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Group Insurance

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Reviewer: Charles Fuhrer*

This 784 page book includes 34 chapters by different authors. The chapters are assigned to eight sections, each with a section editor. The principal editor is William F. Bluhm. I will comment about the book as a whole and then cover each section briefly.

The book is comprehensive and well-written. The authors and editors are to be commended for the high quality of the text. This is particularly impressive, given the difficulties associated with preparing such a large volume with so many different contributors.

The dust cover states that "Group Insurance is intended to serve as both an educational text for beginners in the field, and as a reference text for experienced practitioners." It is difficult for any text, however, to serve both beginners and experienced practitioners well. Group Insurance is an excellent text for beginners. It covers a vast amount of material (most of it in summary form) at a level appropriate for beginners. Unfortunately, this may detract from its usefulness to experienced practitioners who usually need detailed information. It is interesting to compare this book with Group Insurance Handbook (1965) which could be considered its precursor. Group Insurance Handbook contains much more detail than does Group Insurance.

Group Insurance has very few references to other articles and books. There are only 30 endnotes: 12 cite court cases or government rulings, eight are tables, two are current pamphlets, one is a current events bulletin, one is an investment-ratings publication, two are accounting standards opinions, and only four are original articles. Even the venerable Group Insurance Handbook is not mentioned anywhere.

This lack of references is unfortunate for several reasons:

- References would allow the reader to verify the accuracy of the facts that are used. Group Insurance includes many facts and figures without mentioning their sources;
- References enhance an educational work because they give the beginner (and even the experienced practitioner) a guide for further study; and

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• Discussion of other works gives the reader a sense of the historical development of the subject matter and how the current material fits with other thoughts about the subject. For example, the reader will be able to determine if the current work is consistent with standard or classical thinking in a particular discipline or if the current work is new and original.

Chapter 25, “Bayesian Statistics and Credibility” by Thomas N. Herzog, is a notable exception. This chapter contains 24 endnotes, with other works mentioned throughout the chapter (particularly on page 516). The reader can understand how the author’s thoughts fit into the total work on the subject.

Comments about specific sections follow. Also included are references for some of the subjects.

• Section 1—“Introduction,” Robert B Cumming, editor. For a more detailed history of group insurance through 1965, see “Development and Significance of Group Life Insurance” by C. Manton Eddy and “Development and Significance of Group Health Insurance” by J.F. Follmann, Jr. in Group Insurance Handbook (1965). Several statements by Richard S. Bilisoly in the current Chapter 1 are very similar to those made by Eddy and by Follmann in Group Insurance Handbook.

In Chapter 2, David F. Ogden tells us what the 1990 market shares of the players are. The author should state the sources of this information.


In Chapter 5, “Group Disability Income Benefits,” David W. Simbro does not mention that under most long-term disability (LTD) plans the benefit is not reduced further by any Social Security cost of living increases that occur after the disabled individual becomes eligible to receive benefits.

Chapter 6, “Medical Benefits in the United States,” by Darrell D. Knapp, defines medical benefits by the dimensions of services and conditions, the degree to which the insured shares in the cost, and the degree to which the provider participates in the cost. This is an original and clever way of organizing a complicated subject. For historical purposes (and because many still exist today), base plus supplementary (or superimposed) major medical and comprehensive major medical plans should be defined. See the Group Insurance Handbook (1965), Chapter 18.
Chapter 7, by Bruno Gagnon, examines medical benefits in Canada, while David R. Nelson analyzes miscellaneous coverages in Chapter 8.

In Chapter 9, Bruce D. Schobel studies government plans in the United States. Robert J. Myers' Social Security (1985 and previous editions) generally has been considered to be the Bible of Social Security for actuaries. Of course, there have been many other works and numerous U.S. government publications on social insurance.

- **Section 3—“The Legal and Regulatory Environment,”** Charlotte A. Furman, editor. This section contains only a brief discussion of the legal environment; the regulatory environment is covered in much greater detail. See, for example, W.F. Meyer’s Life and Health Insurance Law, A Summary (1976).

  Keith M. Andrews looks at regulation in the United States in Chapter 10, while David B. Martin studies the Canadian situation in Chapter 11. Chapter 12, by Edward P. Potanka, is devoted to regulation of HMOs, PPOs, and managed care in the United States.

- **Section 4—“Underwriting and Managing the Risk,”** W. Duane Kidwell, editor. There is a gap in this section between the large groups of Chapter 13 (as few as 50 or 100 employees) and the small groups of Chapter 15 (under 25 employees). The group underwriter traditionally has made decisions based on qualitative opinions. Given the advances in actuarial modeling, software, computer technology, and data gathering, however, it is time for group insurance underwriting to be based on quantitative data. Neither these chapters nor a later chapter (Chapter 26) devoted to data sources and structure discusses this issue.

  Chapter 13 covers large group underwriting. The authors are James T. Lundberg and Jean C. McFadden.

  The introduction to Chapter 14, “Underwriting Small Groups,” by Barbara Niehus, includes some statistics on the extent of insurance in small employers. These statistics appear without citation of source.

  Chapter 15, “Managing Multiple-Choice Situations,” by Scott M. Snow, can be supplemented with Fuhrer and Shapiro (1992) and Gifford and Seltz (1988).

  Raymond F. McCaskey covers claim administration and management in Chapter 16.

- **Section 5—“Funding and Rating,”** Francis T. O’Grady, editor. One section of Chapter 17, “Estimating Claim Costs for Life Benefits,” by Stephen T. Carter, deals with the effective date adjustment. This adjustment factor is used to adjust for the fact that the manual claim table is set to be correct for rates effective on July 1 based on calendar year of birth ages. If the rates are effective on another date, all employees will be a few months older or younger. The adjustment factor is set at approximately 0.5 percent per month. This, of course, is equal to the weighted average of monthly increases in mortality weighted over the ages of a typical employee group. With the availability of mod-
ern data processing equipment, there is no reason to use this weighted average. Instead, an effective date interpolation can be done for each age. The extra accuracy may not be of the utmost importance, but it costs almost nothing because the basic age/sex rating usually is done by computer.

The book (Chapters 17, 22, or 25) contains a brief treatment of credibility for group life insurance. If the standard assumption is made that all of the experience is equally relevant, then credibility can be shown to equal \( ef/(ef+K) \). Here \( e \) is the expected number of claims in the experience period, \( f \) is an adjustment factor to reduce the credibility for variation in the size of benefits so that \( f = 1/(1+\hat{v}/b^2) \), and \( \hat{v} \) and \( b \) are the variance and expectation of the benefits given a claim has occurred. Note that \( f = 1 \) if all benefits are the same; otherwise, \( f < 1 \). This formula assumes, as is usually done, that credibility is applied against total dollars of incurred claims. A better way would be to apply credibility to the number of claims, in which case \( f = 1 \). Here \( K \) is a constant whose value is probably in the 3 to 12 range. This is the constant \( k \) in formula (4) on page 525. Herzog explains how \( K \) could be estimated on page 530.

Chapter 18, "Estimating Claim Costs for Traditional Health Benefits," by Susan J. Comstock, contains almost no discussion of the experience rating of health benefit claim costs. The method of using claim (charge) experience to build a probability distribution for determining the cost-sharing impact (i.e., deductibles, coinsurance, out-of-pocket maximum, and plan maximum) on pages 333-336 is not optimal. Unfortunately, this method is used by most health insurance actuaries. In this method the charge data are put into size ranges. The probability distribution is defined as a discrete distribution with points set at the average of the charges in each range. The probability is set equal to the number of charges that fall into the range divided by the total number of claims. A simple calculation will show that this method understates the cost for all deductibles except those that fall exactly at a range boundary. For deductibles at a range boundary (or for deductibles that fall in a range with zero or one charge in it) the cost matches the data. Another method is suggested in another context by Gerber and Jones (1976). A better method might be to use the full charge data. The methods of Hogg and Klugman (1984) could be used. Also see Lowrie and Lipsky (1990).

Lee E. Launer details in Chapter 19 various ways to calculate premiums for managed care plans.

Readers interested in reading further about the topics covered in Chapter 20, "Estimating Claim Costs for Disability Benefits," by John C. Antliff and Roy Goldman, should see the discussions of Roy Goldman's paper (1990) for more detail on credibility calculations for LTD.

There is considerable literature on the general business problem of pricing products based on internal expenses and market conditions. There should be some information in Chapter 21, "Calculating Gross Premium and Contribution Rates," by Richard
S. Wolf, on the problem of determining item expenses from expense studies in the field of cost accounting.

Chapter 22, "Experience Rating and Funding Methods," by William F. Bluhm, is similar to his (Bluhm, 1989) study note of the same name. I will discuss a few of the points he raises in this chapter. For example, Bluhm states (pages 410-411) that one of the theoretical considerations entering the choice of credibility levels is the confidence interval chosen by the insurer. Modern least squares credibility (see Chapter 25) does not use confidence intervals, even implicitly. On page 414 Bluhm correctly states that pooling methods are used in order to dampen random statistical fluctuations to make the rates charged as attractive as possible. Pooling methods, however, also are used in prospective experience rating to make the claim projections more accurate. See Fuhrer (1988a) for a method of setting individual claim pooling levels to optimize the calculation of claim cost levels.

For more information on group credibility see Fuhrer (1988a) and compare this to Margolin (1971). For a good method of calculating deficit risk charges, see Panjer and Mereu (1980). Bowers, Gerber, Hickman, Jones, and Nesbitt (1986), Fuhrer (1988b), and Panjer (1980) are good sources for more on calculating aggregate stop loss premiums. There have been some papers on individual stop loss type insurance (casualty) in some of the other actuarial journals. Lowrie and Lipsky (1990) deal with specific stop loss.

- **Section 6—“Economics and Statistics,” Jerry E. Lusk, editor.** There has been considerable work done by economists on the problem of estimating trends and analyzing business cycles. Chapter 23, "Medical Claim Cost Trend Analysis and Underwriting Gain/Loss Cycles," by John P. Cookson, continues this body of work.

It would have been useful to include times series extrapolation in Chapter 24, "Forecasting," by Bruce C. MacLeish.

Chapter 25, "Bayesian Statistics and Credibility," by Thomas N. Herzog, is similar to the Transactions of the Society of Actuaries (TSA) paper by the author (Herzog, 1989 with discussion). The TSA discussions of the paper contain valuable info and are quite insightful. The chapter concerns credibility, especially as it relates to Bayesian statistics. There are many books on Bayesian statistics; see, for example, Berger (1985).

- **Section 7—“Information and Its Uses,” William F. Bluhm, editor.** Chapter 26 is devoted to the topic "Data Sources and Structures." It was written by Randall P. Herman. Chapter 27, "Management Information Systems," was authored by William R. Lane.

Many books and papers (including Chapter 28, "Claim Reserves," by Mark E. Litow) have been written on insurance claim reserves. I include a bibliography with over 60 entries on this subject in my discussion of the author’s paper (Litow, 1989). The development method described by the author has many variations and is only one of myriad methods.
Chapter 29, "Group Insurance Financial Accounting," by James T. Blackledge, J. Harvey Campbell, and Pierre Saddik, is one of a number of books and articles on insurance accounting. The interested reader should see Saunders (1986).

- **Section 8—"Management," Bertram N. Pike, editor.** Chapter 30, "Strategic Issues," was contributed by Donald M. Charsky. Pike discusses the strategic issues facing corporations in general, not the group insurance industry in particular. There are many references to these issues in the general business literature.


Chapter 32, by Irwin J. Stricker, is devoted to product development.

Chapter 33, "Organization Structures" by James P. Galasso could be supplemented with references in the general business section of any library related to this subject.

In Chapter 34, Francis G. Morewood details planning and control issues.

In summary, *Group Insurance* includes many chapters that provide an excellent pedagogy. I hope that future editions will contain a more complete list of references.

**References**


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