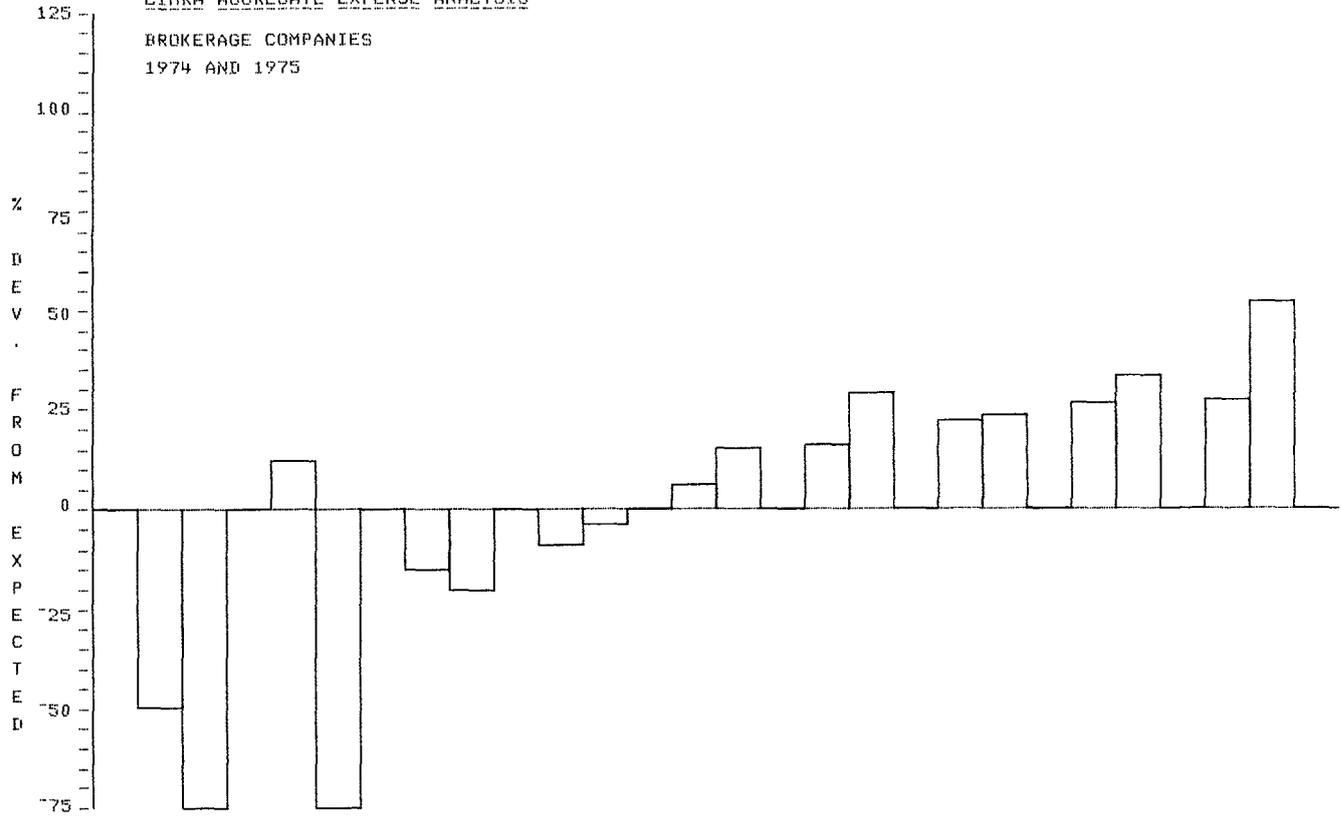
LIMRA AGGREGATE EXPENSE ANALYSIS

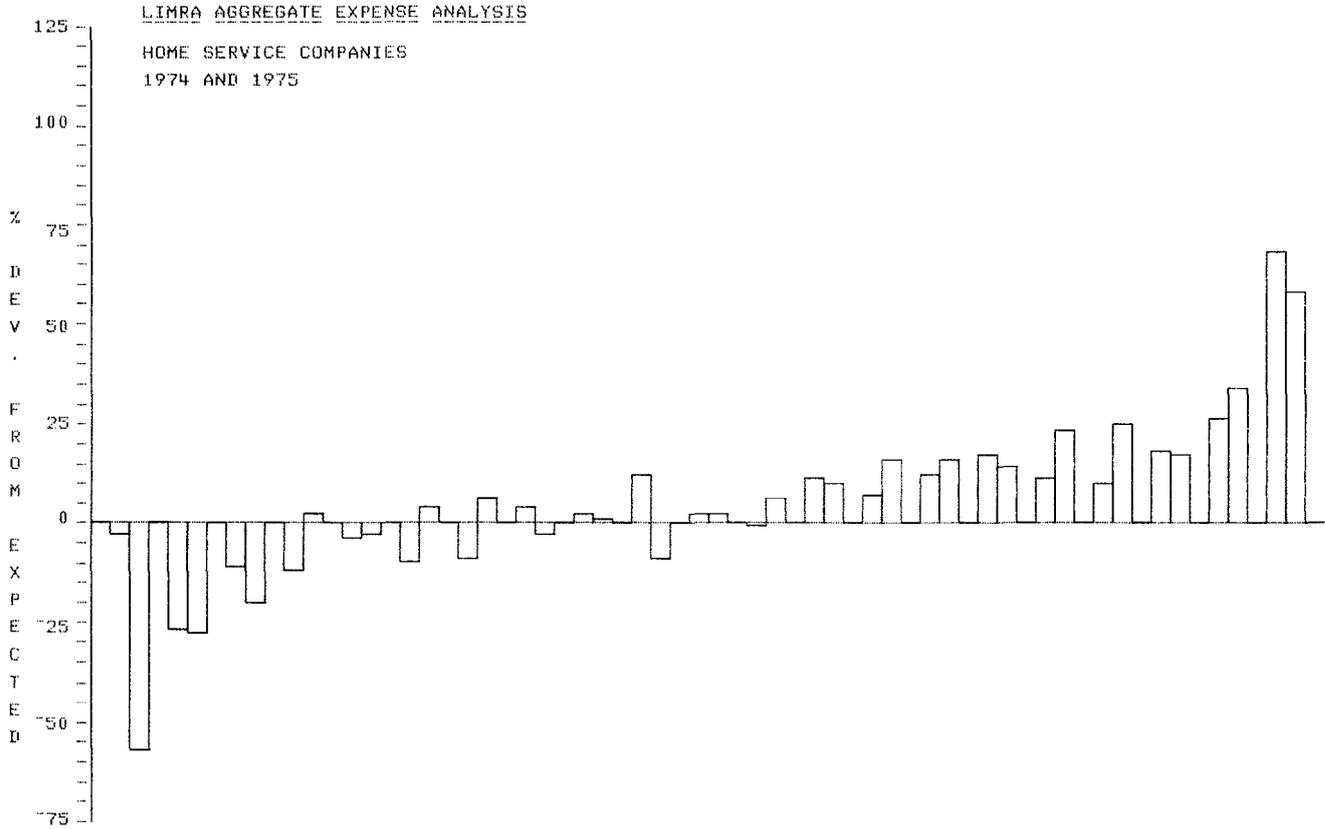
PERSONAL PRODUCING GENERAL AGENT PRIMARY, GA SECONDARY COMPANIES
1974 AND 1975



LIMRA AGGREGATE EXPENSE ANALYSIS

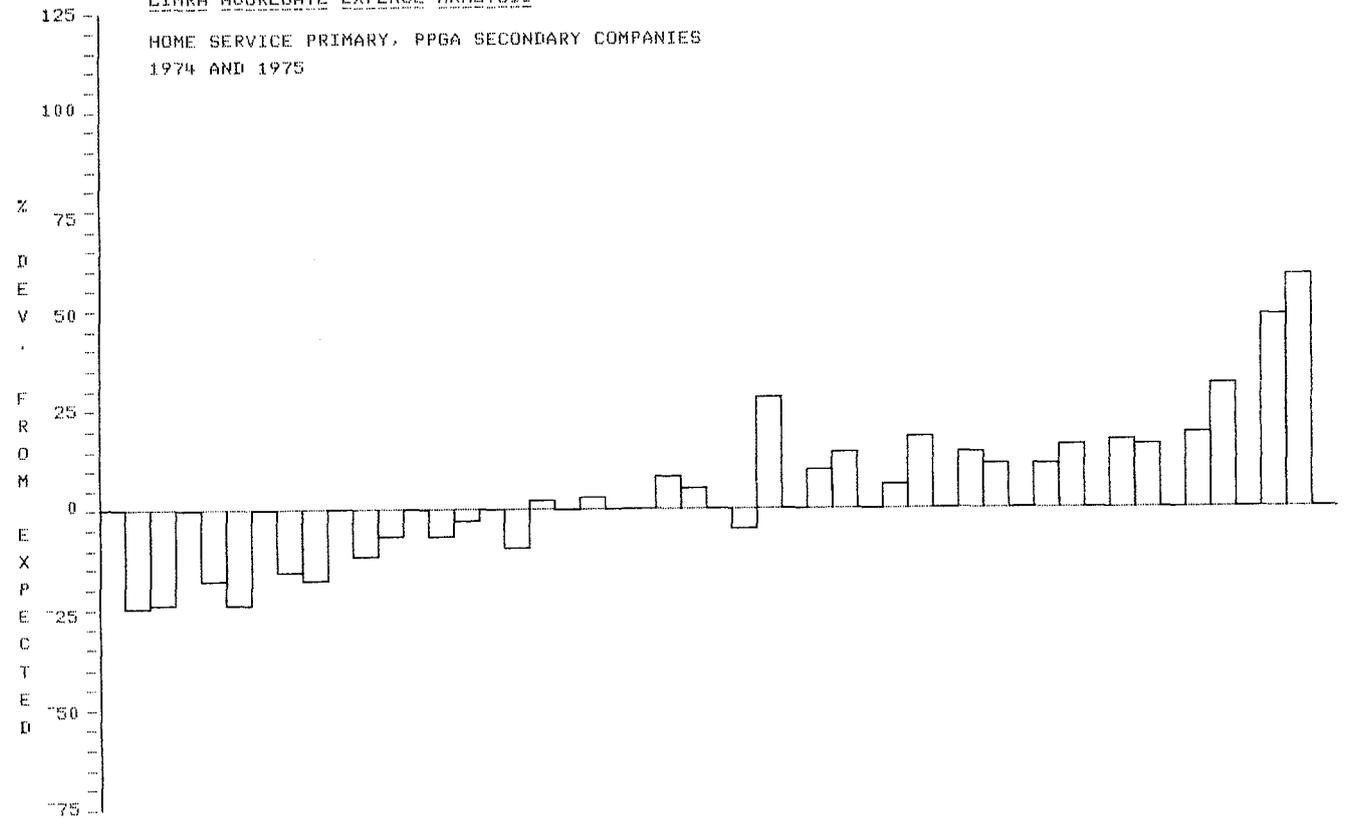
BROKERAGE COMPANIES
1974 AND 1975





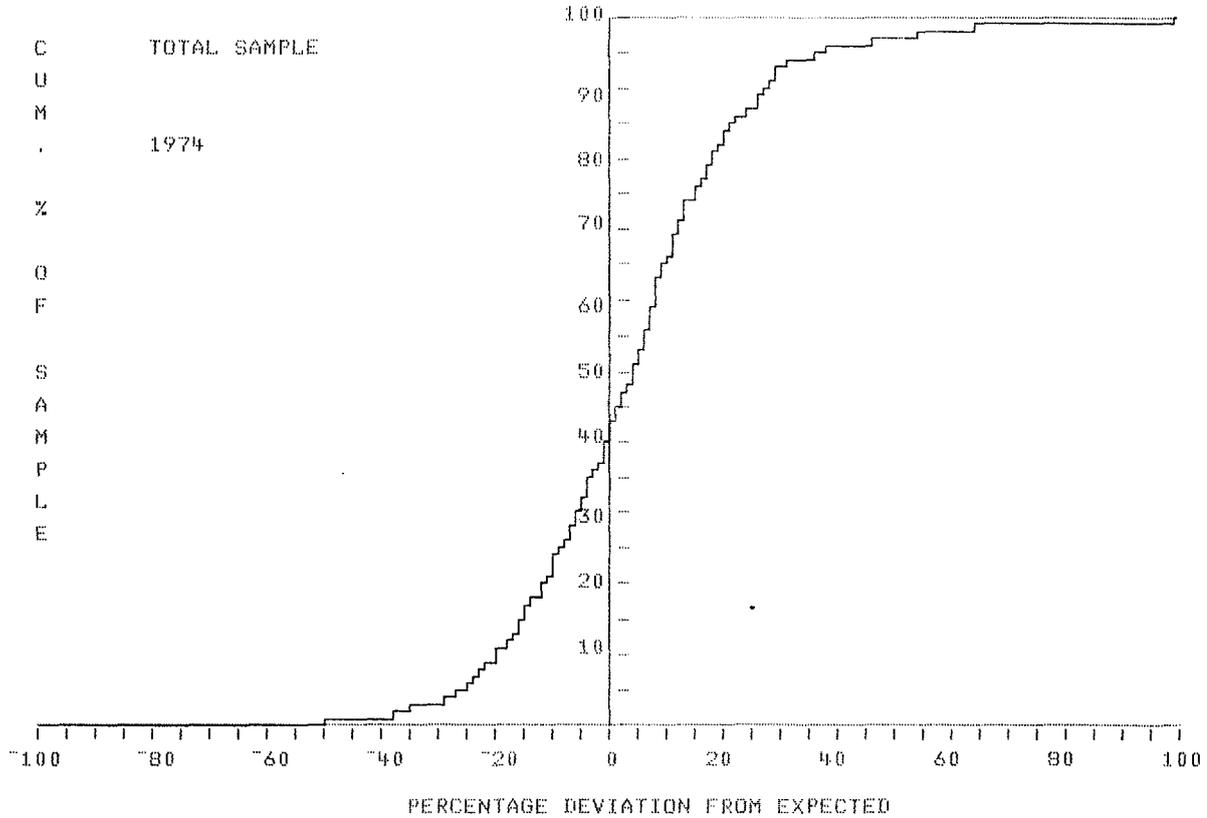
LIMRA AGGREGATE EXPENSE ANALYSIS

HOME SERVICE PRIMARY, PPGA SECONDARY COMPANIES
1974 AND 1975

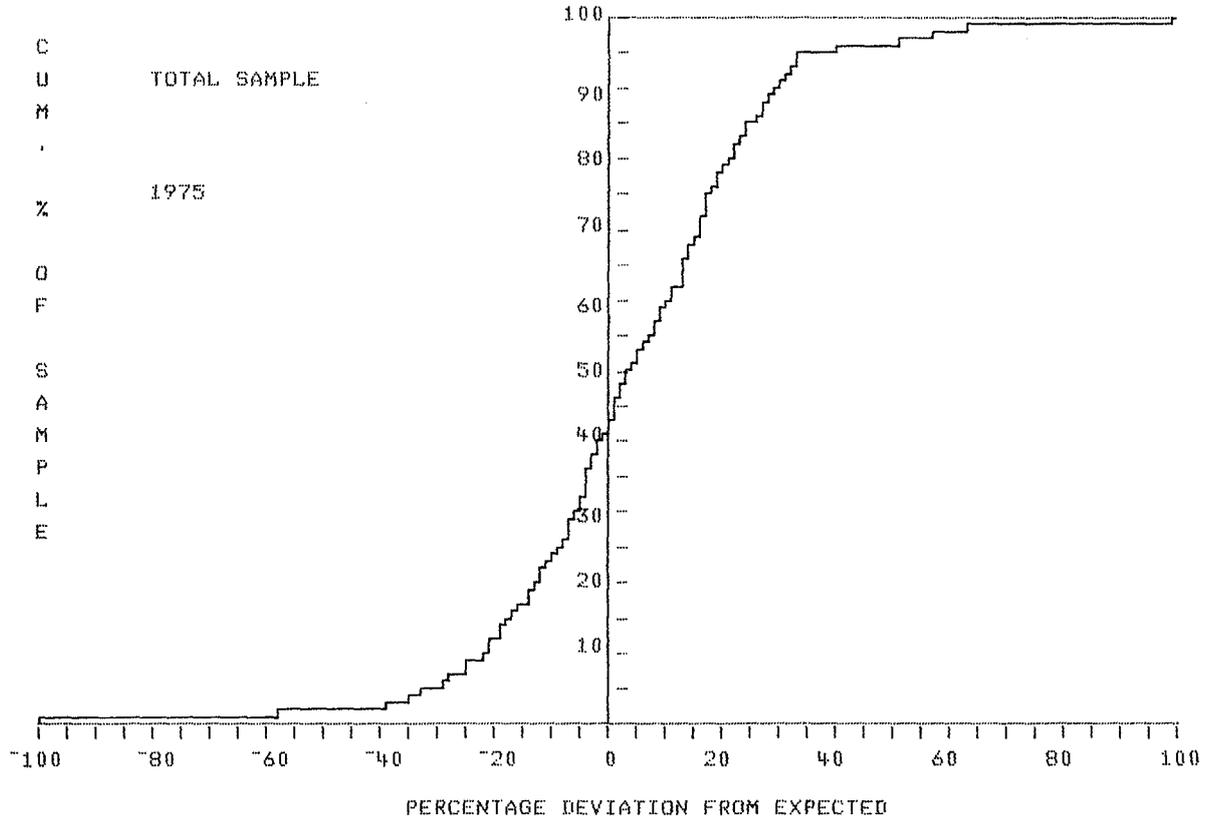


EXPENSE ANALYSIS AND ALLOCATION

LIMRA AGGREGATE EXPENSE ANALYSIS



LIMRA AGGREGATE EXPENSE ANALYSIS



EXPENSE ANALYSIS AND ALLOCATION

