

USE OF NATIONAL EXPERIENCE INDICATIONS IN WORKERS' COMPENSATION CLASSIFICATION RATEMAKING

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Frank Harwayne's paper, "Use of National Experience Indications in Workers' Compensation Classification Ratemaking," shows the application of some practical actuarial science to the solution of a lingering problem. The problem: because of low credibility, the rates for some classifications in certain states did not seem to be at, or likely to reach, a reasonable level. The solution: adjust experience from other available states to the exposure distribution and average pure premium level of the state in question and merge it into the classification ratemaking procedure.

A few comments on terminology may be in order. Although the procedure is referred to as "national," it might more properly be termed "multi-state" since the data base currently encompasses only those jurisdictions for which the National Council on Compensation Insurance makes rates. Thus, data from about a dozen states (independent bureaus and exclusive funds) is not available. Likewise, although the method is often called a "small credibility" procedure, its use may have some effect on the rate for any classification which does not possess full credibility for all of its partial pure premiums. Indeed, since three years of classification experience are used (as compared to two under the old procedure in most cases) even fully credible classes can end up with a different pure premium from what formerly would have been calculated.

Another item of interest is the subtle change adopted in the calculation of credibility. Credibilities for state experience have been and continue to be based on expected loss dollars. However, credibilities for the national experience are derived from actual claim counts. This slight change signifies, one presumes, no shift in the philosophy underlying credibility, but is merely an adaptation to the data available.

In order to avoid misinterpretations, the National Council has frequently warned against comparing unadjusted classification rates among states. A staff write-up notes that among the factors which cause rates to vary between states are differences in the industries in the state, the defini-

tion of exposure (payroll limitation), the benefit level, the administration of the law, the wage levels, the medical facilities, the quality of the labor force, the safety programs in effect, and the degree of attorney involvement. Since the new procedure affects rates by weighting pure premiums (of which rates are a function) between states, it is instructive to observe how these problems are avoided. Any differences in industries are formally adjusted for when the national pure premiums are computed using the exposure distribution in the state under revision. The other factors are not handled individually. Rather, since they all affect costs, they are reflected in the adjustment of each outside state's experience to the subject state's average pure premium level.

One might argue that the benefit level differences could be separately computed by state and the remaining factors then adjusted for in bulk. The technique adopted not only saves this work, but is consistent with a similar treatment employed in the National Council loss ratio trending technique. There, the trending of on-level loss ratios automatically includes all factors which affect costs and avoids the problem of separate identification and measurement of adjustments for items such as wage level changes, medical cost changes, and the host of other items which could be involved.

The procedure described by Mr. Harwayne seems to be based on reasonable actuarial judgment. Although the algebra may momentarily appear complex, the technique is conceptually straightforward. One potential area of concern remains is the vast volume of data involved. The October, 1977, *Scientific American* contains an article on the solution of the classic four-color problem of mathematics; this solution was accomplished by a computer exhaustion of enumerated possible five-color maps. The authors note the reluctance of some to accept their computer proof since it differs so radically from traditional mathematical terseness and verifiability. Similarly here, success in implementing the new technique may depend as much on the ability to demonstrate that accurate data is available and properly adjusted as on any actuarial theory involved.