# SOME OBSERVATIONS ON THE DEVELOPMENT OF MANUAL RATES FOR WORKMEN'S COMPENSATION INSURANCE

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With the passage of time and characteristically sudden changes in industrial conditions, facts continuously and insistently present themselves as replacements for conjectures made previously in the development of workmen's compensation rates. It seems also to be characteristic of workmen's compensation insurance that these facts more frequently than not belie their forerunning indications—at least the interpretation which has been placed upon them. Most peculiarly, so far as insurance carriers are concerned, there is no possibility of alleviating the inequities resulting from the dissimilarity between assumptions and realizations on the ground that the assumptions were on the safe side. There is no safe side. If compensation rates are pitched at a level which does not provide sufficient premium to satisfy the exigencies of the business, obviously an underwriting loss must result. If on the other hand rates prove to be redundant, there must inevitably follow unrest and discontent among the insureds with the resulting loss by the carriers of the better class of risks to become self-insurers and, as a consequence, if the conditions are allowed to continue, a selection against the companies will result occasioned frequently by the over-zealous efforts of the field to gain in volume at the expense of quality. It is safe to say, then, that complete satisfaction on the part of both the insuring public and the insurance carriers can only be realized when conditions permit of rates actually fitting existing industrial conditions.

The problem of fitting rates to conditions or, more properly, of establishing rate levels, should be considered as absolutely independent of the other phases of basic rate making. Classification relationship must always be established from a study of classification experience. The combination of the experience for various years must always be accomplished by the use of data accumulated from the experience developed during those years. Mature data is necessary for the accomplishment of such operations and considerable time is required to make the necessary studies and analyses. Owing to the manner in which the basic material is accumulated and reported, however, the labor involved can be distributed over an extended period and accomplished in an orderly manner. Under the present system of reporting classification experience the most recent data that will ever be available for any general rate revision will be that developed under a policy which has expired over a year before the effective date of the new rates. This has been recognized and efforts were made at the last general rate revision to bridge the gap between the latest classification experience and the period over which rates were to be effective with partial success.

The theory underlying the method adopted by the National Council on Workmen's Compensation Insurance in the 1920 Revision of rates, as has been explained many times, was dependent upon the assumption that classification hazard relativity remains generally constant for periods of three or four years duration but that factors affecting all classifications similarly do operate to increase or decrease workmen's compensation pure premiums. With unchanging compensation rates and with all business written at standard rates loss ratios should vary directly with pure premiums. Accordingly, therefore, in the 1920 revision classification relationships were established on the experience for policy years 1916 and 1917 while the premium level was established on the basis of business conditions prevailing during the policy year 1919 including, of course, business in force throughout calendar years 1919 and 1920. It must be remembered that the revision was being carried on in 1920 and that the aforementioned effort of the National Council to bridge the gap between the experience period and the period of rate effect consisted in the establishment of a loss ratio for the then uncompleted policy year 1919.

This last general rate revision produced rates effective for the most part on January 1, 1921. Rates for New York and one or two other states were effective before that time. The policy year 1919 therefore was the last year for which twelve months' experience was available and it was for this year that the loss ratio was developed on the projection basis.

It has been interesting since that time to observe the development of the 1919 policy year experience and to note how closely the actual experience has approached the anticipated. There are, to be sure, several individual states in which the actual loss ratio varies quite markedly from the projected but it is fair to state that in the majority of cases the results were satisfactorily close. In spite of this fact, however, the experience for the policy year 1921, which is the first policy year which would reflect to any great extent the effect of the new rates, has proved a disappointment to many. Generally the loss ratios for 1921 have been high and as a natural result the projection method has been subjected to rather more severe criticism than it actually deserves. It requires but a casual survey of claim records to discover one factor which has never been included in any procedure of rate making and which has been directly responsible for the unfavorable turn and that is accident rate. There has always been a distinct aversion in the minds of rate making bodies toward the use of conjectural factors so far as they relate to the future. However, there is, or should be, a middle course between the use of experience which is so old that it does not reflect conditions as they exist within a reasonable time prior to the period for which the rates are being determined and the use of pure conjecture as to what may happen during that period. It should be possible to obtain some actual experience which would at least carry the vision of rate makers approximately up to the effective date of rates. As has been intimated, this index or experience should reflect among other things the actual trend of accident rate so that, even though it might still be considered inadvisable to prognosticate as to the future, it would be possible to interpret correctly conditions that actually existed at the time and to incorporate in the rates some factor reflecting these conditions.

Another general rate revision is pending at this time and the procedure is once again to be modified—this time by adjusting the payrolls and losses actually experienced during the period under observation, which is to be policy years 1918, 1919 and 1920, to the latest possible level. Wage data has been accumulated by the National Council covering experience down to as recent a date as January 1, 1923. This will make it possible to adjust the experienced payroll so that it will be representative of the payroll which would have been earned under conditions prevailing at the beginning of 1923. This same data, together with a knowledge of amendments of the various compensation acts which have been or will be passed prior to the effective date of new rates, will furnish the material necessary to modify to the present day level the losses actually experienced.

There can be no question but that the use of separate payroll and loss factors will be an improvement over the use of the combined projection factor heretofore employed. Considering the proposed treatment of the payroll and losses separately, there seems little to add as far as the payroll factors are concerned, unless it might be possible that a more efficient and economical method for measuring payroll changes might be devised, while the loss adjustment seems to be as susceptible to attack as it always has been. There persists the feeling that proper consideration is not to be given to changes in accident rate. What is proposed is to modify the actual cost of accidents that really occur so that modified losses will represent the amount of money which would actually have to be spent if those self-same accidents occurred today. Granted that this may be accomplished; but suppose that for every two accidents which occurred during the period 1918-1921 but one should be occurring today or, conversely, suppose that for every one accident that occurred in 1919 two should be occurring today, what would be the effect on the workmen's compensation experience? The answers are obvious. Under the method employed during the last general revision a loss ratio was used as the measure of the trend of experience. Loss ratios do reflect changes in accident rate as well as every other element effecting compensation cost, and at least to that extent does it seem to the writer that a loss ratio is a better criterion or, what should amount to the same thing, that a gross pure premium is a better criterion of a proper rate level than a consideration of only two of the several important factors which in combination, produce workmen's compensation experience. The most obvious improvement over the proposed system would therefore be to develop some mature experience—some block of business representative of the current period, the examination of which might reveal at least, the trend of accident rate, if it were still desirable to treat payroll and losses separately for wage levels and amendments.

If all policies were written on January 1 of a given year for a period of six months, then by October 30 of that year premiums would be audited and losses developed enough to produce a loss ratio or a pure premium which would be clearly indicative of the quality of the business during the first six months of that same year. Allowing another three months for the compilation of data, rates could be established at the beginning of the following year with a gap between the actual experience and the effective date of the new rates of not more than six months. This of course is purely visionary, but how nearly can it be approached in reality? There seems to be at least one simple solution. Why not include in the Workmen's Compensation Statistical Plan some means of allocating experience to the year and month of issue of the policy? If every unit of exposure carried the effective month and year of the policy and every loss unit carried the same date then, allowing three months in which to obtain audits and to develop losses, on April 30 of each year the experience of the policies written in January of the preceding year could be segregated and a block of experience obtained, mature and complete, which would be a substantial index of the quality of the business and the result of business conditions during that entire year. As the months passed succeeding blocks of business could be obtained and trends observed. Current observations of this experience would undoubtedly disclose necessities for rate level modifications very promptly after conditions making such modifications necessary had developed.

There is another phase of manual rate making that has disclosed itself recently and which seems to demand as serious consideration as the question of rate level in the aggregate. It is generally recognized that the classification system of compensation rates is not adequate for properly differentiating between the hazards of different individual risks. Consideration of this problem, however, has always been limited to industrial groups. Manual rates have been established for groups of risks defined by manual classifications and all risks qualifying under one classification as to product or process have received one manual rate. It is characteristic of American industries that distinctly different methods are applicable in the manufacture of large quantities of goods than are practicable in the manufacture of comparatively small quantities. Plant organization and efficiency are given much more serious consideration in a large organization than in a small one. These things must have their effect. To be sure, the desired effect is the most economic production of goods, but it is possible that one of the elements of the reduction in cost is the reduction in the number of accidents and a corresponding reduction in time lost because of the confusion that must accompany the replacement of experienced and skilled workers by inexperienced and unskilled ones. It is conceivable then that risks of certain sizes as measured by premiums may present by virtue of that size itself a hazard entirely different from that of risks in the same manual classification but of different size. If this can be demonstrated, then equitable treatment of policyholders demands a recognition of this particular difference in hazard in just as substantial a way as does the difference in industrial hazards by virtue of differing products and processes.

At the present time the Workmen's Compensation Statistical Plan does not provide for the segregation of experience along these lines. It has been suggested from time to time but has always met with objections which seem to preclude the possibility of its acceptance. The usual objection has been that the size of a risk is impossible of ascertainment until after the final audits are made. This has seemed to be valid because of the fact that during the life of the policy all of the losses would have occurred and would have been assigned to their proper classifications and those of them which had been closed would have been finally recorded and disposed. This, of course, does not imply that the records would be unavailable but, admittedly, the labor involved in reviewing every unit of exposure and every unit of loss after the final audit for the purpose of segregating experience by size of risk would be tremendous and far too costly to warrant its inclusion in the statistical plan. The first obstacle to be surmounted then is that of the establishment of some means of this segregation at a point in the statistical procedure which would permit of its application as soon as the policy is written and the first statistical records entered, that is, before any cards are punched either for exposure or losses. It seems obvious that if the suspected difference in hazards in certain groups of risks, measured by their size, exists this difference must be a progressive one and would not appear in a sharply defined manner at any specific point. This very fact seems to offer a cue as to the statistical method of obtaining the desired results. If, whenever a risk is accepted by the carrier, the best estimate possible is made of its expected size for the year, and if this risk throughout the course of statistical records should carry some code indicative of its estimated size, then at the end of the year or after the experience has completely matured it would be possible to segregate the entire exposure for the policy year and the entire losses for the policy year into groups by estimated size of risk. Would it matter if a risk estimated at \$500 should develop to \$750? The losses for that risk would be included with the exposure and at least there would be available the experience on a group of risks of approximately the same size including every dollar of premium and every dollar of incurred loss. The range of risks within one group might, and undoubtedly would, overlap the range of the risks placed in the next higher group, but at least there would be a pure loss ratio available for a certain group of risks at a certain average size and, if there should be found to be a difference in the hazards of risks by various sizes, this method would show it clearly both quantitatively and qualitatively.

The two suggestions set forth in this very brief paper seem to possess such potential possibilities that the writer urges their most serious consideration by those upon whose judgment the future of workmen's compensation insurance depends.